



Value Co-Creation Through Digital Technology in Developing Economies: Reflections from Indonesian Agri-Food E-commerce Chain

By

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Abstract

Value co-creation (VCC) has supported the expansion of research in marketing by embracing service innovation within the digital-driven era. However, a small number of studies provide a comprehensive examination of VCC through digital technology from the perspective of multiple local market actors at developing economies at the bottom of the pyramid (BOP) market. This research explores the role of digital commerce in VCC with the empirical focus on the Indonesian horticulture industry, moving towards e-commerce for marketing innovation. This research aims to: (1) explore VCC manifestation within the local BOP market, (2) discover the role of e-commerce in the exchange process of co-creation at the local BOP market, (3) explore the dimensions of VCC of engagement amongst the local e-commerce supply chain actors of BOP, and (4) investigate the causes and effects of customer engagement to VCC of using e-commerce in this marketplace. This research adopted a mixed-method approach of qualitative semi-structured interviews and a quantitative survey. VCC identified as occurring in a newly emerging e-commerce marketing channel via the interaction amongst channel members. Inclusive, collaborative, and empowerment ideology contribute to market scripting scenario by local entrepreneurs who identify as ‘socio-entrepreneurs’. This research argues that the exchange logic underpinning this new transformative business approach of digitally enabled VCC in local BOP markets is akin to a ‘social justice logic’. For consumers, digital technologies create online ‘consumption communities’ where information is exchanged concerning product provenance and food preparation opportunities supporting online purchases and innovation in value chain ‘pull’ strategies. The research indicates that customer VCC behaviour was influenced by the significant effects of customer-related VCC resources of social expertise and openness, customer motivation, and its effects on value-in-use, willingness-to-engage, positive emotions, and behavioural intentions. Finally, the results highlight the moderating role of customer age and the length of engagement in VCC processes on these relationships.

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Table of Contents

Abstract	i
Acknowledgement	ii
List of publications	iii
Table of contents	iv
List of tables	ix
List of figures	xi
List of abbreviations	xii

Chapter 1. Introduction

1.1 Introduction	1
1.2 Research Background	1
1.3 Research Objectives	4
1.4 Overview of Research Methodology	6
1.5 The Expected Output and Contributions	6
1.6 The Organisation of the Thesis	8

Chapter 2. Empirical Study on Case Selection

2.1 Introduction	12
2.2 Research Context	12
2.3 Indonesia as the Bottom of the Pyramid (BOP) Market	12
2.4 Indonesia Economic Snapshot	14
2.5 Indonesia Governmental Support	15
2.5.1 Indonesia Government Policy for the Agri-food Industry	15
2.5.2 Indonesia Government Policy for ICT and E-commerce Development	16
2.6 Agri-food Grocery Market Channel Development in Indonesia	17
2.6.1 Traditional Market	17
2.6.2 Modern Conservative Brick and Mortar Stores	18
2.6.3 New Digital Chains of E-commerce Channels	19
2.7 Market and Consumer Snapshot	20
2.7.1 Agri-food Market Potentials	22
2.7.2 Horticulture Industry and Vegetable Commodities Potential	22
2.7.3 Food Consumer Behaviour	25
2.8 Digital Technology Development in Indonesia	27
2.8.1 Digital Technology for Commerce	27
2.8.2 Digital Savviness of Indonesian Consumers	28
2.9 Chapter Summary	29

Chapter 3. Literature Review

3.1	Introduction	31
3.2	VCC Concept	31
3.2.1	Definition of VCC	34
3.2.2	"Value": A Historical Introduction	37
3.2.3	VCC as the S-D principle	39
3.3	VCC Resources	43
3.4	VCC Motivations	45
3.5	The Role of Actors in VCC	49
3.6	The Components of VCC Manifestation	52
3.6.1	Co-Production	54
3.6.2	Value-in-use (ViU)	55
3.7	Chapter Summary	57

Chapter 4. Research Gaps and Formulation of Research Questions

4.1	Introduction	59
4.2	VCC and the Developed Economy Markets	59
4.2.1	VCC and Digital Technology at the Developed Economy Markets	60
4.3	VCC and the Developing Economy Markets	61
4.3.1	VCC and Digital Technology in the Developing Economies	63
4.3.2	VCC Facilitators and Actors in the BOP Markets	65
4.3.3	VCC and the BOP: Ideological Approaches	67
4.4	VCC Process	71
4.4.1	VCC Processes Based in Developed Economies	72
4.4.2	VCC Processes Based in Developing Economies	78
4.5	VCC and the Agri-food Industry	81
4.5.1	VCC, Collaboration, Innovation, and Competitiveness in the Agri-food Sector	82
4.5.2	VCC, the Agri-food, and Developing Economies	83
4.5.3	VCC, the Agri-food, and Digital Technologies in the Developing Economies	86
4.6	Research Gaps and Formulation of Research Questions	87
4.6.1	Gap 1: The manifestation of VCC Within the Local Agri-food Chain Level..	88
4.6.2	Gap 2: VCC Dimensions and Processes	89
4.6.3	Gap 3: VCC and the Modern Agri-food Development	91
4.7	Chapter Summary	93

Chapter 5. Research Methodology

5.1	Introduction	95
5.2	Research Philosophy and Interpretation	95
5.2.1	Pragmatism	97
5.3	Research Approach	100
5.4	Research Design	101
5.5	Approaches to Analysis	105
5.6	Research Context for the Empirical Studies	108
5.7	Chapter Summary	109

Chapter 6. Study 1: The Role of Agri-food E-Commerce in Value Co-Creation in the Bottom of the Pyramid (BOP) Market

6.1	Introduction	111
6.2	Research Questions for the Qualitative Research	111
6.2.1	VCC, the BOP, and Local Businesses	112
6.2.2	VCC, the BOP, and Digital Technology	113
6.2.3	VCC Process, the BOP, Innovation, and Agri-food Sector	114
6.2.4	Customer VCC, Small Businesses, and Agri-food Digital Commerce	117
6.2.5	Summary of the Research Framework	119
6.3	Qualitative Research Methodology	119
6.3.1	Semi-structured In-depth Interviews	120
6.3.2	Data Collection Approach	121
6.3.2.1	Sampling Selection	121
6.3.2.2	Sample Size	126
6.3.2.3	Interview Procedure	128
6.3.2.4	Interview Guides	130
6.3.3	Data Analysis Approach	133
6.3.4	Evaluating Trustworthiness of the Research	134
6.4	Findings	137
6.4.1	Key Participants' Business Characteristics	137
6.4.2	Vegetable Supply Chain Channels	138
6.4.2.1	Traditional Market Channels	139
6.4.2.2	Modern Conservative Channels	140
6.4.2.3	Digital Commerce Channels	140
6.4.3	Digital Technologies as a Strategic Enabler: The Emergence of Agri-food E-commerce Channels	144
6.4.4	VCC Within A Market-Scripted Social Justice Logic	147
6.4.5	The Dimension, Processes, and Practices of VCC in E-commerce Channels	148
6.4.5.1	Inclusive Business and Collaboration	148
6.4.5.2	Interactive Communications	150
6.4.5.3	Fair Trade Practices	151
6.4.5.4	Innovation and Competitiveness	152
6.4.5.5	VCC innovation benefits	152
6.4.6	Customer VCC through the Agri-food E-commerce: The Determinants and Outcomes	155
6.4.6.1	Customer-Related VCC Resources	156
6.4.6.2	Customer VCC Motivations	158
6.4.6.3	Customer VCC Behaviour	159
6.4.6.4	Customer Value-in-Use (ViU)	162
6.4.6.5	Willingness-to-Engage	163
6.4.6.6	Customer Positive Affectivity	164
6.4.6.7	Usage Continuation Intentions	165
6.4.6.8	WoM Intentions	166
6.5	Chapter Summary	167

Chapter 7. Study 2: Customer Value Co-Creation through Agri-food E-commerce Amongst Indonesian Urban Consumers

7.1	Introduction	169
7.2	Theoretical Background and Hypothesis Development	170
7.2.1	Consumer-Related Resources in VCC	170
7.2.1.1	Customer Social Expertise and VCC Behaviour	171
7.2.1.2	Customer Openness and VCC Behaviour	173
7.2.1.3	Customer-Related Resources and Willingness-to-Engage	174
7.2.2	Customer VCC Motivation	175
7.2.2.1	Customer VCC Motivation and VCC Behaviour	177
7.2.2.2	Customer VCC Motivation and Willingness-to-Engage	178
7.2.2.3	Customer VCC Motivation and Positive Affectivity	179
7.2.3	Customer VCC Behaviour, ViU, and Behavioural Responses	179
7.2.3.1	Customer VCC Behaviour and ViU	181
7.2.3.2	Customer VCC Behaviour and Willingness-to-Engage	182
7.2.4	Customer ViU and Behavioural Responses	183
7.2.4.1	ViU and Willingness-to-Engage	185
7.2.4.2	ViU and Positive Affectivity	186
7.2.4.3	ViU and Channel Usage Continuance intentions	187
7.2.5	Customer Behavioural Intentions as VCC Consequences	188
7.2.5.1	Customer VCC Behaviour and Behavioural Intentions	189
7.2.5.2	Behavioural Responses and Behavioural Intentions	190
7.2.6	The Role of Length of Engagement in VCC Processes and Customer Age in VCC	191
7.2.6.1	The Length of Engagement in VCC Processes	191
7.2.6.2	Customer Age	194
7.3	Quantitative Research Methodology	197
7.3.1	Surveys	197
7.3.2	Sampling Design Process	200
7.3.2.1	Target Population	200
7.3.2.2	Sampling Frame	202
7.3.2.3	Sampling Methods	202
7.3.2.4	Sample Size	205
7.3.2.5	Questionnaire Design	206
7.3.2.6	Data Collection Execution	207
7.3.3	Data Analysis	213
7.3.3.1	Examining Data Suitability for the SEM	215
7.3.3.2	Confirmatory Factor Analysis (CFA) for the Measurement Model	216
7.3.3.3	Common Method Bias (CMB)	219
7.3.3.4	Testing for the Structural Model in SEM	221
7.3.3.5	Advanced Analysis: Moderation Analysis	224
7.4	Conceptual Framework	227
7.5	Results	231
7.5.1	Data Screening Results	231
7.5.1.1	Univariate Data Screening	231
7.5.1.2	Multivariate Assumptions Test	232
7.5.2	Descriptive Analysis	232
7.5.3	Confirmatory Factor Analysis (CFA) Results	235
7.5.3.1	CFA Model Fit Results	235
7.5.3.2	CFA Validity and Reliability Results	237
7.5.4	Common Methods Bias (CMB) Results	239
7.5.4.1	Procedural Approach to CMB	239
7.5.4.2	The Statistical Approach to CMB	240

7.5.5	Structural Model Results	241
7.5.5.1	Testing for Direct Effects	242
7.5.6	Post-hoc Statistical Power for Direct Effect	246
7.5.7	Moderation Analysis Results	247
7.5.7.1	Structural Model Comparison Results	247
7.5.7.2	Testing for Moderation Effects for the Length of Engagement in VCC Processes	249
7.5.7.3	Testing Moderation Effects for Customer Age	252
7.6	Chapter Summary	254

Chapter 8. Discussion

8.1	Introduction	256
8.2	Research Findings Elaborations	257
8.2.1	Transformational VCC Within the E-commerce Chain	258
8.2.2	The Role of E-commerce in the VCC process at the Local Network of the BOP	260
8.2.3	The Underlying VCC Dimensions of Engagement Among Supply Chain Actors at the BOP	262
8.2.4	Customer Involvement in VCC Through Digital Technology and Its Behavioural Consequences	265
8.2.4.1	Customer VCC Drivers, Behaviours, and Manifestation When Using the E-commerce	268
8.2.4.2	Customer VCC Behavioural Consequences of Using E-commerce	272
8.2.4.3	The Moderating Effects of the Length of Engagement in VCC Processes and Customer Age on Customer VCC Facilitated by E-commerce	278
8.4	Chapter Summary	282

Chapter 9. Conclusion, Limitations, and Future Research

9.1	Introduction	284
9.2	Thesis Contributions	284
9.3	Managerial Implications	290
9.4	Policy Implications	291
9.5	Limitations and Future Research	292

References	298
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Appendices

Appendix A: Summary of Literature Review

Table 1. Studies on VCC in The Marketing Field	345
Table 2. VCC at the Developed Economy Markets	348
Table 3. VCC at the Developing Economy Markets	353
Table 4. Research on VCC in the Agri-food Sector	363

Appendix B: Qualitative Interview Participants' Profile

Table 1. Interview Participants' and Their Business Marketing Profile	370
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Appendix C: Qualitative Interview Documents

Exhibit 1. Participant Information Sheet	373
Exhibit 2. Consent Form	375
Table 1. Interview Guide	376

Appendix D: Survey Questionnaire

Exhibit 1. Survey Questionnaire (English Version)	379
Exhibit 2. Survey Questionnaire (Bahasa Indonesia Version)	389

List of Tables

Table 1.1	The organisation of the thesis	10
Table 2.1	Annual growth of agriculture market indicators per sub-sector in West Java in 2016 – 2018	24
Table 3.1	The development of definitions to VCC (2004 – 2020)	35
Table 3.2	Value terminology	38
Table 4.1	Research movements on VCC and digital technologies at developing economies	64
Table 4.2	Co-creation initiator and/or actors at the BOP	66
Table 4.3	The approaches to the BOP	69
Table 4.4	VCC process at the developed economy markets	74
Table 4.5	VCC process at the developing economy markets	80
Table 5.1	Comparison of five major research philosophies in business and management studies	99
Table 5.2	Typology of Mixed Methods Designs	103
Table 5.3	Summary of research components of the exploratory sequential mixed methods	106
Table 5.4	The outline for empirical studies using exploratory sequential mixed methods	107
Table 6.1	Interview participants categories and location	123
Table 6.2	The participant criteria eligibility	125
Table 6.3	The interview participants' profile	127
Table 6.4	Interview questions to the research questions	131
Table 6.5	Trustworthiness assessment	136
Table 6.6	Business characteristics of the interview participants	138
Table 6.7	The comparison of traditional food channels vs modern conservative brick and mortar stores vs agri-food e-commerce channels	142
Table 7.1	Scale wordings and sources	209
Table 7.2	Construct name, development, definition, and interpretation in the study	229
Table 7.3	Multicollinearity test results	232
Table 7.4	Socio-demographic information	234
Table 7.5	Confirmatory Factor Analysis (CFA) model fit	235
Table 7.6	Confirmatory Factor Analysis (CFA) validity and reliability check	236
Table 7.7	Items, loadings, and Cronbach's alpha coefficient	238
Table 7.8	The indicated factors that increase method bias and potential remedies to respond accurately	239
Table 7.9	Common methods bias test	240
Table 7.10	Structural Equation Model Fit	242
Table 7.11	R-square statistics for the structural model	242
Table 7.12	The results of hypotheses testing	244
Table 7.13	Grouping the samples for moderation analysis	247
Table 7.14	Summary results on tests of Structural Invariance regular consumers versus first-time consumers	248
Table 7.15	Summary results on tests of Structural Invariance for adults versus young adults	249
Table 7.16	Testing moderation effects for the length of engagement in VCC processes	251
Table 7.17	Testing moderation effects for customer age	253

List of Figures

Figure 1.1	Overview of the research design	8
Figure 2.1	Average monthly net wage by sector in Indonesia as of August 2019	13
Figure 2.2	Traditional wholesale markets system in three agri-food market areas in Indonesia	21
Figure 2.3	Top 10 high-value vegetable production in five horticulture production centres in Indonesia (2016 – 2019)	23
Figure 2.4	Top five categories of increased consumer spending	29
Figure 3.1	The marketing paradigm shift	40
Figure 5.1	Research framework with the exploratory sequential mixed methods	105
Figure 6.1	Qualitative research framework	119
Figure 6.2	Market structure development of agri-food channels in Indonesia	122
Figure 6.3	Interview participant categorisation	124
Figure 6.4	Sampling selection	129
Figure 6.5	Co-creation practices and benefits across the agri-food e-commerce chain	153
Figure 7.1	Conceptual framework of customer VCC through the agri-food e-commerce	228
Figure 7.2	The SEM results of the structural model	243
Figure 8.1	Co-creation facilitation by the local agri-food e-commerce at the BOP	261
Figure 8.2	E-commerce for a transformative co-creation model at the local level of a BOP	264

List of Abbreviations

AVE	Average Variance Extracted
A2A	Actor-to-Actor
BOP	Bottom of the Pyramid
BPS	Badan Pusat Statistik
B2B	Business-to-Business
B2C	Business-to-Customer
CB-SEM	Covariance-Based Structural Equation Model
CEO	Chief Executive Officer
CFA	Confirmatory factor Analysis
CFI	Comparative Fit Index
CMB	Common Methods Bias
CR	Composite Reliability
C2C	Customer-to-Customer
ERBT	Extended Resource-Based Theory
FAO	Food and Agriculture Organisation
FMCG	Fast-Moving Consumer Goods
GDP	Gross Domestic Product
G-D	Goods-Dominant
GFI	Goodness-of-Fit Index
GOF	Goodness-of-Fit
ICT	Information and Communication Technologies
IDR	Indonesian Rupiah
IT	Information Technology
IoT	Internet of Things
IP	Internet Protocol
LTE	Long Term Evolution
LMIC	Low-Medium Income Countries
MAC	Middle-class and Affluent Consumer

MCFA	Multi-Sample Confirmation Factor analysis
ML	Maximum Likelihood
MNC	Multinational Companies
MSME	Micro, Small and Medium Enterprises
NGO	Non-Governmental Organisation
NFI	Normed Fit Index
RBT	Resource-Based Theory
RPJPN	Rencana Pembangunan Jangka Panjang Nasional
RMSEA	Root Mean Square Error of Approximation
RMR	Root Mean Square Residual
RNI	Relative Non-centrality Index
R&D	Research and Development
SME	Small and Medium Enterprises
SRMR	Standardised Root Mean Square Residual
SEM	Structural Equation Modelling
S-D	Service-Dominant
TF	Totally Free
TLI	Tucker Lewis Index
ULMC	Unmeasured Latent Method Construct
US	United States
VCC	Value Co-Creation
VIF	Variance Inflation Factor
ViU	Value-in-Use
WoM	Word-of-Mouth

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CHAPTER 1 – INTRODUCTION

1.1 Introduction

This thesis examines the role of digital technology in promoting value co-creation (VCC) in the agri-food sector in developing economies that have a Bottom of the Pyramid (BOP) market. The emergence of food e-commerce amongst local businesses operating in Indonesia's vegetable supply chain provided the empirical focus for investigating VCC practices from both business and consumer perspectives. This introductory chapter provides the research background (Section 1.2), the research objectives (Section 1.3), an overview of the research design (Section 1.4), the expected outcomes, an overview of research contributions (Section 1.5), and the structure of this thesis (Section 1.6).

1.2 Research Background

The rise of digital technology, which has been enabled by the worldwide penetration of internet usage and the adoption of information and communication technologies (ICTs), has facilitated socio-economic development and improved the quality of people's lives (Breidbach & Maglio, 2016; Dey et al., 2019; Rayna & Striukova, 2016). Technological innovations such as the Internet have impressively increased the number of technology-savvy consumers (Papagiannidis et al., 2017; Yarimoglu, 2017), industries and companies (Jayashankar et al., 2020; Kozinets, 1999). This digital technology innovation has radically changed the exchange interactions and communications of business-to-business (B2B) (Jayashankar et al., 2020; Komulainen, 2014), business-to-customer (B2C) (Campbell et al., 2013; Watanabe, 2020), and also customer-to-customer interactions (C2C) (W. Liu et al., 2020; Rose et al., 2012). Digital technologies have enabled actors to exchange resources through a virtual instead of a physical interface when co-creating value (Breidbach & Maglio, 2016; Davis et al., 2011). Technology and innovation contribute to faster VCC processes and have accelerated the role of both business providers and customers as value co-creators (Borges et al., 2016).

VCC occurs to meet customer expectations (Kijima et al., 2014) and deliver fruitful relational exchanges for businesses (Watanabe, 2020). In particular, the VCC concept thrives amongst technologies such as big data (Jayashankar et al., 2020; Xie et al., 2016), the Internet

of Things (IoT) (Balaji & Roy, 2017; Lindhult et al., 2018) and machine learning (Nikolay et al., 2011; Pandey et al., 2020). This technology improvement shows that the triggers to VCC concept advancement occurred within advanced technologies that support the opportunity of new service innovation (Lindhult et al., 2018). Developed economies are experiencing more research in service innovation by incorporating the concept of value within economic development through becoming more capital- and technology-intensive (Gallouj & Savona, 2009; Ramaswamy & Ozcan, 2018; Toivonen & Tuominen, 2009). VCC developments within advanced technologies enable a more mature service system ecosystem, such as those within most Global North markets. By contrast, technology adoption and applications in developing countries and the BOP require technology infrastructure upgrades (Dey et al., 2019), technology integration with local engagement (Dwivedi, 2015), and the role of information technology (IT) for inclusivity (Howell et al., 2018). This shows that digital technology has been central to VCC research amongst developed-country scholars and only partially understood within a developing economy context.

Developing economies and BOP markets provide commercial opportunities and economic growth potential (Prahalad & Hammond, 2002) and show emerging technology applications (Protopop & Shanoyan, 2016). In these markets, VCC, which typifies the Service-Dominant (S-D) logic, has been identified as having the potential to alleviate poverty and support sustainable development (Facca-Miess & Santos, 2014; Simanis et al., 2008; Weidner et al., 2010). The VCC shows the movement in the S-D logic. It has been inspiring scholars to expand service and marketing research. However, empirical insights into VCC processes applied to these markets are limited. Although the BOP, for example, displays a relatively large size and resource constraints, it offers a digital optimism (Prahalad, 2004) and potential catalysts for innovation and the co-creation process (Prahalad, 2004, 2012). Digital technologies which have radically changed buyer-seller interactions and communication (Raheem et al., 2019), and which are viewed as an enabler of new service innovations and VCC (Lindhult et al., 2018; Prahalad, 2012), are also under-researched in this context (Dey et al., 2019; London & Hart, 2004; Prahalad, 2012). VCC in developing economies and the BOP can not only produce economic benefits but also have a social impact, such as equity in the marketplace and equity in the exchange between members of a community (Kennedy & Santos, 2019; Khalid & Seuring, 2019; Santos et al., 2015).

To date, empirical studies have predominantly focused on the market entry strategies of multinational corporations (MNCs), such as in BOP markets, with limited VCC analysis

between local actors. The focus on the local actors taken for this research has a significant role in driving sustainable development in developing economy markets (Khan, 2016; Knizkov & Arlinghaus, 2019), and research on their role in VCC is scarce (Dey et al., 2019; London & Hart, 2004; Prahalad, 2012). MNCs may have the technological know-how for engaging in VCC, but local companies have established networks and business infrastructure (Prahalad, 2012).

Research on digital technology use in the agri-food industry in developing economy markets is also limited (Dey et al., 2019). Some research includes smart agriculture and big data technology applications, which offer the opportunity to enhance efficiency and a new avenue for co-creation (Jayashankar et al., 2020; Protopop & Shanoyan, 2016; Wolfert et al., 2017). Food retailing is also experiencing digital evolution, such as e-commerce, which has changed the business environments and relationships in a new direction for the agriculture business and marketing (D. Lee et al., 2015; L. Lu & Reardon, 2018). Researchers have shown that VCC in the agriculture context has shifted the business environment and contributed to the marketing perspective and applications, but such work has rarely been conducted within the agri-food sector of the developing economy markets (see Chapter 4). More research is required in this area of knowledge.

This research uses the agri-food sector as the case selection because of its huge contribution to most developing countries' economies. However, the agricultural actors in developing countries, such as farmers, are mostly smallholders who own small family farms. They are part of the rural population and reside at the BOP (Devaux et al., 2018; Tang, 2018), while the final chain of many agri-food products is urban dwellers. This situation is influenced by urbanisation and globalisation. Global agricultural market has expanded the agri-food retailer's concept of value (Cucagna & Goldsmith, 2018; Simon, 2008), including how to link the production and marketing of products with consumer values (Ariyawardana & Collins, 2012; Macharia et al., 2013).

This research, therefore, aims to explore and investigate the role of digital technology, mainly e-commerce, to facilitate VCC within a developing economy that also consists of a significant BOP market. This research addresses the research gaps concerning (1) the VCC processes manifested by local organisations in BOP markets, (2) the role of e-commerce in the exchange process at the BOP amongst local actors, (3) the underlying dimensions of VCC that can facilitate the interaction among the local supply chain actors at the BOP, and (4) the causes

and effects of customer VCC regarding their involvement (process and practices) in the virtual environments based on their shared experience using the local e-commerce in a developing economy context. A new business orientation between actors in an agri-food e-commerce marketing channel and customer involvement in the business process have been identified. Mixed-method research into fresh produce (i.e., vegetable) marketing channels in Indonesia was employed to examine VCC and the associated business model amongst local market actors. The results indicated that B2B collaboration could be defined as a 'social justice' dominant logic, and B2C relationships involve customer engagement in virtual environments. This social justice logic was nascent within the literature, with scholars arguing for VCC to contribute to the social as well as economic benefits in marketing transactions and the exchange process at the BOP (e.g., Kennedy & Santos, 2019; Khalid & Seuring, 2019; Santos et al., 2015).

Moreover, in developing economies, consumers show their interest in new ways of food shopping using e-commerce, such as purchasing food groceries. Digital technology provides more than just transactional marketing (as typically adopted by traditional retailers or even supermarkets). Food groceries based digital technology offers more relational marketing for mutual benefits (of both the seller and buyer). Thus, this research took a critical marketing stance by de-centring the received views of 'Western' or 'Global North' competitive strategy thinking in this new approach to the framing and analysis of VCC within the local business actors of developing economy markets. The research also includes how local e-commerce supports consumer needs and the adjustments to shopping behaviour in this digital era. Local e-commerce has developed strategic operating models that propose solutions involving all actors in the local networks (from smallholder farmers to consumers).

1.3 Research Objectives

To address the research aim, this study explored the role of digital technology that facilitates VCC by focusing on the vegetable e-commerce channel in Indonesia, a developing economy market. By echoing the VCC concept based on the marketing approach, this research emphasised the exploration and investigation of co-creating and communicating value as the basis of exchange interactions in B2B and B2C marketing. This broad purpose of the research was designed to investigate the manifestation of VCC based on digital technology transformation and utilisation in Indonesia's agriculture sector to reflect a developing economy and BOP market. Technology can function as the medium for the co-creation of value through stakeholders' participation (Agrawal et al., 2015). However, there is a lack of understanding

about how VCC operates within local networks in developing economies and the BOP (Goyal & Sergi, 2015; Kolk et al., 2014; Pansera & Martinez, 2017). The knowledge gap relating to such conditions in which digital technology used to facilitate VCC in developing economies may be explored led to four research objectives.

Objective 1: To explore the manifestation of VCC initiated by the local organisations within the home BOP, specifically to investigate the value underpinning the exchange approach and the principles of interaction.

The first objective was explored through qualitative research discussed in Chapter 6. Digital technology performs as the instrument enabling VCC of multiple actors within the local network and possibly resulted in B2B or B2C, as outlined in Chapters 6 and 7. This first objective focused on how VCC occurs and is initiated by local BOP business providers, which could affect the exchange relationships of the parties involved.

Objective 2: To explore the role of e-commerce in VCC within local supply chains at the BOP.

Similar to the first objective, the second objective was investigated through the qualitative study discussed in Chapter 6. This research objective provides a broader understanding of the role of digital technology in agri-food retail development by facilitating business model innovation and enabling co-creation activities at the BOP. Here the conceptualisation of VCC through digital technology at the BOP was presented through an analysis of VCC processes, dimensions, and mechanisms.

Exploring the role of digital technology in the agri-food sector within the home BOP network required the identification of the dimensions that influence the success of VCC initiatives amongst the local business actors at the BOP.

Objective 3: To discover the underlying dimensions of the VCC process and practices of engagement among supply chain actors at the BOP.

The third objective was explored through a qualitative study and is discussed in Chapter 6. Findings from the literature and the qualitative study provided the conceptual foundation for the second empirical, quantitative study, which investigated VCC from customer perspectives (see Chapter 7). This study examined the causes and effects of customer VCC on using agri-food e-commerce in a developing country. Thus, the last objective of this research is:

Objective 4: To examine the antecedents and impacts of customer VCC using agri-food e-commerce in a developing economy market.

1.4 Overview of Research Methodology

To achieve the research objectives, a mixed-methods approach employing sequential data collection was developed (Creswell, 2014). This involved collecting qualitative exploratory data using in-depth interviews, the findings from which developed the framework for the quantitative surveys. The methodology was undertaken with a pragmatist philosophy (Saunders et al., 2007), which mixed methods typically rely on (Creswell, 2014; Harrison, 2013; Harrison & Reilly, 2011). During the exploratory research, in-depth interviews were conducted with 20 participants, who were business actors primarily involved in the agri-food e-commerce chain (primarily vegetable commodities) in Indonesia. Afterwards, a customer survey based on the qualitative findings and literature review was conducted via an online questionnaire using the Qualtrics platform with 441 respondents to test the conceptual model. Thematic data analysis for qualitative research was processed using NVivo12, while the quantitative data was processed in IBM SPSS25 with structural equation modelling (SEM) using AMOS26 to test the hypotheses. An overview of the research design is presented in Figure 1.1. Further details of the research design and methodology are discussed in Chapter 5, but the methodology employed in each study is presented in Chapter 6 (qualitative) and Chapter 7 (quantitative).

1.5 The Expected Output and Contributions

The study investigates the interactions between the VCC concept, e-commerce as the representation of digital technology for business and marketing practices, and agri-food retail development. Based on the research objectives, the expected outputs of this research are to extend the discussions on the VCC concept enabled by e-commerce practices in the agri-food sector in a developing country. Digital transformation to facilitate VCC is manifested in various

business operating models, fast-changing consumer behaviour, and demand patterns. The consequences of digital technology usage are the focus of interest in this thesis. The findings from the exploratory qualitative interviews and the confirmatory quantitative survey study contribute to VCC research at the local level in a developing economy, related to how digital technology influences and affords advantages to local companies and how consumers benefit from the innovation. This research also potentially contributes to the literature concerning the transformational nature of VCC from a marketing perspective, agri-food marketing influenced by business digitalisation in a developing economy market, and consumer involvement in VCC enabled by e-commerce. The findings can be transferred beyond the context of the agri-food sector in Indonesia which represents a developing economy. Specifically, the outcomes can be also valid in developed economies are related to (1) digital technology applications for service innovation creation; (2) entrepreneurs with social justice values enabling ‘market scripting’ to empower local business networks; and (3) social enterprises and an overarching social justice ethos contribute to the success of VCC which in turn benefits the marketplace. Developed economies experiencing advanced digital technologies that enable a more mature service ecosystem and business practices related to technology which support opportunities for new service innovations, which is relevant to the first criterion. The idea of ‘market scripting’ based upon the social justice principle could also be applied by market actors who have the vision for the market and how it should be configured in collective sensemaking. This concept aimed to increase co-creation in networks and local business empowerment, which could be applicable for entrepreneurs in general. Social entrepreneurship based on social justice principles could also be relevant related to how the VCC concept is applied in businesses to a broader context due to the objective of this idea on proposing social embeddedness and authentic engagement with market actors in the networks. Thus, creating a fair and better marketplace benefits all stakeholders in the networks.

The study also makes practical contributions to various stakeholders within the local network of the developing country marketplace, such as small-medium agribusiness and social entrepreneurs, e-commerce practitioners, policymakers, and other stakeholder institutions (e.g., non-governmental organisations (NGOs), private sector organisations). Furthermore, this research attempts to provide policy implications related to agri-food retail development through e-commerce business practices. Hence, this research provides insights, contributes to the body of knowledge and has a practical and policy impact.

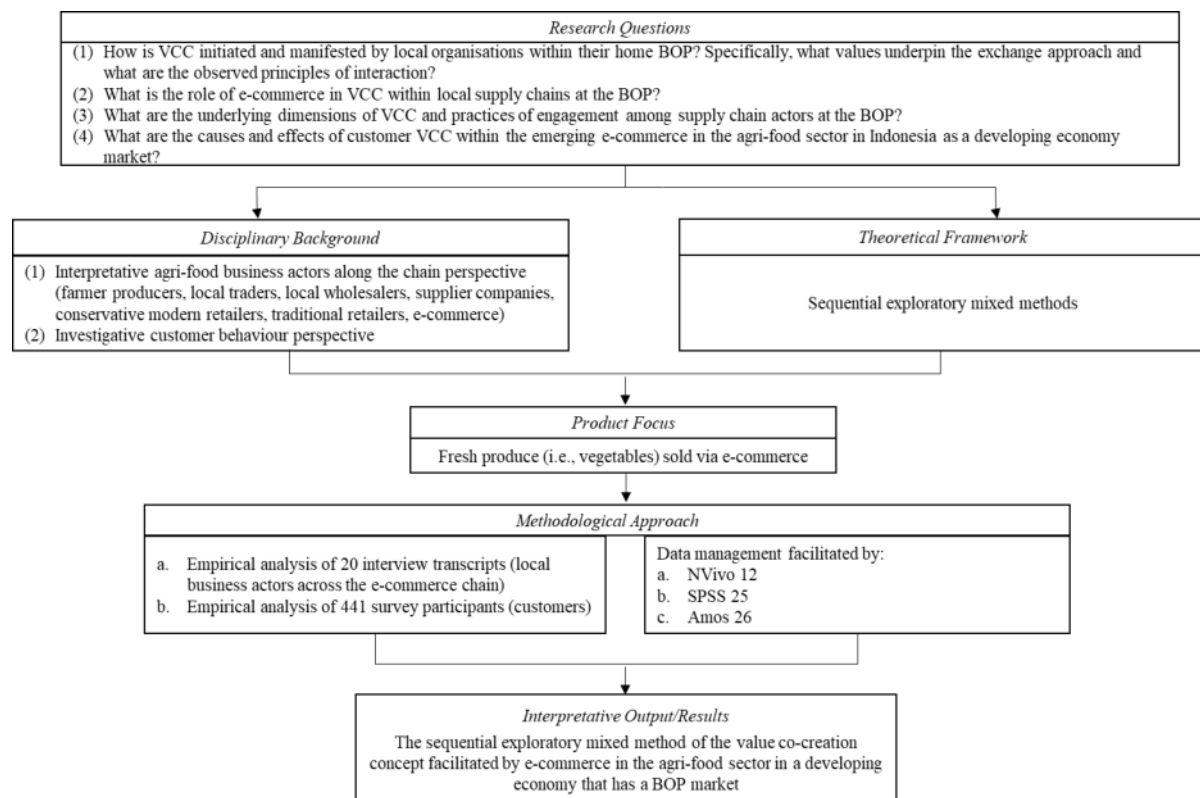


Figure 1.1 Overview of the research design

1.6 The Organisation of the Thesis

The thesis structure includes **nine** chapters (see Table 1.1). Following this first introductory chapter, Chapter 2 presents the research context of the agri-food industry in Indonesia and relevant information on Indonesia's market situation as a BOP and developing economy. Chapter 3 consists of a literature review and explains the research focus of the VCC concept and elements. This chapter elaborates VCC definitions, principles or paradigms, resources, motivations, the role of actors, and consequences. Chapter 4 identifies the research gaps and proposes the research questions, answered with a mixed-method approach that combines qualitative and quantitative research. Chapter 5 presents the methodology. It discusses and justifies the adopted research philosophy and the research approach of exploratory sequential mixed methods, including an outline of the sequence of empirical studies demonstrated in exploratory (inductive) research, followed by the confirmatory (deductive) research presented in this thesis. Thereafter, Chapter 6 presents the qualitative exploratory research stage, which comprises the research questions, the qualitative methodology and a justification of the method selection and procedures. This chapter presents and explains the research findings from the qualitative thematic analysis based on the in-depth

interviews with multiple vegetable supply chain actors, primarily involved in the e-commerce chain related to VCC practices indicated in the B2B and B2C relationships. Chapter 7 presents the second study, a quantitative confirmatory study, which begins with hypothesis development based on the indicative factors that influence customer VCC as discovered in the first qualitative research phase and combined with the theoretical background and literature review. This is followed by a description of the quantitative research method employed in this study. This chapter concludes with the research findings based on hypothetical testing using the SEM based on the survey of customers who use e-commerce to purchase vegetables. Chapter 8 discusses the research findings and presents the research contributions to the VCC concept, principles, processes, and digital technology utilisation practices in the agri-food industry in a developing and BOP market. Finally, Chapter 9 concludes the thesis by identifying the main contributions of this thesis, the limitations, and makes recommendations for future research.

Table 1.1 The organisation of the thesis

Chapter 1 – Introduction	Chapter 2 – Empirical Study of Case Selection	Chapter 3 – Literature Review
<p>1 The background of the study</p> <ul style="list-style-type: none"> □ VCC, developing countries, the BOP market and its relevance □ Digital technology, VCC and its effect on business markets and customers in the context of the agri-food industry <p>2 Overview of the research objectives</p> <ul style="list-style-type: none"> □ VCC promoted by digital commerce in the agri-food industry at the local level of developing economy market and its impact on business providers and customers <p>3 A general overview of the methodology</p> <p>4 Determining the expected output and contributions</p> <p>5 Overview of the thesis structure</p>	<p>5 A brief overview of the research context on the case selection</p> <ul style="list-style-type: none"> □ Understanding Indonesia as a developing economy and BOP market □ Acknowledging the position of Indonesia regarding economic situation, governmental support for the agri-food industry, ICT and e-commerce □ Recognising agri-food market channel development in Indonesia □ Recognising the Indonesia agri-food market potential related to the market and consumers □ Understanding digital technology development and digital savviness in Indonesia 	<p>6 Understanding the VCC concept (definition, logic/principle)</p> <p>7 The focus of VCC elements in the research</p> <ul style="list-style-type: none"> □ VCC resources □ VCC motivations □ The role of actors in VCC (B2B and B2C) □ The components of VCC manifestation (co-production, value-in-use)
Chapter 4 – Research Gaps and Research Questions	Chapter 5 – Methodology	Chapter 6 – Qualitative Research (Methods, Data Analysis and Results)
<p>8 The theoretical background of the research</p> <ul style="list-style-type: none"> □ The comparison between VCC concept and process in developed and developing countries and the BOP □ VCC in the agri-food industry <p>9 Identifying the research gaps discovered in the literature</p> <ul style="list-style-type: none"> □ The manifestation of VCC within the local level of the agri-food chain through digital technology □ VCC dimensions and processes □ VCC and modern agri-food chain development <p>10 Presenting the research questions that will be answered in the two studies of qualitative and quantitative research</p>	<p>11 Justifying the chosen pragmatism approach for research philosophy</p> <p>12 Describing the research approach by employing a mixed method with a combination of inductive and deductive approach</p> <p>13 Describing the choice of explanatory sequential mixed methods as research design</p> <p>14 Explaining the research components and the outline of the study following the explanatory sequential mixed methods</p> <p>15 The summary of the research context as the case selection for the empirical studies</p>	<p>16 Elaborating the specific research questions for qualitative explanatory research that focuses on VCC at the BOP facilitated by e-commerce in the agri-food industry taken from multiple business actor perspectives</p> <p>17 Describing qualitative research methodology: 20 semi-structured in-depth interviews with purposive and snowball sampling; interview procedures; thematic analysis for data analysis supported by the NVivo 12</p> <p>18 Presenting the fact-findings of the results, primarily on the B2B business operating model promotes VCC at the local network of a BOP, including developing the framework indicated for customer VCC that are examined in quantitative surveys (Chapter 7)</p>
Chapter 7 – Quantitative Research (Methods, Data Analysis, and Results)	Chapter 8 – Discussion	Chapter 9 – Conclusion, Limitation, and Future Research
<p>19 Elaborating the hypothesis development for the quantitative research that focuses on customer VCC using the food e-commerce amongst the urban consumers in Indonesia as the representation of a developing economy market</p> <p>20 Describing the quantitative research methodology: online surveys; sampling design process with 441 valid samples; SEM for empirical hypothesis testing; data analysis supported by SPSS25 and AMOS26</p> <p>21 Presenting the fact-findings of the results, mainly on the causes and effects of VCC and the post-hoc analysis using age and the length of engagement in VCC processes when using the food e-commerce amongst the urban customers</p>	<p>22 Discussion and the contributions of the study explicitly on the transformational VCC within the e-commerce chain; the role of e-commerce in the VCC process at the local network of the BOP, and the underlying VCC dimensions that influence the engagement of the e-commerce supply chain actors in the Indonesian BOP market</p> <p>23 Discussion and the contributions of the research related to customer VCC (customer-related resources, motivations, VCC behaviour, value-in-use, and behavioural consequences) and linked to the theory and research context of the urban consumer using food e-commerce in Indonesia, a developing economy market</p>	<p>24 Conclusion of the research and the theoretical implications (VCC at the local business network of a BOP, VCC process at the BOP, the dimensions supporting VCC practices at the BOP, and customer VCC using the local e-commerce at a developing country context) and the managerial implications (policy maker, NGOs, MSME producers, and e-commerce practitioners)</p> <p>25 Limitations and future research</p>

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CHAPTER 2 – EMPIRICAL STUDY ON CASE SELECTION

2.1 Introduction

The empirical focus of this thesis is the agri-food sector in Indonesia, which is an example of a developing economy that also consists of BOP markets. The primary research focused on the fresh produce market, particularly vegetables and their market channel development. After an introduction presented in Section 2.1, Section 2.2 explains the research context, followed by Section 2.3 with an overview of Indonesia as a BOP market. Section 2.4 analysis Indonesia's economic outlook followed by Indonesian government support related to the agri-food sector, ICT, and e-commerce development (Section 2.5). Section 2.6 analyses agri-food retail channel development in Indonesia, followed by Section 2.7 on the Indonesian market and consumer vegetable purchasing trends. Section 2.8 explains digital technology development in Indonesia by focusing on its use for commerce and consumer usage. Finally, the last Section, 2.9, provides the chapter summary.

2.2 Research Context

The empirical context for this research was the agri-food industry in Indonesia and specifically the vegetable supply chains and market channel transformation through digital technology implementation. As an agrarian country, the main economic contribution in Indonesia is from the agriculture sector. Although the agriculture sector is the primary source of employment in rural areas, poverty is most prevalent amongst rural people (Quincieu, 2015), hence, the Indonesian Government's focus on improving rural livelihoods (FAO, 2017).

2.3 Indonesia as a Bottom of the Pyramid (BOP) Market

A bottom of wealth pyramid (BOP) market has been described as one where people's cash income is less than USD3000 per year, of whom there are over four billion globally (Angeli et al., 2018; Srivastava et al., 2020). This BOP sector provided enormous commercial opportunities in contrast to the saturated market situation amongst high-income customers in Western and non-Western countries (Howell et al., 2018). The BOP markets in Asia, Africa,

Latin America, Europe, and the Caribbean provided segmentation opportunities (Guesalaga & Marshall, 2008) and represented multiple needs, capabilities, cultures, and literacy (Prahalad, 2012). The BOP has subsequently been revealed as a global source of competitiveness through its capability to create breakthrough innovation (Prahalad, 2012). Although transforming the BOP into profitable markets requires appropriate marketing intervention, it also helps alleviate poverty (Prahalad, 2004; Prahalad & Hammond, 2002).

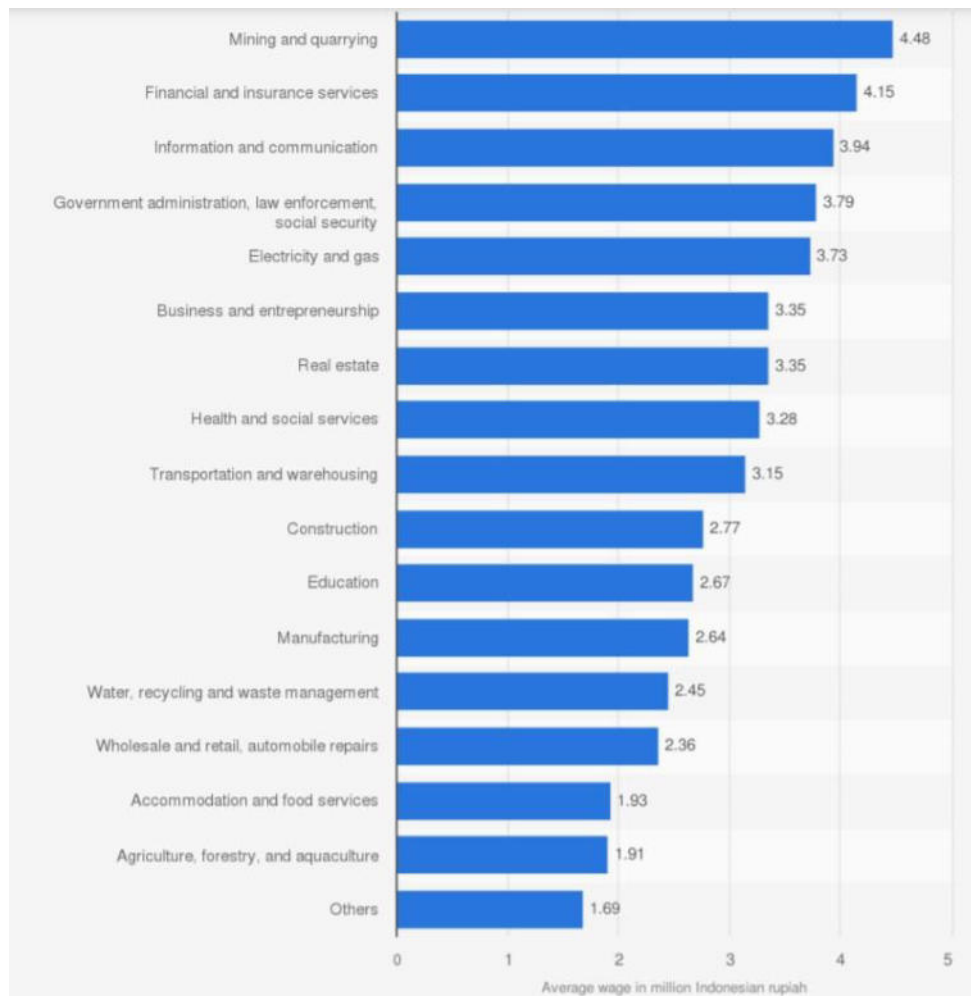


Figure 2.1 Average monthly net wage by sector in Indonesia as of August 2020

Source: Statista, 2021a

Indonesia has 264 million people and is the fourth most populated country globally, with approximately 20.2% of the total population belonging to the BOP in 2018 (World Bank, 2019). Although the country claims to be an agrarian country, the agriculture sector was the lowest compensating sector (see Figure 2.1). The average monthly net wage of the agriculture sector was about IDR 1.91 million (equivalent to £90.74) compared to other industries, such

as the mining and excavation industry with an average net wage reaching IDR 4.48 million per month (equivalent to £212.83) and serving as the highest paying sector in 2020 (Statista, 2021a). The data from the same source of Statista (2021a) reveals that the reversed situation showed the opposite of the number of people working in these two sectors. The data also showed that in 2020, Indonesia's agriculture sector employed 38 million workers, although the number has been steadily falling in the past few years (Statista, 2021a). The agriculture industry concentration is in rural areas, which generates a considerable disparity in purchasing power between the urban and rural populations. The situation gives effect to the discrepancy in wages and job quality while also substantially impacting poverty levels of the people in rural areas that facing a higher portion of the population living below the poverty line (Statista, 2021a).

2.4 Indonesia Economic Snapshot

As the world's 10th largest economy in terms of purchasing power, Indonesia serves as the largest economy in Southeast Asia (World Bank, 2019). Based on the McKinsey Global Institute market outlook in 2012, Indonesia is predicted to be the 7th largest economy globally and will serve as the most significant economy in Southeast Asia in 2030. The country has successfully overcome the financial crisis of the late 1990s and showed impressive economic growth afterwards. Within the G-20, Indonesia is categorised as an emerging lower-middle-income economy and committed itself to reducing the poverty rate by 9.4% in 2019 (World Bank, 2019). The increase in consumer purchasing power parity has supported poverty reduction, increasing all consumer expenditure indicators (AAFC, 2016b).

Rapid industrialisation has led to Indonesia's GDP per capita steadily increasing by 5.2% in 2018 compared to 2017 (Statista, 2019). Such growth is expected to lower the number of people living at the BOP to 11% by 2030 with an accompanying increase in income disparity (Euromonitor International, 2017). The agriculture sector's contribution to the GDP accounted for 10.1%, with an average growth of 3.3% per year from 2015 to 2017 (Sudaryanto, 2018). This growth presents the development of the agriculture sector in Indonesia up until 2017. The GDP growth is indicative of Indonesia's economic strength and domestic market situation. Indonesia's consumer expenditure is close to the GDP of neighbouring developing economies in Southeast Asia, such as Malaysia and Thailand (Budiman et al., 2013). It has been predicted that the country will contribute 90 million people as the consumer class in 2030 (McKinsey Global Institute, 2012). Indonesia is estimated to have the highest consumer growth in the next

decade, exceeding other emerging countries in the world, such as China and India. Despite the global economic uncertainty, Indonesia's economic outlook is positive, with the primary growth driven by domestic demand (World Bank, 2019).

2.5 Indonesia Governmental Support

2.5.1 Indonesia Government Policy for the Agri-food Industry

Indonesia shows an optimistic economic outlook, with economic growth reached 5.2 % in 2019 (World Bank, 2019). The economic sectors are also supported by Indonesia's 20-year National Long-Term Development Plan (RPJPN 2005 - 2025), where its mission is to be 'peaceful and united' and to encourage economic development. Achieving a solid agriculture sector that can become the engine of the economy, reach food self-sufficiency and provide safe levels of food security in the nation is one of the aims of the RPJPN (BAPPENAS, 2007).

The Government also developed a master plan to accelerate Indonesia's economic development - i.e., the 'Nawacita plan' by identifying agriculture as one of the eight strategic areas for economic growth. Food – agriculture and food - beverages have been set as two of the 22 leading economic activities to support the programs (Indonesia Investments, 2020). The 'Nawacita Plan' proposes three central visions for 2025. First, to increase value-added and expand the value chain for industrial production and distribution networks. Second, improving production efficiency and marketing efforts to enhance competitiveness. Third, pushing for a national innovation system that supports an innovation-driven economy. Thus, the Indonesian government policies present support for development of the agricultural sector.

Corresponding to the national strategic plan, the Ministry of Agriculture of Indonesia developed a strategic plan aligned with the national program from 2015 to 2019 by focusing on agriculture development to accomplish farmer welfare and food sovereignty (Sudaryanto, 2018). The goals for the agriculture sector focus on five primary areas. The first is to achieve self-sufficiency in staple foods (e.g., rice, soybeans, corn, beef, sugar). The second goal is to enhance food diversification. Third, improve value-added and competitiveness for specific commodities for import substitution and export promotion. Fourth, increase the availability of raw material for bioenergy and bio-industry; and five, improving farmers' welfare. Policy development for the agriculture sector also concerns the primary policy initiatives on food security promotion, such as for staple food production. The government also supports a fertiliser subsidy and accelerates mechanisation utilisation by providing farmer groups with

direct grants for agricultural machinery. Along with the government support for the agriculture sector, poverty alleviation became one of the national development priorities, as poverty prevalence in rural areas (13.2%) was more substantial compared to the urban society (7.02%) in 2018 (Sudaryanto, 2018). Thus, agriculture development through inclusive development plays a crucial role in poverty alleviation, specifically in rural areas.

2.5.2 Indonesia Government Policy for ICT and E-commerce Development

The ICT in Indonesia experienced continuous growth year-over-year, as shown by the data from 2016 to 2017, rising to 9.81% (Frost & Sullivan, 2018). The development has proactively encouraged the Government to improve the ICT sector through various initiatives concentrating on policymaking, legislation, and infrastructure development. Along with the national strategic plan of the 'Nawacita Plan', politically, the Government provides one-stop-services for business licenses and investment that also enable the provision of technology development. For environmental support, the Indonesian Government led the 'Palapa Ring Project', set to be finalised in 2019, by involving the undersea installation and terrestrial cable network for five main islands in Indonesia. This kind of support has increased the opportunities to expand mobile broadband coverage, which is vital for the region to support economic and governmental activities in Western Indonesia and the uncovered areas such as Eastern Indonesia.

The roadmap for ICT National Development Plan 2005 – 2025 aims to improve the rural area systems for digital services, transportation, utilities, and national connectivity. There are four pillars of the ICT roadmap: infrastructure and security; adoption and creative utilisation; regulation and legislation; and funding. The Indonesian Government supports the digitalisation of eight million small and medium businesses and aims to increase the value by US\$10 billion in 2020 (Frost & Sullivan, 2018).

The government support for ICT has provided business opportunities for the vast number of SMEs in Indonesia. As the Indonesian Government has been prioritising inclusive economic development to utilise digital platforms since 2014, small-medium enterprises (SMEs) play a significant role in advancing digital services. The SMEs based digital platforms have supported the Government's efforts to continue implementing the 'E-commerce Policy Roadmap' supporting e-commerce development to create 1000 technopreneurs in 2020 (Cabinet Secretariat of the Republic of Indonesia, 2018). The Government ensures inclusive growth by providing the SMEs with digital marketing platforms. Maintaining the collaboration

between people in impoverished areas has become a development focus by utilising the e-commerce marketplace platforms (Cabinet Secretariat of the Republic of Indonesia, 2018). The expansion of broadband coverage, such as long-term evolution (LTE) coverage, has allowed more mobile subscribers to use mobile broadband for various functions, such as communication, online purchases, and money transfer. However, there is always a challenge to develop hardware installation based on Indonesia's geographic location. Nevertheless, Government initiatives may assist in overcoming the digital divide in the country.

2.6 Agri-food Grocery Market Channel Development in Indonesia

The agri-food grocery retail development in Indonesia has typically been divided into traditional and conservative modern channels. Wet markets (*pasars*), traditional wholesale markets, independent grocery stores (*warung*, *kioks*), street vendors or vegetable hawkers (*kaki lima*) are the types of traditional channels. Brick and mortar stores, such as supermarkets, hypermarkets, food speciality stores, and convenience stores (e.g., minimarkets) are examples of 'modern conservative channels'. These channels are mostly found with a brick-and-mortar store concept. Online groceries have now begun to penetrate the market as the new modern grocery channels in development.

2.6.1 Traditional Market

The traditional market is still the most widely used channel for retail food sales in Indonesia. These outlets experience peak hours on weekend mornings, and Indonesian consumers prefer to purchase commodity goods (e.g., cooking oil, soy sauce, herbs, cooking ingredients) from traditional sources (USDA Foreign Agricultural Services, 2020). A Nielsen report claims that wet markets have a more substantial association with their wide selection of fresh food (Nielsen, 2017). Consumers can find a limited range of imported products at these markets, such as fresh fruits (USDA Foreign Agricultural Services, 2020). Regardless of the growth of prepared and packaged foods sold in the retail food markets, the traditional markets (e.g., wet markets, independent groceries stores – mom and pop stores) still dominated the grocery market structure that accounts for about 80% of retail grocery sales in 2020 (USDA Foreign Agricultural Services, 2020). Although new retail venues have also grown rapidly across the country, especially in cities and urban areas, the long-established food system still dominates food retailing (Dyck et al., 2012; Vetter et al., 2019). The traditional agri-food channels usually provide staple foods and fresh produce locally grown, although some sell local

and imported packaged foods. The trading system with these retailers is typically cash and carry, with other individual arrangements such as credit made for the business or long-term customers (Dyck et al., 2012).

As far as agri-food providers in the market chains are concerned, each market actor's role is different. For example, farmers are attached to the on-farm agri-food system, while local traders, wholesalers, and retailers are part of the off-farm agri-food system. On-farm activity is related to upstream agriculture, such as supply for production inputs and the farm production function. In contrast, off-farm activities related to downstream agriculture include post-harvest handling, manufacturing, and distribution (Conforte, 2011). Traditional farmers and local traders or wholesalers usually rely on conventional channels. Although traditional markets have the majority share in Indonesia, distribution channels are complicated and relatively long (USDA Foreign Agricultural Services, 2015).

2.6.2 Modern Conservative Brick and Mortar Stores

Modern retail channels in Indonesia have shown a rapid development since 1999, when a Presidential Decree (No 96/2000 and 118/2000) permitted multinational retailers to expand their operations in the main cities of Indonesia, such as Jakarta. Some of the outlets were formatted as wholesalers, hypermarkets, supermarkets, and minimarkets. Foreign retailers that have opened their outlets in Indonesia are Carrefour, Lotte Mart, Giant, Lion Superindo, Aeon, Seven-Eleven, Circle K, Spar, and Family Mart (USDA Foreign Agricultural Services, 2015). Other local retail companies that commonly operate as regional supermarkets also play an essential role in developing modern retail chains in Indonesia, for example, local supermarkets, namely the Yogya Group (i.e., Yogya supermarket, Toserba Griya), Toserba Borma, Tip Top, Luwes Group, Maju Bersama, and Sabar Subur (USDA Foreign Agricultural Services, 2015). Modern chains are also present in other store formats, such as high-end supermarkets, speciality stores and major fruit boutiques.

The development of modern retailers in Indonesia has provided new opportunities for local agri-food providers to supply their products to this channel. However, modern chains apply different trading and marketing systems with their suppliers. Modern retailers typically cooperate with supplier companies rather than individual intermediaries (e.g., farmers, local traders). The modern market prioritises relational marketing, with a specific contract agreement with the suppliers for an agreed period. The suppliers also require additional post-harvest activities to ensure the supply in terms of quality, quantity, and continuity. Hence, the supplier

company has to coordinate the trade links between farmer producers and modern retailers (Zakić et al., 2014).

The presence of modern retail chains in Indonesia has created a shift in fresh food purchasing from the local market to multinational food retailers due to the wide range of food selection (e.g., imported products) (AAFC, 2010). Modern retail reveals promising prospects for packaged food products (AAFC, 2016b). Nielsen (2017) shows that modern retailers such as hypermarkets have a strong association with high-quality fresh food. The study reveals that some prefer to buy frozen meat from supermarkets while purchasing poultry and meat from the traditional market since it is perceived as freshly cut (Nielsen, 2017). The opportunity for multinational retail chains to invest in Indonesia is related to consumer shopping preferences. Most of the traditional markets in Indonesia appear unsanitary and dirty. However, the modern market offers more convenient shopping with higher food quality (e.g., food hygiene, food safety).

The US Global Agricultural Network (2015) pointed out that Indonesian food shoppers have different patterns of behaviour between modern outlets and traditional outlets. Around 79% of consumers visiting hypermarkets or supermarkets did so for 'recreational' purposes, and they usually come with their families. However, over 65% of shoppers generally go to the traditional markets alone. The trend of going to modern food chains has also been encouraged by the growing number of modern shopping malls for leisure culture (USDA GAIN, 2015). Thus, modern retail stores' potential growth and consumer familiarity with modern retailing are continuing to increase amongst Indonesian consumers.

2.6.3 New Digital Chains of E-commerce Channels

The new development of retailing through e-commerce for online retailing in Indonesia has grown and is continuously rising. In general, the value of the formal e-commerce market in Indonesia is estimated to reach US\$65 billion in 2022 (McKinsey & Company, 2018). McKinsey (2018) reported that there were about 30 million online shoppers in Indonesia in 2017. The market consisted of both formal e-commerce, valued at US\$5 billion, and informal online commerce, estimated at US\$3 billion. At present, Indonesia appears to be most comparable to China in 2010 in terms of GDP per capita, urbanisation, internet penetration, e-commerce penetration, and retail expenditure (McKinsey & Company, 2018).

Food delivery via online platforms is now more familiar amongst Indonesian consumers. Nielsen's study presents the varieties of online platforms used by consumers for food order and delivery, such as the mobile app, restaurant app, telephone, and website (Nielsen, 2017). This study also found that around 41% of respondents ordered food delivery from six major cities in Indonesia, namely Jakarta Special Capital Region, Bandung, Semarang, Makasar, Surabaya, Medan. The consumers were typically making orders for the delivery of prepared foods. The sales of other fast-moving consumer goods (FMCG) such as baby diapers, cosmetics-skincare, vitamins, milk, margarine, and energy drinks are provided mainly by established retail chains (Nielsen, 2017), for example, supermarkets and minimarkets that provide multichannel marketing through online stores (e.g., Hypermart online, Alfamart.com), all-around online stores (e.g., JD.ID, Lazada.com), and health and beauty care online stores (e.g., Watsons).

In Indonesia, e-commerce has been the new modern retailing and is competing with conservative modern retailing such as supermarkets. Hence, some supermarkets and hypermarkets also operate through online stores (Cakti, 2020). The emergence of e-commerce for retailing is expected to continue to grow in the coming years. The sales from e-commerce are estimated to increase by around 17% to 30% in 2023 that valued at around five per cent of the nation's total retail sales (McKinsey & Company, 2018).

2.7 Market and Consumer Snapshot

Historically, the agricultural sector was prevalent in supporting Indonesia's economy, although this sector is predominantly small-scale farming. In recent decades, although new industries such as manufactures have driven economic growth due to industrialisation, many people still rely on the agricultural sector. The fastest-growing urban region indicates economic growth, with cities inhabited by more than two million people in several areas. Rapid urbanisation and increasing incomes will drive an additional 90 million people in Indonesia to join the global consuming class in 2030 (McKinsey Global Institute, 2012). Working opportunities and aiming for a modern lifestyle in urban areas also continue to increase urbanisation. In 2012, 53% of Indonesian people lived in urban areas (McKinsey Global Institute, 2012). The predicted rural to urban shift suggests an increase in the urban-dwelling population of 18% by 2030, such that 71% of Indonesian people will live in cities instead of villages or rural areas (Budiman et al., 2013). As the consequences of the economic growth, the imported agriculture products increased substantially from 2007 to 2010, even more than

recovering from the setback during the Asian financial crisis in 1997 and 1998 (Dyck et al., 2012). The agri-food market's potential in Indonesia has continued to develop until the present-day and there has been development in the food retail structure.

However, as an archipelago, Indonesia's product distribution system, especially agri-food, can be considered complex due to geographic isolation. Poor infrastructure and logistic facilities, particularly to the major cities and the areas outside Java, give limited ability to distribute agri-food products, including refrigerated and frozen products (USDA Foreign Agricultural Services, 2015). Insufficient port facilities are considered a further factor that impedes internal and external trade. Fragmented chains have affected inefficient supply chains and frustrated agri-food market providers such as wholesalers and retailers (see Figure 2.2). The complexity of the traditional market system requiring inter-island supply chains dominating the agri-food market has increased the market challenges to fulfil consumer demand (World Bank, 2007). Distributors or supplier companies face difficulties in anticipating poor road conditions, limited ports, inadequate loading or unloading services, and frequent congestion. These conditions can result in high logistics costs and shortages when managing extensive and costly inventories (USDA Foreign Agricultural Services, 2015). The poor infrastructure and logistic services are causing about 30% to 40% loss to agriculture commodities during distribution processes, and only about 60% or 70% can be sold to the downstream retails (ADB, 2018).

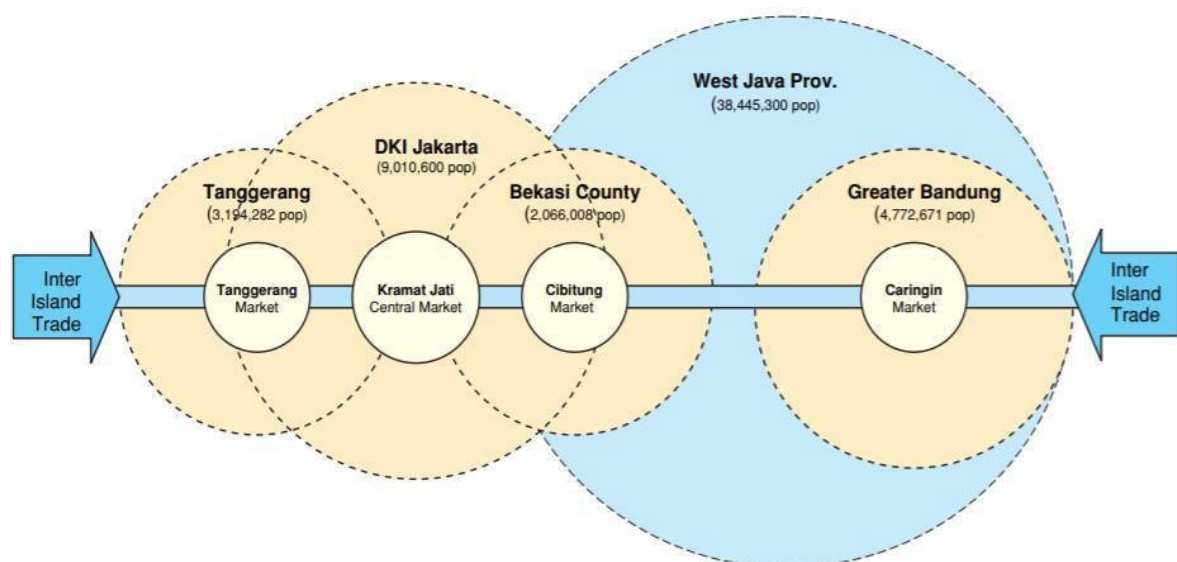


Figure 2.2. Traditional wholesale market system in three agri-food market areas in Indonesia

Source: adapted from World Bank Report (2007)

2.7.1 Agri-food Market Potentials

Regarding the food and beverage market, Indonesia is forecasted to be 14th in the world by 2026 and 2nd in the Southeast Asia region after Thailand, climbing up from the 20th rank in 2016 (Cushman & Wakefield, 2017). The rapid growth of the Indonesian consumer market will significantly increase consumers' consumption of food and beverages. The forecast showed a 5.2% growth rate with an amount of US\$194 billion (Budiman et al., 2013). This consumer market growth forecast for food and beverages is second behind financial services in Indonesia.

Indonesian consumers' concerns about food and beverages have significantly impacted daily living expenses. There is a prediction of a substantial market opportunity that accounted for US\$1.8 trillion for vital industries in the country, such as services, education and food-agriculture and fisheries in 2030 (McKinsey Global Institute, 2012). The projection indicates the potential of the agri-food sector in Indonesia. Consumer spending patterns and trading in the agri-food industry could support the realisation of Indonesia market opportunities. First, the spending patterns on food and beverages amongst Indonesian consumers shows growth. For example, a survey by Deloitte Consumer Insights concerning the Indonesian consumer spending patterns showed that the overall expenditure trend for packaged food had increased from 27% in 2015 to 38% in 2017 (Ho & Song, 2017). Consumer spending on food and beverages from 2010 and 2015 increased by almost 13.8% and achieved US\$629 per capita in 2015 or more than the US \$162 billion in total (AAFC, 2016b). Second, the trading trends for the agri-food industry is based on export-import trading—many agricultural products from Indonesia, indicating the net export. The trade surplus for agri-food and seafood products was about US\$15.3 billion in 2015 and rose at an average rate of 4.1% from 2010 to 2015 (AAFC, 2016b). The volume growth of fruits and vegetables from 2009 to 2014 has put Indonesia into the top ten in the Asian regional markets (Kocheri, 2015).

2.7.2 Horticulture Industry and Vegetable Commodities Potential

Indonesia's horticultural industry is a potential growth industry. Forecasts from the Food and Agriculture Organization (FAO) indicate that Indonesia's crop production will account for 197 million tons in 2030 under business-as-usual scenarios (FAO, 2012). Until 2018, Indonesia's agriculture sector's potential made this country the fourth-largest producer of agriculture products after China, the USA, and India (Santoso et al., 2021). Even more, projections from McKinsey Global Institute (2012) estimate that Indonesia's agriculture production could significantly increase by improving yields, reducing post-harvest waste, and

reducing new low-carbon land production. These actions could potentially enhance the opportunity to produce more high-value commodities such as horticultural crops. The horticulture industry's potential has been shown to support the production yield improvements and better income, including for smallholder producers (FAO, 2012). The growth of horticulture as an agriculture sub-sector in Indonesia shows latent potential compared to the palm oil industry (McKinsey Global Institute, 2012). Horticulture commodities in Indonesia offer better competitiveness than other agriculture sub-sectors (see Table 2.1), and stakeholders' support has improved the industry's independence and sovereignty.

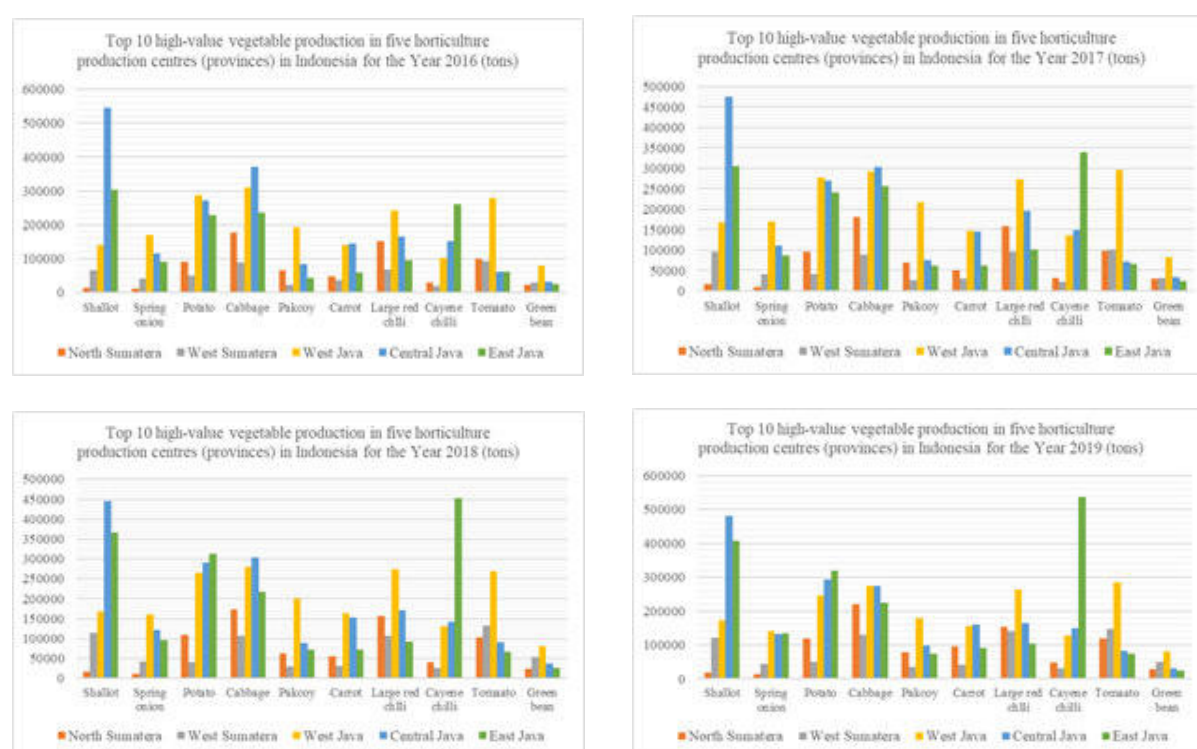


Figure 2.3 Top 10 high-value vegetable production in five horticulture production centres in Indonesia (2016 – 2019)

Source: Author compilation from Statistic Indonesia (2021)

The increase in horticultural production, such as fruits and vegetables, could improve consumer demand and increase the average Indonesian diet. Based on Euromonitor's data, Indonesian consumer expenditure per capita on fresh produce has continued to grow over the last decade. The forecast for consumer spending on vegetables was US\$157.5 per capita and for fruits is US\$69.4 per capita in 2020 (AAFC, 2016b). Fresh produce such as fruits and vegetables has now contributed to the dietary improvement and demonstrates advantages beyond the monetary value (FAO, 2012). Moreover, the rising number of middle-upper class

population in Indonesia, which accounted for 30 million people in 2015, has also contributed to improved consumer diets and shared prosperity (World Bank, 2015). Consumer diets and awareness of healthy nutrition have driven Indonesian food consumption transformation.

Agricultural production is spread among many rural and suburban areas in Indonesia's different islands. Many exotic agricultural commodities produced in Indonesia are based on comparative geographical advantages in terms of fruit, vegetables, and estate crops. Amongst the centres of horticultural productions in Indonesia, West Java Province is one of the most predominant areas for this industry (see Figure 2.3). West Java Province accounted for 70% of the national horticulture production. West Java Province appears to be the largest production centre in several top ten high-value vegetable commodities (see Figure 2.3). Fresh produce such as potatoes, cabbages, carrots, large red chillies, tomatoes, and green beans have become the leading commodities in this area (Statistic Indonesia, 2021). Horticultural commodities from West Java indicate the market opportunities for local vegetable production and product development.

The Indonesian Government monitored the agricultural sector's position in the market based on agricultural market indicators. These market indices, calculated by Statistic Indonesia (BPS – Indonesia), evaluate the growth of each of the agriculture sub-sector commodity prices. The Indonesia Statistic Bureau estimates the five agriculture sub-sector indices, encompassing food crops, horticulture, plantation crops, livestock, and fisheries. The price indices will be different for each sub-sector and are calculated based on farmers' revenue and agriculture commodity sales. For example, the farmers' terms of trade represent farmers' revenue growth to finance the increase of farming production costs. This price index is employed to measure farmers' welfare in the rural areas as a proxy indicator of farmers' welfare.

Table 2.1 Annual growth of agriculture market indicators per sub-sector in West Java in
2016 – 2018

No	Agriculture sub-sector description	Prices received by farmers indices (%)			Paid price index (%)			Farmers' terms of trade (%)			Agriculture terms of trade (%)		
		2016	2017	2018	2016	2017	2018	2016	2017	2018	2016	2017	2018
1	Food crops	-0.14	1.09	0.91	0.43	0.45	0.26	-0.57	0.64	0.65	-0.30	0.94	0.75
2	Horticulture	2.16	0.74	1.18	0.40	0.51	0.27	1.76	0.23	0.90	2.05	0.47	1.05
3	Plantation crops	1.30	-0.05	0.52	0.36	0.41	0.22	0.94	-0.46	0.30	1.29	-0.12	0.47
4	Livestock	1.11	0.69	1.31	0.17	0.39	0.27	0.94	0.30	1.04	1.23	0.42	1.06
5	Fisheries	1.23	1.02	0.61	0.42	0.50	0.34	0.81	0.52	0.27	1.08	1.05	0.56
	Collective measure	0.87	0.79	0.98	0.37	0.45	0.26	0.50	0.34	0.72	0.79	0.62	0.83

Source: Statistic Indonesia, 2019

Based on Statistic Indonesia's (2019) data, horticulture farmers in West Java Province have grown faster than other agriculture sub-sectors. Although the annual growth for almost all agriculture sub-sectors experienced fluctuation (see Table 2.1), the horticulture industry indicates positive trends compared to other sub-sectors (Statistic Indonesia, 2019). The growth in farmers' terms of trade demonstrated that horticulture commodities gain better prices than other agricultural commodities. The horticulture industry's market potential in West Java has made a significant contribution to national agri-food business development.

2.7.3 Food Consumer Behaviour

Consumer behaviour in Indonesia has changed over the last decade due to food consumption pattern influences. The increase in consumer spending on food also supports the data that globally, about 44% of consumers spent more on groceries in the last five years (Nielsen, 2019a). Nielsen's (2019a) study also shows that Indonesian consumers spent around 46% more on groceries than the global trend. The number was higher than European consumers, with 39%, and North Americans, with 33%. The country is experiencing the Government's improvement in health services, which are having an impact on life expectancy. Indonesian economic development is also responsible for the significant change in people's diet, food habits and purchasing patterns (AAFC, 2016b). The shift is apparent in the consumers' food choice and food quality, and food serviceability in fulfilling a healthy modern lifestyle. The increasing individual or household consumer interest in health has contributed to transforming food buying behaviour.

Indonesia's demographic condition in terms of food consumption and food buying behaviour has also created a particular food business, which varies in every population area. Although Indonesia, geographically, has 17,508 islands and people live in very diverse locations, living in big cities has attracted more people to live in. Java Island is the centre of economics, business, and governance. The population ranges from big cosmopolitan cities such as Jakarta, Surabaya, and Bandung (McKinsey Global Institute, 2012) to rural areas where smallholder family farms run.

The impact of different food cultures in Indonesia has created a diverse trend of food-related behaviour. Different ethnic groups inhabiting each region have distinct food types, tastes and cooking style preferences that influence purchasing behaviours, food selection, priorities, eating habits, and customs. For example, traditional eating behaviours among Indonesian consumers, which include savoury rice that accompanies vegetables and fish or

chicken, have seen rice replaced by potatoes, bread, corn, or oats (AAFC, 2016a). A review of Indonesian eating behaviour indicates shifts away from the most common staple food such as rice toward a vast range of consumption of fruits and vegetables, including fast food and prepared food (AAFC, 2016b). The change seems to indicate that Indonesia's consumer lifestyle is changing due to increased health awareness or health-consciousness.

The shift in food-related behaviour also relates to eating out habits, which are preferable for some Indonesian families. This may be influenced by the increasing number of mothers, who were previously responsible for making food for the family, taking on paid work (AAFC, 2016a). Hence, it is also common in Indonesian culture to hire housemaids in the house. Housemaids are generally from rural areas and are paid a relatively low salary. The housemaids live with a family, maintaining all the family members' needs, such as buying and preparing the foods. The housemaid is responsible for purchasing the food materials from the wet market or the street vendors, which usually circle the residential areas. They collect the food ordered by the householder. The existence of housemaids within the Indonesian family is one of Indonesian families' unique customs regarding food buying behaviour. Although the householder is the decision-maker and family member as the user and influencer, the housemaid plays the initiator and buyer role for the house's food supply. Thus, this food buying behaviour in the different households from an end-consumer perspective will be distinct due to different food buying decisions between those who live as a single person in a house or live with a family with and without housemaids.

Indonesian family culture plays a vital role in domestic daily lives. Around 40% of Indonesian households consist of more than five people in one house (AAFC, 2011). Indonesian culture and other Southeast Asia cultures emphasise personal relationships and belonging, such as prioritising representing a member of the community and then presenting as independent individuals (Schutte & Ciarlante, 1998). The culture in Indonesia prioritises living with family members or friends rather than living alone.

2.8 Digital Technology Development in Indonesia

2.8.1 Digital Technology for Commerce

As one of the largest regional markets in Asia after China and India, the year-to-year growth of Indonesian e-commerce, which has increased 60-70% since 2014, was still considered relatively small at US\$8 million (Austrade, 2018). More international investment in e-commerce in this country comes from global firms seeking to access Asian consumer markets (Austrade, 2018). Although the number of online sellers in Indonesia doubled between 2015 and 2018, with 4.5 million active sellers, 99% of these are microentrepreneurs (McKinsey & Company, 2018). This shows the increasing trend of spurring micro, small, and medium enterprises (MSME) participation in e-commerce markets. The potential of the e-commerce market in Indonesia indicates the significance of digital platforms, although not all emerging markets have reached the same digital development phase. Indonesia is categorised as 'digitally advancing' in digital development, which means e-commerce accounts for a small but growing proportion of 3% to 5% of the country's retail (Jain et al., 2018).

Indonesia is at the stage of working to advance the country's economy by investing in the information technology sector. The country was projected to reach US\$3.8 billion in IT spending in 2019, impacting more IT enterprises (Frost & Sullivan, 2018). Indonesia has become one of Southeast Asia's most extensive IT expenditures (Frost & Sullivan, 2018). Based on the country digitalisation index made by McKinsey Global (2018) using the categories of digital reach, digital foundation, and digital value, Indonesia's overall score was 36 on a scale of 0 to 100 in 2017. Indonesia's rating showed an advantageous position, below those countries that were digitally more advanced such as South Korea and Singapore. Although Indonesia came from a low base, this country was the fastest digital adopter among 17 major digital economies based on the digitalisation index growth between 2014 and 2017 (McKinsey Global Institute, 2019). The Indonesian Government also supports digital economy development through various programs and regulations. For example, the national broadband development called 'Palapa Ring' provided for IT infrastructure. The launching of the online commerce road map in 2017 covers consumer protection, communication, logistics, and cybersecurity (McKinsey & Company, 2018). The ICT rapid development and the increasing support from Indonesia's Government show the key components that influenced the market growth and growing adoption of e-commerce (Frost & Sullivan, 2018).

2.8.2 *Digital Savviness of Indonesian Consumers*

Indonesia's ICT sector development has presented more accessible and affordable broadband services and rapid mobile communication growth (Frost & Sullivan, 2018). More than half (57%) of Indonesian consumers made purchases of technology and communication from 2014 to 2019 (Nielsen, 2019a). The percentage was higher than the global number or other continents such as Europe, North America, or Africa (see Figure 2.4). Smartphone ownership increased to 250% in the last five years, which characterised Indonesian consumers' 'seamless lifestyle' by always being connected to the digital world through smartphones (Nielsen, 2019b). This shows that the impact of ICT development has resulted in a more digital-savvy consumer in Indonesia.

The increase in internet penetration and smartphone ownership appears in other indicators for Indonesian consumers' digital savviness. Internet penetration increased from 5 million users in 2000 to 97 million users by 2016 (Frost & Sullivan, 2018). Smartphone ownership was accounted for 63% of the total population in 2019, and it is predicted to rise by 76% in 2021 (Statista, 2021c). The increasing number of internet users in Indonesia made this country one of the largest social media markets in the world, with a penetration rate of 94% for YouTube, 88% for WhatsApp, 87% for Instagram, and 86% for Facebook (Statista, 2021b). Moreover, the millennial generation dominates the average Indonesian population, with an average age of 24 years, and another 60% of the population is under 39 years of age (Frost & Sullivan, 2018). The rising proportion of Middle-class and Affluent consumers (MAC) also influences Indonesia's economy (Rastogi et al., 2013). The picture shows that the younger generation in Indonesia is prominent in the telecommunications revolution as the early adopters for internet and mobile technologies, including the rapid growth of the middle-class category amongst young Indonesians.

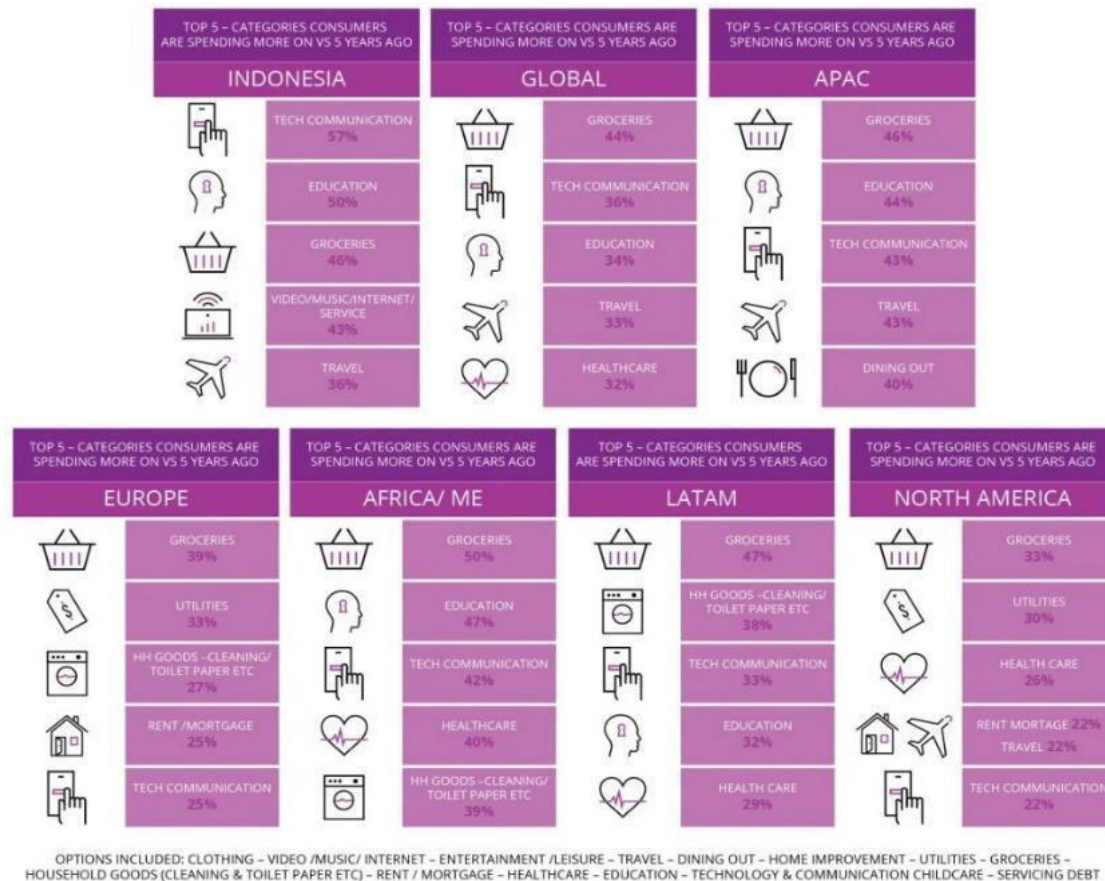


Figure 2.4 Top five categories of increased consumer spending

Source: Nielsen, 2019

2.9 Chapter Summary

This chapter has presented the secondary empirical data appropriate to the research context of this study. It explained the socio-economic situation, governmental support, ICT development, and the agriculture sector as Indonesia's primary economic locomotives. The development of ICT improvement in this country applied to e-commerce was the centre of interest of this research using the agri-food industry as an empirical focus. Also, it showed Indonesia as a developing country that also entails a BOP market. Following this, the next Chapter (3) elaborates the literature review by reviewing value chain co-creation.

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CHAPTER 3 – LITERATURE REVIEW

3.1 Introduction

This chapter presents the literature developed to address the research questions. The chapter provides an intensive examination of the existing literature on the specific topic of VCC from a marketing perspective, including other multidisciplinary fields related to VCC. It is crucial to understand the fundamental concepts and studies on the relevant fields underlying the research topic, including discussing the theoretical arguments. A literature review of the concepts will assist theory development for grounded research and empirical research. After this introduction, this chapter continues with a section on the VCC concept (Section 3.2) with a review of prior research on VCC, followed by subsections on definitions of value and VCC as the principle in S-D logic. The following sections discuss VCC resources (Section 3.3), VCC motivations (Section 3.4), the role of actors in VCC (Section 3.5), in-built components of VCC (Section 3.6) that comprise the theoretical background on co-production and value-in-use (ViU), and a chapter summary (Section 3.7). Consequently, the literature review clarifies relevant theories that enlighten this research.

3.2 The VCC Concept

Since Prahalad and Ramaswamy proposed VCC in 2004, the topic has attracted considerable interest in marketing and business studies. To date, VCC has been considered the primary source of innovation in service management. The co-creation concept suggests both the company and customer as collaborators in co-creating value within the experience environment and networks they develop during the interaction (Prahalad & Ramaswamy, 2004a). The idea refers to the impact of the wealth creation for company shareholders. It creates value for both the customer and company to receive significant feedback on business performance within the industry (Bititci et al., 2004). Before the establishment of VCC, the concept of value was core to economic development and social adaptation to create efficiency from combining new resource exchange actions and applying them to new contexts (Moran & Ghoshal, 1999; Schumpeter, 1928).

The development of VCC started to receive interest during the 1990s to 2000s through the emergence of the value creation concept. The concept has predominantly considered value

from a customer perspective, embedded in products as the companies' manufacturing processes output (Grönroos, 2008). Based on the conventional terminology, value creation places the customer as the recipient of value created by the company, creating value processes based on the company-driven orientation to be more customer-driven (Gummerus, 2013). Value creation implies that value is co-created for the customer.

Based on a conventional marketing perspective, there are different roles between companies and consumers regarding production and consumption (Prahalad & Ramaswamy, 2004a). The purpose of value creation is for business performance to gain superior value compared to its competitors. A new perspective of value creation appears after consumers feel dissatisfied with the market offers and selections and now have new tools for accessing the market, be willing to interact with the company that refers as VCC (Prahalad & Ramaswamy, 2004a). The VCC concept uses as tools in the business competition to perform unique value, which is difficult to imitate or adapt to competitors.

In development, the concept of value creation has been extended by shifting the perspective on how to situate customers as the value recipient delivered by the company. Here, 'value co-creation' (VCC) occurred. This concept emerges from contemporary scholars' perspective, which presents the collaboration processes between the customer and the marketer intending to develop innovation, design, and improve products (Dey et al., 2016). Prahalad and Ramaswamy (2004b) introduced the VCC concept using personalised customer experience, which includes service experience, the experience environment, and experience variety to co-create value. They also indicate the involvement of customers in the value creation process.

Based on the previous studies focused on the literature of VCC, the initial idea of co-creating value was the development of service science, service management, and the advanced involvement of technology innovation in business initiatives (see Appendix A, Table 1). The development of service management influences how companies manage the relationships with consumers by focusing on developing direct engagement and interaction with consumers to initiate the processes of value generation (Grönroos, 2008). VCC indicates customer involvement by engaging them in creating and defining value within a service ecosystem on a service platform (Prahalad & Ramaswamy, 2004a).

VCC signifies a new avenue moving from creating value for customers to understanding and delivering the customer desired value through interaction and alignment (Grönroos & Helle, 2010; Prahalad & Ramaswamy, 2004a; Viio & Grönroos, 2014). The

underlying assumptions based on value occur after the customer has the experience, and perception of the offered value utilisation is essential for value determination. Thus, the concept of VCC refers to the opportunity of co-producing and customising by creating value through the collaboration between the company and customer (Payne et al., 2008). VCC signifies the term value is created not only by a marketer for the customer but together the company and customer produce the value.

The shift from value creation to VCC indicates collaboration with customers and further considers joint value creation between the involved parties (Grönroos & Voima, 2013). Payne and Frow (2005) also signal customers' and marketers' involvement in the value creation process to maximise customer lifetime value. Co-creation of value among marketing parties, both supplier and customer, has the chance to produce value in customised practice and offer co-production (Payne et al., 2008). The interaction among marketing parties along the distribution channel is termed collaboration or participation. Collaboration is defined as working together, although the forms of collaboration can be viewed as more complex, involving strategic partnerships amongst entities with similar risks in the outcome of the activities (Mankin & Cohen, 2004). It can include the sharing of responsibility and information on the exchanged resources and performance measurement. The concept of collaboration is also seen as a decision-making process and collective action among interdependent parties, creating joint ownership to produce specific outcomes (Stank et al., 2001). However, Kohtamäki and Rajala (2016) argued that researchers still encounter ambiguity on employing VCC, such as deciding the suitable terminology to express VCC and differentiate it from other value conceptions. Hence, this gap requires further examination to understand how value is communicated and created for- and with- customers, and how the customer perceives value (Kumar & Reinartz, 2016). More empirical studies on VCC in the marketing field also suggested based on multiple business or market actor perspectives (Sidorchuk, 2015).

Moreover, scholars' interest in exploring the concept of VCC has also expanded to the underlying marketing paradigm that is used in this specific concept—for example, applying VCC as the S-D logic principle (Brodie et al., 2019; Saha et al., 2020; Vargo & Lusch, 2017). The S-D logic originated from the service lens, which enables marketing reorientation for market change, market dynamic, and perceived service based on the VCC process by connecting with the customer for resource integration (Bettencourt et al., 2014). Resource integration between the company and the customer is essential in the VCC process, especially regarding 'operant resources' to employ value identification, value generation, and value

enhancement (Boukis, 2019). Vargo and Lusch (2017) suggested the S-D paradigm in broader fields such as micromarketing, economic, social sustainability, ethics, and public policy. The development shows the opportunity for S-D logic to serve as a theory that is partially informed beyond marketing. The following subsection presents a further explanation of the S-D paradigm (see subsection 3.1.2).

In sum, there has been a massive development in the literature on value creation and co-creation, which involved not only the B2C context but also B2B, business networks, and service ecosystems for a broader context (as shown in the Appendix A, Table 1). The VCC concept progress has been influenced by the increasing development of the digitalised world, such as ICT, Internet of Things (IoT), social media interfaces, and other digital technology applications. Hence, previous literature suggests further studies to examine the process model of VCC by employing the role of technology and the application of digitalisation as a VCC enabler in various contexts (Hein et al., 2019; Hofacker et al., 2020; Priharsari et al., 2020).

3.2.1 Definitions of VCC

The extensive study of VCC has shown the concept complexity with blurry definitions as a robust, rigorous, and competing concept (Grönroos & Voima, 2013; Gummerus, 2013; Sánchez-Fernández & Iniesta-Bonillo, 2007). The term value is still considered as rigorous and complicated that still being a debatable issue in management and marketing (Grönroos, 2008; Grönroos & Voima, 2013; Sánchez-Fernández & Iniesta-Bonillo, 2007). The concept of VCC has become divergent due to the variety of perspectives and contexts utilised. VCC offers advantages for both business market exchange (Töytäri & Rajala, 2015) and customer value proposition (Anderson et al., 2006); this has led to the emergence of a different conception of value approaches and demonstrates the limitation (Mencarelli & Rivière, 2015). Scholars continue to define the VCC concept developed from Prahalad and Ramaswamy's initial conception of 2004a, which focused on VCC based on optimising the customer experience to the latest VCC definition, which involves value-scape digitalisation as proposed by Nöjd et al. in 2020 (see Table 3.1).

Table 3.1 The development of definitions of VCC (2004 – 2020)

Year	Source	Focus	Definition
2004b	Prahalad and Ramaswamy	Customer experience	A shared creation of value by the customer and the company based on customer co-constructing a personalised experience (services experience, experience environment, experience variety)
2005	Payne and Frow	Customer relationship management	Transforming the strategy development process into marketing programs by successfully managing the value exchange aiming to extract and deliver value and maximise the lifetime value of the targeted customer segments
2008	Payne et al.	Customer involvement, relationship marketing	The relationship experience that is individual, interactive, longitudinal, and contextual between customer and supplier together creating value through key competencies of learning and knowledge
2008	Grönroos	Services, value-in-use (ViU)	Co-creation of value during direct engagement in the interaction between supplier and customer in the processes of value generation by also adding necessary resources and skills obtained by customers and value-supporting interactions, where value fulfilment takes place
2008	Spohrer and Maglio	Service science	Co-creation of value is the realisation of the favoured change as an outcome of communication, planning and/or other designed interactions amongst multiple actors
2009	Hollebeek and Brodie	Branding, service marketing	Co-creating value through human interactions of conversation and learning to new information between customers with service providers that may mutually benefit from adding value to the experience
2010	Füller	Virtual consumer co-creation, interactive experience	Co-creating interactive experience by engaging virtually with consumers and asking their needs, opinions, desires, creativity contributions, and problem-solving skills in generating, designing, refining, and testing for new product concepts and ideas
2010	Gummesson and Mele	Network interaction, resource integration	The actor-to-actor (A2A) involvement and commitment in simultaneous of parallel and sequential stages of the dialogue, exchange, and interaction to integrate the actor resources and compliance with other actor capabilities, expectation, and processes in the network aiming to co-create value, and to activate and sustain organisational learning
2011	Grönroos and Ravald	Service-logic based, supplier-customer relationship	Supplier-customer dyadic interactions to provide value for both parties. influence customer value fulfilment by supporting customer value creation (ViU) and encourage customer role as a value creator
2011	Ballantyne et al.	Service-dominant logic	The involvement of the customer in the creation of product or service in the form of experiential interaction, actual or hoped for, intended purposively; it implies in various manifestation relationship between suppliers and customers, individuals and individuals or groups, or in a broader scope of all kinds inter-organisations connections
2012	Hakanen and Jaakkola	Customer-driven solutions, business networks	A joint problem-solving to fit multiple perceptions of suppliers and customers by focusing on the processes, operations, core content, and customer experience in an integrative coordinative and collaborative interaction of process to co-create the solution
2012	Aarikka-Stenroos and Jaakkola	Intensive business services, problem-solving based	VCC is a collaborative integrative and reciprocal process of diagnosing needs, designing, and creating joint problem-solving solutions, organising the process and integration of supplier and customer resources, handling value conflicts, and implementing the solution
2012	Lambert and Enz	B2B relationships, cross-functional	VCC occurs in three interrelated and cyclical stages within the interaction of suppliers and customers through joint creation of value propositions, value actualisation, and value determination
2013	Grönroos and Voima	The role of the customer and the company; ViU	Value is emerged or created in an interactive preference experience of using processes/resources/outcomes, including service providers and customers' activities, and possibly involving other actors. The use of value may derive as the reflection of spatial, physical, social, and temporal context or how the usage context change

Table 3.1 *Cont.* The development of definitions of VCC (2004 – 2020)

Year	Source	Focus	Definition
2013	Akaka et al.	Customer culture theory, S-D logic, cultural context	Co-creation of value in cultural context focuses on the presentation of practices and resources integration that guide by collective meanings and social norms and can be the centre of the market reformation, structures, and ecosystem
2014	Kijima et al.	Service system, service science	VCC is a system perspective on the process of a creative, active, and social that initiate by the provider concerning collaboration between the customer and the service provider for customer value generation and proposing strategies for involvement, empowerment, and curation
2014	Bettencourt et al.	The value co-creator	the perspective and access of the value co-creator to the market and the exchangeable resources of skills and knowledge
2015	Agrawal and Rahman	Customer roles and resources	VCC occurs through the degree of contribution of customer participation rests in the co-creation environment (the growth of interactive technologies) and the expected benefits to be achieved by empowering the customer as a resource integrator and a resource in the firm value creation process and strategies
2016	Zátori	Service design, experience-centric	VCC is the process of on-site experience between consumer and service provider by provoking consumer attention, engaging, involving, discovering the co-creative service provision, and realising the co-created value and experience
2016	Alves et al.	Business innovation, new product and service development, consumer experience	Co-creation is a source of innovative ideas amongst companies and consumer or amongst companies by learning from consumers and developing relationships with consumers to enhance innovation, gain advantages and resources that create value that possibly happens in various contexts of social, systems, networks, micro, meso, or macro
2017	Preikschas et al.	Dynamic capabilities, customer retention	VCC is the process of fostering the generation of dynamic capabilities connected to knowledge, adaptation, innovation, and relationship management by developing a closer interaction with customers and the availability of customer expertise to develop solutions to meet their needs better and facilitate the cognitive gap between parties
2018	Oertzen et al.	Co-creation of services	Co-creation of services occurs through joint involvement, engagement, and participation of both the service providers and the customers that can manifest itself in certain forms of regenerative co-creation or operative co-creation throughout the stages of the service process
2019	Hein et al.	B2B Internet of things platforms	VCC illustrates the process of creating value between the involved actors within a service platform that the actors can take a distinct role in the process and platforms (digital) requires to facilitate the interaction occurs in a service ecosystem
2020	Nöjd et al.	Value-scape, digitalisation	VCC is the joint process of value-enhancing activity arises amongst actors that are reciprocally creating value through resource integration, (the online) interaction, and customer-to-customer communication

VCC has evolved into widening with specific definitions based on the focus of what is being co-created. The topic of VCC has expanded to be the cornerstone in service marketing and to generate and develop more understanding of the terminology to consider value on participation – collaboration context (Ind & Coates, 2013). The focus on defining VCC has differentiated into various perspectives: customer relationships and interactions (Grönroos & Raval, 2011; Lambert & Enz, 2012; Payne et al., 2008; Payne & Frow, 2005); customer experience and outputs (Alves et al., 2016; Prahalad & Ramaswamy, 2004b; Zátori, 2016); the service-based paradigm (Ballantyne et al., 2011; Grönroos, 2008; Grönroos & Raval, 2011; Hollebeek & Brodie, 2009; Kijima et al., 2014; Oertzen et al., 2018; Spohrer & Maglio, 2008); networks (Gummesson & Mele, 2010; Hakanen & Jaakkola, 2012); problem-solving based

(Aarikka-Stenroos & Jaakkola, 2012; Hammervoll, 2009; Lages, 2016); the role of actors in co-creation (Agrawal & Rahman, 2015; Bettencourt et al., 2014; Grönroos & Voima, 2013); VCC resources (Akaka et al., 2013; Gummesson & Mele, 2010; Preikschaas et al., 2017); virtual co-creation and innovation (Alves et al., 2016; Füller, 2010; Hein et al., 2019; Nöjd et al., 2020). The development in how to conceptualise VCC shows the interest of marketing scholars and overall business management academia in the potential of VCC as the fundamental mission of current business development. The following subsection explains the value concept in marketing and VCC as the S-D logic principle.

3.2.2 "Value": A Historical Introduction

This subsection will explain the introduction of the value concept and the logic underlying the knowledge. The value concept has developed over the last six decades since the 1950s and continues to improve and affect business relations based on business dynamics and relationships within business actors. The theory that becomes the fundamental and primary development of value in marketing is likely to be generated from the conception of economic value. The notion can be discovered in classical and political economy theory (Karababa & Kjeldgaard, 2014). The theory of value in classical political economists defined value based on the cost of production, by identifying the utilised for the opportunity to lower labour costs, and afterwards improved by the labour theory of value.

Another economic theory of value was from neoclassical economists, and perceived value in the market activities as an exchange and then followed with the marginal theory of value in advance, as defined by Samuelson (1998) through the concept of marginal utility. This theory assured that the utility of the product would gradually decrease its function if the product encountered saturation gradually. The definition of value in economics is subjective and shows various perspectives and undergoes notional formulation with different complexity. Most value concepts and models were collected based on the value structure (Porter, 1985; Woodruff, 1997). In the process, the value becomes a critical concept in classical economics, and a central concept is that not every organisation is systematically aware of and utilises it as organisation creation (Bruyat et al., 2000; Fayolle, 2007).

The value concept continues to develop in many studies across economics and business management and provides tremendous insight into a variety of more specific fields, such as VCC and its processes (Payne et al., 2008). Looking at the importance of the value definition is essential to interpret value from the logic, concept or category terminology and the meaning

that shows the different direction from the general category (Sidorchuk, 2015). We can see different discipline subjects interpret value concepts with different terminology and meanings (see table 3.2). Some studies show that the complexity of the value concept found to be rigorous should consider the fundamental theory and its practical use. A broader perspective derives from the term value in recent marketing studies.

Table 3.2 Value terminology

Source	The definition of value
Marx (1968); Tucker (1978)	An exchange of the needs on labour and beneficial qualities in the form of product quantity (labour theory)
Bagozzi (1975)	Marketing behaviour of a system that consists varies of agents who employs exchange
Porter (1985)	The assumption of utility with price-based criteria
Lanning & Michael (1988)	Integration on the proposition of the relationship from product performance to fulfil customer needs and the cost paid by the customer along the relationship life-cycle
Lovelock (1995)	The concept of enhancing customer offer through benefits
Evan (2002)	The ratio between perceived benefit compare to the perceived cost (value from customer approach)
Bowman & Ambrosini (2000)	The utility owning by properties of products and services (value as the used value); when trading employs the use values that provide an exchange of certain monetary amount between company and customers or suppliers (value as exchange value)
Prahalad & Ramaswamy (2004)	Consumer co-creation experience
Haksever et al. (2004)	Company capabilities to provide and meet the demand and benefit to another party
Holbrook (2005)	An interactive, relativistic consumer preference and experience
Payne et al. (2008)	Value proposition created by the supplier and value is determined when customers consumed a good or service
Gronroos (2011)	The main object of exchange that occurs because of buyer and seller evaluation
Vargo & Lusch (2011)	Integration and implementation of the utilised on physical resources (operand resources) and non-physical resources (operant resources)
Chandler & Vargo (2011)	The intersections of resource available within the network
Ng et al. (2013)	The results of co-produced by the customer through value drivers of transform material and equipment, transform information and transform people's behaviour
Gregorio (2013)	The realisation of the potential of utility in a population
Bettencourt et al. (2014)	Capabilities that give them the ability as value potential; and realise when a customer relies on the service potential embedded in resources during job accomplishment (value-in-achievement)

However, the terminology of value in marketing has many perspectives in different studies. The conception of value in marketing is widely used in service science and management, consumer culture research, the marketing paradigm (e.g., S-D logic), and research on brands. The value-based concept is the opposite of the product-based business scenario and differentiates how the buyer and seller are engaged in business relationships (Viio & Grönroos, 2014). The concept facilitates the selling process by focusing on the communication between marketers and customers (Luotola et al., 2017). The concept also influences marketing studies that integrate such features as customer experience, co-creation

outcomes, buyer-seller relationships, Internet of Things (IoT), socio-culture, and resource utilisation. The concept of value continues to develop and presents the importance of the collaborative network in the VCC concept based on business partners' participation to gain higher business competitiveness (Ferreira & Menezes, 2015; Lambert & Enz, 2012).

The notion of value facing arduous terminology to define this concept with a single definition or category in the marketing context (Sidorchuk, 2015). Different value definitions show the subjectivity, perspective, and unique actualisation of the concept (Grönroos, 2011b). Different value definitions in marketing reflect how value is conceptualised and created in various sectors and industries. The concept of value is initially developed by relying on the utility concept that benefits the business system or network through resources integration and interaction experienced by the actors while utilising the resources. Nevertheless, it is better to follow a specific definition as the direction in the research. Because the research conducted in this thesis employed the perspectives of both the business market (B2B) and consumers (B2C), the definition from Chandler and Vargo (2011) was applied. By defining value as the interactions of resources available in the network, how each actor influences each other in the market can be examined. Through this definition, we can conceptualise markets as continuous exchanges that are simultaneously bound by each other of this specific context (Chandler & Vargo, 2011). However, a rapid change in defining value in marketing does not rule out the possibility of expanding the concept of value continuing to innovate and has become a core issue of business and marketing studies that could be defined in the future.

3.2.3 VCC as the S-D principle

The marketing paradigm shift has had an impact on the evolution of value terminology both in economics and business studies for more than a century. The value-based concept has developed over the past decades since the 1950s, demonstrating the change of the logic underlying the knowledge improvement affecting business dynamics and relationships. Adam Smith (1776) initiated the value notion and stated that goods have exchangeable value and can be established and exchanged. The traditional concept of value-in-exchange following the marketing exchanges (Bagozzi, 1975) based on the goods-dominant (G-D) logic has seen customers perceive the offered value delivered by the suppliers (Ulaga, 2003). Zeithaml (1988) suggested the G-D logic underlying the exchange value in a transactional model of a short-term relationship. G-D logic suggested customer perceived value based on the overall product utility from the exchange activity between the firm and customers (Zeithaml, 1988). Based on the G-

D logic, companies focus on how to produce the product and maximise product selling. The relationship between the buyer and seller only appears as a short-term relationship with the transactional model. This G-D logic relies on the product-centric and company-centric, which was preserved for more than a century as the traditional marketing perspective of the industrial market. Product sales achievement in the market and concern for company profitability is the focus of G-D logic.

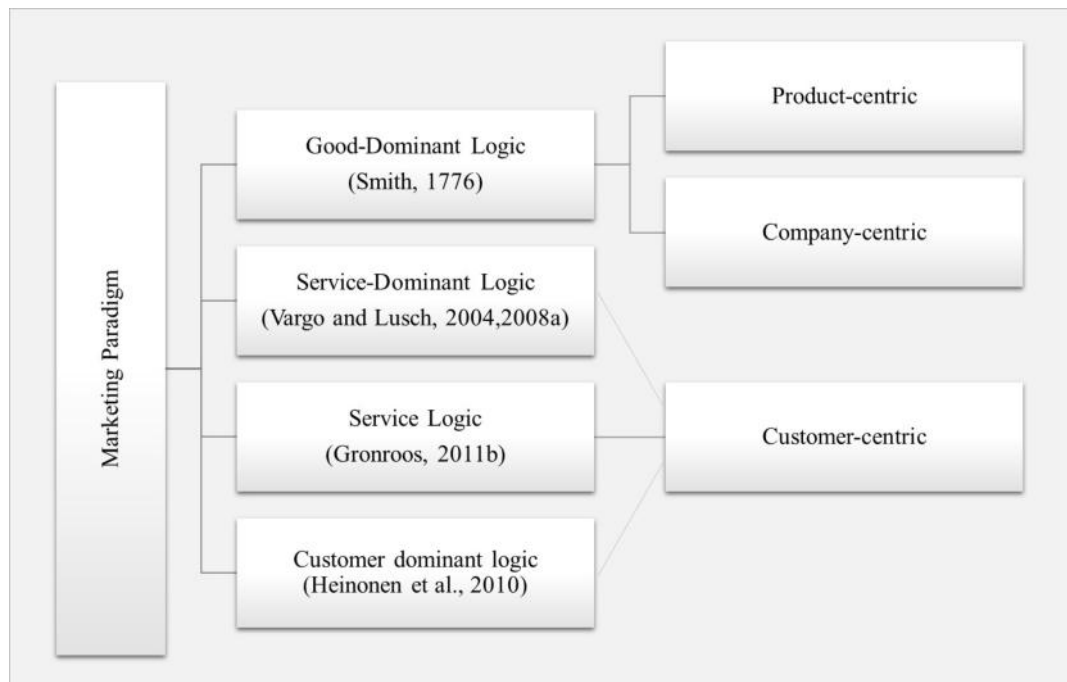


Figure 3.1 The marketing paradigm shift

However, the G-D logic approach has been critiqued related to the sufficiency of blocking a comprehensive understanding of service contribution to marketing applications (Vargo & Lusch, 2004). In the past two decades, the value concept within marketing has been reframed with the paradigm shift in thinking from the G-D logic to the S-D logic (Gummesson, 1997; Raval & Grönroos, 1996; Sheth & Sharma, 1997). Under the transactional and product-focused G-D logic, value is embedded within goods and exchanged, leading to the termination of the process through consumption. Within S-D thinking, service underlies all exchanges (Lusch & Vargo, 2006; Vargo & Lusch, 2004, 2008b), and goods become the service offering mechanism. Here, value is not delivered but offered as a proposition (Vargo & Lusch, 2017). It is co-created with market actors (Prahalad & Ramaswamy, 2004a) and is experienced by them 'in-use'. In this way, the value becomes uniquely determined by the beneficiary. Critically, the consumer becomes an active collaborator, exercising influence in the business system

(Grönroos, 2011b; Payne et al., 2008; Prahalad & Ramaswamy, 2004b). As shown in Figure 3.1, the marketing paradigm is influenced by the shifting of value creation into the co-creation concept.

The basic ideation of the S-D logic is based on the premise that service is the implementation of knowledge and skills and is the basis of all exchange (Vargo & Lusch, 2004, 2008a). The inception of S-D logic underlying VCC suggests the involvement of marketers and customers to create values by composing value propositions (Vargo & Lusch, 2004). According to S-D logic, a collaboration with customers results from service domination in the value creation process, which allows the customer to co-construct service experience to fit the customer context (Prahalad & Ramaswamy, 2004a, 2004b). Vargo and Lusch (2004a, 2008) argue that the S-D logic demonstrates the changes in business thinking by incorporating service as an integral part of integrating social and economic views in a continuous sequence. Based on S-D logic, VCC explains that as customers use the product or service (the product succeeds in fulfilling their needs), ViU manifests the co-created value (Vargo & Lusch, 2004). This means value can be co-created along the process (Prahalad & Ramaswamy, 2004a).

However, after S-D logic was introduced and recognised as the underlying paradigm for VCC, the paradigm received criticism based on the insufficient support for its fundamental premises in understanding VCC and how meaningful the theoretical development in marketing, business, and decision-making practices. Later, service-logic was introduced by emphasising the service perspective on business and value outcome integration instead of retaining customers as co-creators of value forever (Grönroos, 2011b). Instead, under certain circumstances, the service provider and its customers obtain co-creating value opportunities (Grönroos, 2011b). S-D logic suggests that marketing and business are based on services and are not only dominated by service. The interaction between the company and the customer and their roles in the co-creation process become essential in the 'joint value sphere'. The joint sphere introduction in the co-creation process contributes to the service-logic understanding of VCC (Grönroos & Voima, 2013).

Another paradigm in marketing that also evolved during the concept development of VCC is customer-dominant logic. This perspective, introduced by Heinonen et al. (2010), emphasises the roles of companies and customers in creating value and proposing the approach of customer-based services. The logic tries to uncover the limitations of the company-dominant logic encountered by service marketers by focusing on five major factors that influence VCC:

company involvement, visibility in value creation, company control in VCC, the character and scope of customer experience (Heinonen et al., 2010). The formation of customer-dominant logic and S-D logic is similar in terms of the value and dynamic process of co-creation of value, and that is unique for every customer as the service recipient (Tynan et al., 2014). Nevertheless, this new perspective of customer-dominant logic in marketing has not yet been fully incorporated into many studies in the literature (Rihova et al., 2018) and requires further research.

However, both service-logic and customer-dominant logic were not as fully explored as S-D logic and remained conceptual principles. The determination of VCC terminology is considered undiscovered (Grönroos & Voima, 2013) by following the S-D logic principle (Vargo & Lusch, 2017); this principle has been implemented in the business and marketing practices of various industries. The S-D logic treated VCC by emphasising the processes and actions employed by both business actors as service providers and customers as the value co-creators (Grönroos & Voima, 2013). In S-D logic, the customer is the value co-creator, and value is processed and co-created through the lens of consumer perception and customer experience (Prahalad & Ramaswamy, 2004a; Vargo & Lusch, 2008b).

The S-D perspective emphasises the term context as an essential consideration to present a broader understanding of how each actor is involved in the co-created value (Chandler & Vargo, 2011; Lee & Kim, 2018; Quero et al., 2017). One of the latest theoretical studies on S-D logic proposed five axioms of the paradigm: service exchange, co-created value, resource integration, the subjectivity of value, and the role of institutions (actor generated and arrangements) in VCC (Vargo & Lusch, 2017). The S-D logic is also considered as the new thought of service internalisation into the business ecosystem and network (Quero et al., 2017). According to Brodie et al. (2019), as the S-D paradigm continues to gain attention from scholars, this logic has developed into three periods of theory and methodology development: a formative period (2004 to 2007), a refinement period (2008 to 2011), and an advancement period (2012 onwards). The study also discussed the orientation opportunity for VCC as the essential assumption in the S-D logic paradigm and moved towards a theory of markets (Brodie et al., 2019).

3.3 VCC Resources

One focus of the VCC process is resource integration (Lusch & Vargo, 2011; Oertzen et al., 2018; Thiruvattal, 2017; Vargo & Lusch, 2017). This occurs throughout the interaction between value co-creators in the market, such as intermediaries, suppliers, and customers (Agrawal et al., 2015; Prahalad & Ramaswamy, 2004b; Vargo & Lusch, 2008a). Company resources and capabilities to produce a product can be classified as valuable resources and capabilities if the company can increase the revenues without exceeding the resources they possess (Amit & Zott, 2001). Thus, VCC recognises economic development and social adaptation to generate efficiency by integrating the new resource exchange actions and employing them in new contexts (Moran & Ghoshal, 1999). VCC is also perceived as a new source of competitive advantage (Prahalad & Ramaswamy, 2004b).

In Resource-Based Theory (RBT), resources refer to assets, capabilities, business processes, knowledge, information, and the company's attributes controlled and comprehended by a company (Barney, 1991). RBT suggests that an organisation's resources can be used to execute strategies by referring to the strategic management perspective. The sources of company resources can vary from internal to external. Internal resources include, for example, brand management, R&D capabilities, logistics, and low-cost processes (Kozlenkova et al., 2014); while external resources refer, for instance, to the role of suppliers (Lewis et al., 2010), customer demand, and technology change (T. Li & Calantone, 1998). RBT also categorises company resources based on tangible and intangible assets (Barney, 1991; Molloy et al., 2011). Tangible resources refer to all the assets that include economic gains and visible business contributions, such as products and commodities (Lyons & Brennan, 2019). Intangible resources comprise all the assets possessed by a company related to the access to capabilities and knowledge and organisational, strategic, and social benefits (Keränen & Jalkala, 2013).

In development, the source of company resources to create the competitive advantage could benefit the company's dynamic resources through the interplay between the internal and external organisation's environment. This conception later extends the classic RBT to the extended resource-based theory (EBRT). The company could source the key scarce resource alternatives, such as the benefits of ICT-related resources (Seddon, 2014; Warnier et al., 2013), relationship management and network resources (Lavie, 2006; Squire et al., 2009), and market-based resources (Kozlenkova et al., 2014; Mathews, 2003). This extension of RBT can facilitate the perspective of the company resources by managing the critical relevance of the

company's unique asset basis in the changing market dynamics (Teece et al., 1997), which could benefit the marketing domain and the process of adaptive marketing capabilities (Barney, 2014; Kozlenkova et al., 2014).

In VCC, resources are categorised as operand resources and operant resources. These resources have become essential to co-create the value that emerges from the combination of the accessible and obtainable resources within the network (Chandler & Vargo, 2011; Vargo & Lusch, 2011). Operand resources represent tangible or physical resources that comprise economic resources and other materials or goods that the individual has allocated capabilities (Baron & Warnaby, 2011), such as machines and raw materials. Operand resources such as goods are appliances or platforms (distribution mechanism) for service provision. In contrast, operant resources are intangibles over which the individual has 'authoritative' capability, including physical, social, and cultural, such as individual skills and knowledge (Baron & Warnaby, 2011). In co-creation processes, resource integration occurred from the company (or business providers) and customer resource contributions. Both parties involved in co-creation activities contribute to similar process mechanisms, such as co-production, information sharing, mutual interaction, and a sense of identification and trust (Huang, 2020). Resources as co-creator capabilities can support the co-creation success. Therefore, the types of resources contributed, and each actor's participation in the process, will decide any co-creation initiative success, including deciding the types of outcomes (Agrawal & Rahman, 2015). For instance, co-creation applies to discovering the customer lifetime value maximisation of the targeted market segments (Martinez, 2014).

However, the S-D logic of marketing emphasises the operant resources as the focus of VCC because these resources produce effects (Baron & Harris, 2008). One of the basic premises of S-D logic suggests *'organisations exist to integrate and transform micro-specialised competencies into complex services that are required in the marketplace'* (Vargo & Lusch, 2006). This premise indicates the critical role of operant resources in adopting S-D logic as the core of organisational existence (Baron & Harris, 2008). It also shows the role of consumers in the emergence of VCC as the manifestation of S-D logic by which consumers can create effects, and are considered operant resources and act as resource integrators of their operant resources (Vargo & Lusch, 2004). Through the lens of S-D logic, the organisation has changed the G-D logic perspective of communicating the value solely viewing the customer as the operand resource (Payne et al., 2008; Vargo & Lusch, 2004). According to Arnould et al. (2006), three classifications of operant resources can be sourced from consumers: physical,

social, and cultural. Physical resources can be sub-classified into physical and mental endowment (e.g., emotion, energy, strength); and social resources can occur in the form of consumer communities, consumer social expertise, family relationships, and commercial relationships. Cultural resources can be presented through specialised knowledge or skills, imagination, and history. Barrutia and Gilsanz (2012) added consumer personality-related resources as part of physical resources concerning mental endowment that can be shown through openness in relation to certain activities.

3.4 VCC Motivations

The co-creation of value is increasingly apparent within multiple participants, including customers, companies, suppliers, and other stakeholders (see, for example (Campbell et al., 2016; Hunt et al., 2012; Pires et al., 2015)). It shows co-creation activities in various relationships, either in B2C or B2B relationships, although how co-creation operates may be different within distinct types of relationship characteristics and applications of the business market (B2B) and consumer (B2C) context (D'Andrea et al., 2019). The participation of each actor in co-creation initiatives may be motivated by various factors and reasons. Therefore, understanding the participant motivations to engage in such activities becomes essential to expect co-creation success.

Motivation can be described as the forces that direct and drive one's behaviour, including the process of transforming needs into objectives or goals (Taylor et al., 2019). The co-creation actor motivations play an essential role in the VCC process in resource integration (Payne et al., 2017). Resource integration is crucial in VCC processes, and the actor motivation can be the driver for resource integration (Findsrud et al., 2018). According to Taylor et al. (2019), the concept of resource integration extends the understanding of VCC related to motivation, which determines the intensity, objective or direction, and persistence of effort. In such a process, cognitive and behavioural activities accompany motivation and influence how they interact with resources that may affect the actor competencies. Consequently, motivation indicates the centre for a better understanding of resource integration' psychological mechanisms in the co-creation process (Findsrud et al., 2018).

Following the reasoning that motivation is the driver for resource integration in the VCC process, it is also rooted in the engagement concept. Previous studies confirmed that the manifestation of VCC could be through engagement (Bijmolt et al., 2010), and the constructs

clarify the non-transactional behaviour and joint configuration of value (Jaakkola & Alexander, 2014). The concept of engagement is explained by theories adopting VCC and interactive co-creating experience within marketing relationships (Brodie et al., 2011; Jaakkola & Alexander, 2014). Customer engagement extended the concept of traditional relationship marketing. It provides a view on managing relationships with consumers through direct engagement and interaction on the value generation process (Grönroos, 2008). The theoretical foundations of engagement draw on S-D logic and relationship marketing concept (R. F. Lusch et al., 2010). This is in line with the perspective of VCC as one of the S-D logic principles in the marketing field. The theoretical lens of S-D logic proposes the transcending perspective of relationships, which contrasts to the traditional view of marketing relationships through the G-D logic (Vargo & Lusch, 2008a). From the view of S-D logic, the concept of engagement is described as the dynamics of all co-creation actors (i.e., networked customers, companies, other stakeholders) by using service provisions to interactively co-create value (Vargo & Lusch, 2016). The specific motivations of actors to be involved in VCC is an indicator of engagement, which increases the desire to engage in such processes of VCC activities (Fernandes & Remelhe, 2016).

Furthermore, exploring VCC actors and why they are willing to participate in co-creation initiatives can facilitate understanding of the expectations, which may differ among actors (Füller, 2010). The expectation can be directional with motivated action influenced by situational factors and the anticipated consequences (Taylor et al., 2019). Thus, understanding the process of collaboration between the company and the consumer in a collaborative activity termed co-creation can be examined through an integrated set of motivations and willingness-to-engage in such activities presented by the value co-creator (Fernandes & Remelhe, 2016). This also confirmed the explanation of VCC as an interactive process that involves the actors' willingness to integrate resources and engage in specific forms of collaboration that mutually benefits both parties (Tanev et al., 2011). The goal settings may drive the benefits or the advantages of VCC either for business market exchange (Töytäri & Rajala, 2015) or customer value propositions (Anderson et al., 2006).

In B2B marketing, service relies upon dynamic processes and developing the VCC concept should include resource integration, participant motivations, including multilevel possibilities (Taylor et al., 2019). The realisation of B2B co-creation is primarily associated with strategic alliances (Roser et al., 2013). For example, vendors seek solution development for specific business customers in the software or automotive industries (Ceccagnoli et al.,

2012). The aim is to develop alliances, and motivations can drive alliances to minimise transaction costs and maximise strategic value (Pathak et al., 2020). Although the motivations to co-creation within B2B may differ, both parties can mutually 'fit' in the value aiming for beneficial outcomes. The B2B environment is characterised by a high degree of ongoing interpersonal communication and interaction, service customisation, flexible knowledge-intensive processes, and personal and organisational relationships (Fischer et al., 2014; Patterson, 2016). Service providers may define, propose, offer, and communicate their unique value propositions while solving typical problems in B2B relationships (Lombardo & Cabiddu, 2017). A study by D'Andrea et al. (2019) argued that co-created outcomes through processes were more encouraging for B2B than B2C due to several factors: more addressable co-creation activities, greater mutual understanding among parties, more consistent goal sharing, and continuous exchange and communication. Hence, in the long run, the outcomes from B2B co-creation received by both parties can be for similar benefits, such as co-development and sustainability (Huang, 2020).

VCC in the B2B context requires the interaction of company representatives (e.g., managers) or teams while exploring or seeking appropriate solutions for both parties (Lambert & Enz, 2012). Komulainen (2014) argues that customer motivations to make B2B co-creation sacrifices can indicate absorptive capacity and explorative learning orientation, including explaining the learning function in VCC. This argument explains that perceived value can vary significantly depending on the level of company capacity absorption, customer sacrifices in learning, and learning orientation (Komulainen, 2014). Payne et al. (2008) stated that the provider-client relationships are open dialogues and continuous interactions, and the whole process implies VCC. Roser et al. (2013) added interaction and trust to B2B co-creation as the key to relational governance. These factors may encourage sharing compatible or similar values, which intrinsically motivate each party to co-operate in co-creation. They also argue that the B2B parties are likely to add their market governance or hierarchy and invest in mutual identification of each other's shared values, although in business-level relationships, the motivations of the individuals who are making the relationship have their motivations (Baron & Warnaby, 2011), including the decision to be involved in co-creation processes. Therefore, B2B co-creation relies on collaboration to confront complex networks, and the actors need to explore learning through processes in contrast to applying straightforward existing knowledge (Komulainen, 2014).

In the B2C context, VCC is more concerned with customer engagement and relationship marketing (Jaakkola & Alexander, 2014). Customers are heterogeneous, and their role variability is a critical challenge for companies (Agrawal & Rahman, 2015). Consumer motivations may affect their expectations and contribute to co-creation activities (Füller, 2010). The idea of VCC suggests that customers always value the co-creator (Prahalad & Ramaswamy, 2004a), while the role of the company is as a facilitator to develop a system in a service ecosystem (Priharsari et al., 2020). The company or the business provider may encourage the customer to participate in value proposition creation with compelling motivations across various exchange interaction processes - production, negotiation, usage (Pires et al., 2015). Keeping customer motivation to contribute to joint value creation is crucial and a challenge for companies (Agrawal & Rahman, 2015). Hence, the literature suggests that customer participation should be followed by customer readiness to fulfil their role – role readiness (Verleye, 2015). Customer readiness reflects to what degree customers are motivated to accomplish their motivation or role (Auh et al., 2007). Pires et al. (2015) argued that to be ready to participate in value proposition creation, empowering customers to search for reliable alternative information sources is essential. Being well informed, more confident, and more knowledgeable may better satisfy their needs and wants in relation to the competing products (goods, services) available. When customers know what they want, they may have higher expectations and, thus, they will only select a superior perceived value proposition (Clemons & Nunes, 2011).

According to Füller (2010), various factors derived from intrinsic and extrinsic motives can trigger customer motivations to engage in the co-creation projects, such as in a virtual consumer co-creation. Both intrinsic and extrinsic motives play an essential role for the customer to participate in co-creation (Shah, 2018). Füller (2010) refers to intrinsic motivations that favour experiential-oriented behaviours, while extrinsic motivations refer to goal-oriented behaviour. Intrinsic motives are characterised by the individual interest in the content or medium, enduring involvement, affect, fun, ritualised orientation, recreation activity, time-filling, and hedonic benefits. In contrast, extrinsic motives indicate intentional engagement, situational involvement, cognition, work, directed, and utilitarian benefits (Füller, 2010).

However, current studies primarily focus on different customer motivations underlying their contribution from the cost-benefit lens as a rational perspective (Komulainen, 2014; Plewa et al., 2015). In contrast, others argue that other factors (e.g., psychological, social, technical, cultural factors) are also responsible for customer motivations to participate in the co-creation

of value (Agrawal & Rahman, 2015; Chandler & Chen, 2015; Fernandes & Remelhe, 2016). Zwass (2010) also argues that customer motivation beyond monetary benefits may engage them in participative activities. Customer motivation is used to engage customers in their resources, objectives, and anticipation of value outcomes (Vivek et al., 2012) or perceived co-creation of value (Hollebeek, 2011). The customer may gain value, experience, satisfaction, and learning from co-creation activities. In contrast, customer feedback and customer insight may improve economic gain, and loyalty (Agrawal & Rahman, 2015). Various motives are promoted by customer expectations related to preferred behaviour, interest in co-creation activities, product categories, task, incentives/rewards, support/context, an interaction partners. These factors can differentiate consumer types based on their motivations and reflect their behaviour. Hence, the behavioural manifestation may occur beyond purchase, causing motivational driven (Verhoef et al., 2010).

3.5 The Role of Actors in VCC

VCC represents the ‘conventional’ value creation process that changed outside the markets and removed the gap between consumers and companies roles in production and consumption activities (Prahalad & Ramaswamy, 2004a). It also suggests shifting the consumer role from value recipient into active collaborator to co-create value and present consumer participation in the business system (Grönroos, 2011b; Payne et al., 2008). Based on the principle of S-D logic, VCC requires customer participation in an active involvement during resource integration, both operand and operant resources through reciprocal exchanges activities and shared institutions of the co-creators (Liang, 2017). In joint value creation, companies allow customers to move from a passive audience into a more active position that represents the realisation of managing a continuous influx of customer inputs (Agrawal & Rahman, 2015). In the co-creation process, the customers can deliver knowledge concerning demands in a specific context and transform it into market offerings (Hein et al., 2019). The changes in customer position also change the way companies perceived customers from operand resources into operant resources (Payne et al., 2008; Vargo & Lusch, 2004). In the early conception of VCC, Vargo and Lusch (2004) asserted the premise that the customer is the value co-creator, and the company is the facilitator to deliver the value proposition. A customer-company interaction focus becomes inevitable in the emerging concept of a market by assigning both the company and the consumer as collaborators and competitors (Prahalad

& Ramaswamy, 2004b). These market actors are collaborators in the co-creation of value and competitors to capture and extract the obtainable values.

VCC consists of the principles of how the consumer is involved in the co-creation, including factors driving the customer to conduct exchange interactions that occur along the VCC process. In the process, there is an integration of resources obtained by co-creation actors, and multiple joint actor activity appears to be a simultaneous process along with the value creation (Akaka & Chandler, 2011; Chandler & Vargo, 2011). The explanation of VCC activities, starting from the VCC process, resources integration, and customer role, are described as shared value, while the co-created value outcome fundamentally shows the exchange interactions. This supports the importance of customer participation and resource integration for the success of VCC, and other actors in the business ecosystem, who are creating value, also take part as a crucial component to integrate resources (Liang, 2017). The literature also showed that increasing attention to customer-centric orientation focuses on active customer participation and engagement (Bendapudi & Leone, 2003; Kumar et al., 2010; Tardivo et al., 2017) and customer involvement (Hunt et al., 2012; Zátori, 2016) in value creation. Customers are the centre of the information infrastructure. They are encouraged to actively participate in various activities, such as information search, the design of products and services, consumption, and fulfilment, including co-creation experiences (Prahalad & Ramaswamy, 2004b). Thus, it is essential to empower customers as the value creators and accelerate the process of VCC between customers and companies (Agrawal & Rahman, 2015) through participation, involvement, and engagement. In a similar vein, the prevailing scholar thinking on empowering customers as an active value creator also implies that it could be the next competitive effectiveness source (Ranjan & Read, 2016; Waseem et al., 2018).

Using the marketing perspective on explaining the activities to fulfil customer demand, in the long run, has developed the concept of VCC in numerous streams of studies, such as the examination of customer role categorisation (Bharti et al., 2015). The categorisation shows that actors' involvement in the service ecosystem can take different roles in the co-creation process. For instance, customers can present their participation as idea thinker, value designer, and the intermediary (Lusch & Nambisan, 2015). Agrawal and Rahman (2015) propose the role of customers in VCC literature as co-producer, co-distributor, co-promoter, co-manufacturer, co-consumer, experience creator, co-ideator, innovator, co-designer, co-tester, and co-evaluator. Both practitioners' and academics' interest is also related to the importance of behavioural roles to initiate and activate customer roles as co-creators of value (T. Chen et al., 2018; Fellesson

& Salomonson, 2016). The growing attention to the exploration of the customer role is a consequence of customer awareness identified as critical stakeholders in VCC and their customer responsibilities in the process (Agrawal & Rahman, 2015).

However, discussion surrounding the role of customers in VCC, which has gained massive attention from both practitioners and academics, neglects other actors' role that plays a similarly essential part in the co-creation process (Finsterwalder, 2018). S-D logic works through the principles of collaboration, objectives, and contribution (Prahalad & Ramaswamy, 2004a; Vargo & Lusch, 2004). This argument on S-D logic indicates the importance of understanding the role of other actors involved in VCC. Priharsari et al. (2020) explored the role of the company as a facilitator in shaping VCC in developing the service ecosystem. They studied a more complex co-creation ecosystem within digital platforms by integrating technology. In this context, companies facilitate the coordination and manage the voluntary participation of customers (Priharsari et al., 2020) because technology can enhance VCC collaboration (Thiruvattal, 2017). Priharsari et al. (2020) pointed out the need for active initiatives and interactions of the company to advocate and listen to customers throughout the interaction actively. However, they also stated that both companies and customers could act as co-creation enablers and co-creation constraints. It is the individual evaluation results on previous experience with the company, the social environment and themselves.

Acknowledging the different perspective of VCC from both the B2C and B2B contexts may be driven by various factors that can influence the willingness to participate in co-creation activities. The complexity of exchange interactions in different business settings may illuminate the aspects of acquisition behaviours, including the practice of consumption and possession of value (Arnould & Thompson, 2005). The exchange characteristics in marketing encompass a set of variables referred to as the relationship development in the broad sense of business nature either in B2B or B2C contexts (Kumar & Reinartz, 2016). For example, in the B2C context, the sources of exchange characteristics can derive from multichannel shopping, past consumer spending levels (shopping spending experience), consumer participation in company programs, and focused buying behaviour (Kumar & Reinartz, 2016). In the B2B context, the driving factors can derive from purchasing frequency, past buying activity, purchase spending experience and cross-buying behaviour (Kumar & Reinartz, 2016).

In a market-based service ecosystem, all actors involved in the co-creation ecosystem need to be considered in the process, including considering the type of relationships in the co-

creation. Examining VCC in a more context system with more complex interactions of actors also describes the essence of consumption exchange (Chandler & Vargo, 2011; Vargo, 2011). Different business settings and characteristics with different practices, processes, and activities have a distinct actor role in the system (Gordon et al., 2018), and each actor is assumed to conduct and apply different exchange interactions in the VCC activities. For instance, in the B2B context, the supplier perspective approaches the VCC conception from the lens of business markets that involve numbers of organisations in a business setting system (Mencarelli & Rivi re, 2015). There is a distinct role of actors in the buying-supplying activities of B2B (Lindgreen & Wynstra, 2005). The shared value occurs in the relationships within the marketing chain, which, for example, in a more structured perspective, can reveal the alignments within the organisations (Fill & Fill, 2005). B2B co-creation can adopt business relationships as the tools to engage their business customers (Gr nroos, 2011a). It became important for the business actor to acknowledge and understand the role of the actor in business market relationships to mediate and realise reciprocal value creation (Gr nroos, 2011a). Within the business system, the actors may perceive the importance of relationship value among marketing actors to understand the resilience of the relationships (Mencarelli & Rivi re, 2015).

In a broader context, the role of actors can be more complicated in multi-stakeholder collaboration to facilitate the simultaneous co-creation activity in the market network (K h k nen, 2012; Thiruvattal, 2017). Relationship development amongst the actors or even in a broader scope of stakeholders and network interactions becomes the focus of the encounter process during the interaction and exchange process (Alves et al., 2016; Gr nroos, 2008, 2011a; Gummesson & Mele, 2010; Payne & Frow, 2005).. Vargo and Lusch (2011) stated that recognising the role of actors in co-creation can determine resource integration, which provides opportunities to create new potential resources to use in the service exchange, including to access additional resources. New exchangeable resources may occur through each actor resource integration – the actors' activities (Vargo & Lusch, 2011).

3.6 The Components of VCC Manifestation

In the concept of VCC, the role of consumers during the exchange interaction has changed from passive to active and together with the company or business provider they create value (Prahalad & Ramaswamy, 2004a; Vargo & Lusch, 2008b). The premise of VCC based on S-D logic is that the customer is always a co-creator (Vargo & Lusch, 2008b), but in multiple joint actor activities, the co-creation of value occurred along the process (Akaka & Chandler,

2011; Chandler & Vargo, 2011). The joint activities between consumers and the company can be through direct or indirect collaboration throughout one or more examples of consumption and production (Hoyer et al., 2010; Lehrer et al., 2012; Payne et al., 2009). The joint creation of value comprises the essential elements such as interaction, engagement, involvement, collaboration, experience, and self-service (Bendapudi & Leone, 2003; Hiler et al., 2018; Tommasetti et al., 2017). Ramaswamy and Ozcan (2018) tried to clarify co-creation theorisation with its heterogeneous relations to configure the 'value recreational system' concerning 'producing', 'using' 'exchanging'. Ranjan dan Read (2016) proposed that VCC is superordinate of two essential components: co-production and value-in-use (ViU). These theoretical dimensions of VCC are supported by previous studies that broadly discussed VCC as an aggregate result of consumer consumption and co-production (Etgar, 2008; Grönroos & Voima, 2013; Möller, 2006; Ranjan & Read, 2016; Tommasetti et al., 2017).

According to Ballantyne et al. (2011), some scholars interpreted VCC as the customer involvement in delivering and creating products or services, while Vargo and Lusch (2008b) appointed co-production as the signifier of customer involvement in the process of product or service production. However, in their propositions, Vargo and Lusch (2008b) carefully argue that the customer role in co-creation may or may not be as co-producer. From this proposition, co-creation activities are related to the degree to which the customer is active in achieving the anticipated outcome. Market research is the simplest form of customer engagement, and serves as an avenue to communicate and evaluate customer needs and propositions, which may be distant from co-creation (Ranjan & Read, 2016). The examples of the proximate endeavours of consumer engagement in the context of co-creation are the active customer participation in the virtual new product development (Füller, 2010), service recovery (Skourtis et al., 2019), service evaluation (Xu et al., 2018), and customer engagement in service delivery (Berry et al., 2010).

Co-creation also defines the way actors interact, use, act, experience, interpret and assess the value propositions related to the social construction to which they belong (Brodie et al., 2011; Prahalad & Ramaswamy, 2004b; Vargo & Lusch, 2006). The characteristic of value expands into potential processes beyond the sphere of exchange interaction even without another immediate party intervention, such as joint construction, use, and social relation (Edvardsson et al., 2011; O'Loughlin et al., 2004; Peñaloza & Mish, 2011). This means that value can derive through the process of the exchange interaction between consumers, the company or business provider, and its offerings. Value can also arise through the process of

consumption, which may be primarily separate from the exchange or interaction with the company (Moeller, 2008; Vargo & Lusch, 2004). The construct captures the component of VCC about ViU to describe a joint reality of the use-value or experience (Ranjan & Read, 2016).

Building upon the above two components of VCC manifestation, the following subsection develops a conceptual lens of the co-production mechanism, and ViU underpins VCC. The theoretical explanation can clarify the articulation that defines the two components of VCC found in the literature.

3.6.1 Co-Production

The emergence of co-production begins with increased initiatives for customers that encourage them to co-create value from the company goods or services (Bendapudi & Leone, 2003). The consumer is taking on a privileged status as the producer (Bendapudi & Leone, 2003), which has consequences for consumers' potential to participate in the customisation of their world by immersing themselves in the world of objects (Firat et al., 1995). In general, co-production is defined as a set of activities performed by economic and social actors within networks (Vallaster & von Wallpach, 2013; Vargo & Lusch, 2008b). According to Auh et al. (2007), there are two prevailing benefits of co-production. First, involving customers in co-production can lower companies' costs, to the extent that customers are involved in producing goods or services. In return, the customer can expect a price reduction. Second, co-production enables companies to customise the products or services as offerings for customers and fulfil their needs.

However, distinguishing between co-creation and co-production is still considered problematic (Canhoto et al., 2016). Some scholars prefer to use both terms interchangeably, and it is unnecessary to distinguish the two conceptions (Payne et al., 2008). However, others argue that it is essential to differentiate co-creation and co-production. Co-creation occurs when the customer takes the company value proposition and integrates it with customer resources to create something called 'value' determined by the beneficiary (Vargo & Lusch, 2008b). Co-production emerges when there is an involvement of purposeful integration of resources (i.e., operand and operant resources) from the customer and the company to develop value propositions, ranging from value co-conception until value co-disposal of the product (Sheth & Uslay, 2007).

Co-production has a place in the S-D logic as the principle of co-creation. Although co-production is unavoidable in co-creation and value is always co-created, it is not always co-produced (D'Andrea et al., 2019). This means that customer involvement in co-production processes is optional (Vargo & Lusch, 2016). Co-production captures customer participation when using or consuming the products (Vargo & Lusch, 2008b). Co-production is nested within VCC and becomes the component of VCC that captures 'participation in the advancement of the primary offering itself' (Vargo & Lusch, 2008b). Customer participation can be evidence of an active role in contributing knowledge and information sharing with the company (Ordanini & Pasini, 2008). Customer participation and customer interaction indicate co-production features manifested through physical and mental activities, mutual exchange, and access to mutual expertise (Ertimur & Venkatesh, 2010). Co-production is executed through dialogue (Aarikka-Stenroos & Jaakkola, 2012; Grönroos, 2012) and collaboration (R. F. Lusch et al., 2007). These factors create value configuration by integrating resources from the involved actors in the co-creation (mutual resources) (Ballantyne & Varey, 2008). Thus, a willingness to act by both parties, the customer and the company, in co-production becomes essential (Prahalad & Ramaswamy, 2004a). Interactive dialogue can facilitate this process by involving deep engagement, interactivity, and mutuality (Kantanen, 2017).

Ranjan and Read (2016) include knowledge sharing and equity as elements of co-production. Co-production involves integrating operand and operant resources from the customer and the company (Sheth & Uslay, 2007). Knowledge sharing works as the fundamental operant resource, consisting of customer ideas, knowledge, and creativity (Zhang & Chen, 2008). Knowledge sharing expresses and articulated customer current and future needs (Ranjan & Read, 2016) and is used to activate skills and better address co-creating value (Fisher & Smith, 2011). Another element of co-production regarding equity explains the company's willingness to share the support control for consumer empowerment to activate the customer role and customer involvement in co-creation activities (Fisher & Smith, 2011; Hoyer et al., 2010). Equity is manifested through the willingness to share control (Fisher & Smith, 2011) and customer-centricity (Gummesson, 2008; Prahalad & Ramaswamy, 2002). It also provides a facultative environment for co-creation (Storbacka & Nenonen, 2011).

3.6.2 Value-in-use (ViU)

The second component of VCC, labelled ViU, comes from the basic idea that value is being determined and perceived by the customer as representing customer-centric orientation.

It relies on the evolution of service as the basis of all exchange (Vargo & Lusch, 2004), and service value is determined based on the utilisation by the time of its use (Ballantyne & Varey, 2006). ViU implies that the customer is not only serving as the value user that enables the assessment or determination of the value but also functioning as the value creator (Grönroos & Voima, 2013). In the interaction between production and customer value creation, there is a joint value creation process. In this process, the company participates as a value co-creator with the customer, and the output of this activity is ViU (Grönroos, 2011b). A study by Ranjan and Read (2016) also suggests ViU as one of the main theoretical elements in VCC. In this study, they propose collaboration as one of the conceptual elements that underlie ViU, by specifying collaboration as the contributing factor of the relationship dimension in VCC rooted in reciprocal, joint, and iterative processes between the customer and the entity in an environment of engagement and/or active communication (Ranjan & Read, 2016). Hence, according to S-D logic, collaboration with customers, who can co-create their service experience, is crucial in the VCC process (Prahalad & Ramaswamy, 2004a, 2004b).

Based on the S-D logic perspective, another interpretation of ViU is value as the customer's outcome, aim, and purpose achieved from the service delivery (Macdonald et al., 2011). ViU changes the perspective that value is creating for the customer (value-in-exchange) into the value created with the customer (Edvardsson et al., 2011). ViU replaces the conventional time logic on value-in-exchange through service intervention by completing the pre-sale and post-sale interaction and opens a more extensive prospect in the future relationships with the customer (Ballantyne & Varey, 2006).

Co-created value exists during the value creation process phases, where the value is present both to the firm and the customer (Grönroos, 2012). From the customer level as the individual product user, value is revealed as the evaluation of the usage process quality and service quality after customer objectives emerge. In contrast, at the company level, network quality can become a new consideration during the customer valuation toward the value (Macdonald et al., 2011). The interaction that comes from a collaboration between each VCC actor corresponds to superior mutual value creation as a driving force for ViU, guiding the organisation to create unique value as company competence (Ballantyne & Varey, 2006; Bititci et al., 2004; Parvatiyar & Sheth, 2001).

The above explanation shows that value derives from the interaction between customers and what the company offers. Value can also arise from the process of consumption, which can

be primarily independent by involving the company exchange or intervention (Moeller, 2008; Vargo & Lusch, 2004). Ranjan dan Read (2016) proposed the elements of ViU through relationships, experience, and personalisation. The manifestation of ViU can be in the form of mutual employment of skills of the resources (operand – tangible and operant – non-tangible resources) obtained by the actors (Ballantyne & Varey, 2006) arising from the integrated process of transformation. This means the value transcends the service delivery through the use-value (Moeller, 2008). The value may emerge which using the product packages and contribute to the co-creation activities with customer experience compilation as the total experienced value (Grönroos, 2012). Behavioural involvement measurements can be designed for the application of ViU (see Hunt et al., 2012). The integration of customer experience in ViU was also accepted by Macdonald et al. (2011), who define ViU as service attributes and customer performance contra the attributes that customers are willing to pay for. The actual customer experience becomes the focal point in the co-created value rather than monetary worth in ViU (Grönroos & Voima, 2013). Experience or service become the primary approach for this concept (Gordon et al., 2018). The interaction between the customer and the company in any form presents dyadic and networked actions that generate relationships and associations (Heinonen & Strandvik, 2009). Thus, in ViU, value is attached through usage processes of co-creator mental models (Macdonald et al., 2011). The mental models may propose uniqueness and specificity for a unique consumption value by enjoying the use process – described as personalisation (Lemke et al., 2011; Sandström et al., 2008).

3.7 Chapter summary

This chapter has presented a literature review on VCC and its fundamental concepts from a marketing perspective and its relevance to economic, psychological, and strategic management perspectives. It has contrasted the VCC conception and its development. It has also reviewed several key concepts regarding VCC concepts, VCC resources, VCC motivations, the role of actors in VCC, and VCC components. It has also reviewed VCC from different market contexts of business markets (B2B) and customers (B2C) relevant to the focus of the thesis. Thus, it emphasises the need to distinguish VCC and its key concepts from various deviant market behaviours. This chapter has provided a theoretical basis for exploring and developing a conceptual model for VCC from both the B2B and B2C environments used in this research. The following Chapter, 4, presents further elaboration on the research gaps discovered in the current studies and develops questions for this research.

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CHAPTER 4 – RESEARCH GAPS AND FORMULATION OF RESEARCH QUESTIONS

4.1 Introduction

This chapter explores the research gaps found in the theoretical review and identifies the research questions addressed. This thesis investigates the VCC process in the Indonesian agri-food sector and its implications for the BOP market. The chapter begins by identifying the chronological development of VCC, which began in a developed country (High-Income Countries) context (Section 4.2) and has been applied to developing countries (Low-Medium Income Countries - LMICs) and BOP markets (Section 4.3). Later, it explains the VCC process by presenting the conception in developed and developing economies (Section 4.4). This chapter then analyses VCC in the agri-food sector (Section 4.5) and its focus for this research. The research gaps in the current literature and research questions for this research are presented (Section 4.6), and a summary concludes the chapter (Section 4.7).

4.2 VCC and the Developed Economy Markets

The domination of services in the economic environment of developed societies began in the 1970s. The Global North (e.g., United States, Europe, Australia, East Asia) represents the economically developed countries, characterised as wealthy, technologically advanced, and with zero population growth, the opposite of Global South societies (Odeh, 2010). For most developed country consumers, the early digital era, with the Internet, which began in the mid-1990s, unleashed the first wave of consumers as user-innovators, promoting the concept of co-creating value with customers (Rayna & Striukova, 2016). The modern concept of development has its origin in Western Europe, during the emergence of industrialisation in the mid-18th century (Odeh, 2010). The massive wealth and stability amongst the Global North Region have encouraged researchers from the developed countries to continue exploring research in co-creation subjects (Matthyssens et al., 2016; Preikschas et al., 2017; Y. Rashid et al., 2013; Skourtis et al., 2019).

As explained in Chapter 3, S-D logic is the underlying philosophy of VCC, distinguishing between business providers as the service provider, and customers as service beneficiaries. Co-creation of value is one of the five principles in the S-D paradigm, including

service exchange, resource integration, value as a unique phenomenon, and actor roles in the institutions to organise and generate VCC (Vargo & Lusch, 2017). Grönroos (2011b) also proposes that VCC and the S-D logic is the fundamental foundation of a business. He argued that goods are a distribution mechanism for service provision; the company cannot deliver value but can only offer value propositions.

The movement towards a service ecosystem within various industries in developed economies has extended VCC and the S-D logic for business and marketing strategic plans (see Appendix A, Table 2). Research on VCC has mainly explored the development of the VCC process, exploring S-D logic as the basis for co-creation theory, co-creation mechanisms, co-creation components, and behaviour initiatives. Research streams analysing VCC in services that have incorporated ICT include corporation-based technology, e-commerce, and social commerce (see, for example, Y. Rashid et al., 2013; Kijima et al., 2014; Chuang, 2018; Lindhult et al., 2018; Mingione & Leoni, 2020; Nöjd et al., 2020).

VCC within advanced technologies and the S-D logic movement have inspired scholars to expand service and marketing research. It has also influenced other subjects beyond marketing, such as innovation and operation, by understanding the increase in a service business (servitisation) in industrial companies (Cortez et al., 2017; Grönroos & Helle, 2010; Gummesson & Mele, 2010; Wilden et al., 2017). Vargo and Lusch (2017) similarly characterise the S-D logic as the VCC principle with influence in various fields. Adopting the S-D logic for VCC and market theory development in industrial marketing has also developed a network-centred perspective in the discipline (Brodie et al., 2019). VCC has also been analysed from various user perspectives, such as business markets (see Crowther & Donlan, 2011, Matthyssens et al., 2016, D'Andrea et al., 2019, Watanabe, 2020), consumers (see Gordon et al., 2018, Dai et al., 2019, Koivisto & Mattila, 2020), and stakeholders in the business ecosystem (see Payne & Frow, 2005, Y. Rashid et al., 2013).

4.2.1 VCC and Digital Technology in the Developed Economy Markets

The presence and development of digital technology and service science have influenced business and marketing in various industries. The digitalisation-driven era, the presence of ICT, IoT, and the applications of the service system ecosystem in various industries that support the opportunity of new service innovation appear to be the triggers (Lindhult et al., 2018). A study by Ramaswamy and Ozcan (2018) reveals the phenomena of VCC manifested in a broad range of sectors such as business-based technology, hospitality services,

professional services, retail, fast-moving consumer goods, including capital intensive industrial goods and services. Developed economies are experiencing more research in service innovation by incorporating the role of value in economic development to become more capital- and technology-intensive (Gallouj & Savona, 2009; Ramaswamy & Ozcan, 2018; Toivonen & Tuominen, 2009).

Digital technology-driven VCC enables a more mature service system ecosystem, increasing companies' power and servitisation from new industrial services (Cortez et al., 2017). The use of advanced digital technologies, such as in product-service systems, requires the development of human skills and competencies in social connectivity (A. Q. Li et al., 2020). The more powerful the digital technology used in the industry, the more advanced are the human skills that are needed, and VCC facilitates technology implementation readiness, which is motivated by various economic, social, and environmental factors. As explained in the previous chapter (see Chapter 3 subsection 3.1) about digitalisation and the service system approach as VCC enablers, this aligns with the literature related to the interpretation of the general VCC concept and its development.

4.3 VCC and the Developing Economy Markets

In contrast with developed economy markets in the Global North, the Global South Region symbolises the economically less developed countries that are agrarian-based, economically and politically unstable, dependent, often through poverty, war, anarchy, and conflict and tyranny (Odeh, 2010). The Global South countries mainly refer to lower to middle-income economies (LMICs) or developing economies, usually associated with countries in Asia, Latin America, and Africa (e.g., Indonesia, India, Ghana, Mexico, Brazil). Developing countries are confronting complex multidimensional problems. Social-economic conditions in the Global South affect the population living in this region at the BOP. These markets consist of four billion consumers with an annual income from under US\$1500 (Chikweche, 2013) to no more than US\$3000 per year and offer business potential (Angeli et al., 2018; Chmielewski et al., 2020; Du et al., 2021; Srivastava et al., 2020). The BOP market is highly dynamic, emerging, and has a different market and business situation from the Western countries, dominated by developed economies. It has become apparent that there are two types of major economic worlds of the Global North and Global South: the wealthy and the developing countries. The differences between these two major global economies require different market development approaches.

Prahalad and Hammond (2002) were the first to introduce work on consumers living in the BOP through the concept of conducting business ‘with the poor’. Although there was a saturation of research on high-income customers, both in Western and non-Western countries, developing economy markets, which provided tremendous opportunities, remained under-researched (Howell et al., 2018). There are market opportunities within BOP markets, and they represent multiple cultures, capabilities, needs, and literacy, and they offer segmentation opportunities (Prahalad, 2012). Hart and Christensen (2002) have elaborated the BOP possibilities that inspire people in these markets to join the world’s economy, driving innovation, social responsibility and sustainable corporate growth.

The interest in VCC research has also been applied to developing markets and BOP ecosystems (see Appendix A, Table 3). A dominant stream of the literature aims to discover the appropriate business approach for companies to participate in BOP markets (Dwivedi, 2015; A. T. Rashid & Rahman, 2009). It recommends delivering value for both companies and consumers in these impoverished markets (Angeli & Jaiswal, 2016; Brugmann & Prahalad, 2007). Consequently, companies operating in this specific market have to reinvent themselves in an entrepreneurial spirit guided by a learning agenda to explore business models and strategy through trial and error (Hernandez-Cazares et al., 2019).

The purpose of research into the BOP markets continues to explore the proposition (J. Anderson & Billou, 2007; Prahalad, 2012; Prahalad & Hammond, 2002). The notion of doing business at the BOP or ‘with the poor’, has seen research contributions from different disciplines, such as business ethics (Kolk et al., 2014; Santos et al., 2015), social entrepreneurship marketing (Facca-Miess & Santos, 2014; Santos et al., 2009; Weidner et al., 2010), development studies (Blowfield, 2012; Pansera & Martinez, 2017), and innovation (Howell et al., 2018; Prahalad, 2012). Recommendations from these streams of research suggest a more nuanced reframing of the BOP population as not only a consumer market, but also as entrepreneurs, producers, and workers (De Silva et al., 2020; Facca-Miess & Santos, 2014; London & Hart, 2010; Simanis & Milstein, 2012).

Various business contexts have been used to explore VCC in developing economies, such as the healthcare sector, service and hospitality industries, and technology-based products and businesses. However, current studies show that the operationalisation, business settings, and business ecosystem of these industries in developing economies are different from developed economies, as discussed in the previous section. Hepi et al. (2017) stated that

engagement with the marginalised population could help to realise a transformative VCC through the nature of a dynamic and systemic co-creation at the BOP. However, it requires negotiation to develop sufficient services and emerge as enablers of value and wellbeing co-creation.

4.3.1 VCC and Digital Technology in the Developing Economies

Table 4.1 summarises the role and impact of digital technologies in developing economies. The underlying factors driving co-creation in these markets include social value creation, social entrepreneurship, social innovation, and business relationships. The integration between VCC and technology aims to support the purposes and the process of the co-creation itself. Technology can promote collaboration, resources, capability integration, inclusivity, business model development and innovation. As noted in Table 4.1, evidence indicates that technology can support VCC by enabling social innovation, social value creation, improved business relationships, innovation, and value-based services. Therefore, digital technologies in these markets can facilitate innovative business models (Zott & Amit, 2010), foster creative development (Dey et al., 2019), promote social entrepreneurship (De Silva et al., 2020), and empower consumers as technology and innovation users (Nayak et al., 2019; Rayna & Striukova, 2016).

Several case studies have validated the business potential of VCC in BOP markets, which have been underpinned by technology and innovation drivers. Prahalad (2012) identified the BOP markets as a radical innovation source and proposed different marketing approaches through the 4As dimensions (awareness, access, affordability, availability). In this study, Prahalad (2012) suggests moving from a product-centric to a business model of innovation by developing new services and applications to balance global standards and respond to local constraints. The principles of VCC can be used as the guiding framework for business patterns and practices in a complex developing economy market with specific goals such as sustainability outcomes of social value facilitation for BOP consumers and economic gain for business entities (Knizkov & Arlinghaus, 2019).

Table 4.1 Research movements on VCC and digital technologies in developing economies

The focus area of co-creation of activity at the BOP	Focus area	Sources
	Social entrepreneurship	(Castresana, 2013; De Silva et al., 2020; Facca-Miess & Santos, 2014; Goyal & Sergi, 2015)
	Social value creation – social fairness, social innovation	(Gebauer & Reynoso, 2013; Lashitew & Van Tulder, 2020; Nayak et al., 2019; Sinkovics et al., 2015; Sinkovics & Archie-Acheampong, 2020)
	Value-based services	(Angeli et al., 2018; Dwivedi, 2015; Enquist et al., 2007)
	Value proposition, resources, and capabilities	(Angeli & Jaiswal, 2016; Brugmann & Prahalad, 2007; A. T. Rashid & Rahman, 2009)
	Integrative Justice Model (IJM), transformative justice	(Facca-Miess & Santos, 2014; Kennedy & Santos, 2019; Santos et al., 2009, 2015; Santos & Lacznia, 2012)
	Innovation	(Dey et al., 2019; Howell et al., 2018; Khalid & Seuring, 2019; Prahalad, 2012)
	Business relationship or partnership	(Brugmann & Prahalad, 2007; Dwivedi, 2015; Khalid & Seuring, 2019; Nahi, 2016; Vellema & Wijk, 2015)
VCC and digital technologies at the BOP	The role of digital technologies	Sources
	New business model	(Angeli & Jaiswal, 2016; Dwivedi, 2015; Howell et al., 2018; Pansera & Martinez, 2017)
	Resource - capability integration	(A. T. Rashid & Rahman, 2009)
	Socio-economic transformation or development	(Dey et al., 2016, 2019; A. T. Rashid & Rahman, 2009)
	Increasing prosperity at the BOP	(Esposito et al., 2012; Varman & Belk, 2012)
	Inclusivity, Collaboration legitimization	(Howell et al., 2018; Lashitew et al., 2020; Nayak et al., 2019)
	Innovation - technology appropriation, technology upgrading, technology users	(Dey et al., 2016, 2019; Nayak et al., 2019; Rayna & Striukova, 2016)

The process of an institution using new technology can create market innovation as the institution's solution, and this is driven by ongoing VCC amongst multiple market actors in the service exchange (Vargo et al., 2015), and this technology utilisation requires continuous refinement and learning (Prahalad, 2012). Technology has been conceptualised as a value proposition and agent for innovation and VCC (Vargo et al., 2015). However, innovation (e.g., innovative business models, social innovations) as the approach for VCC is not a single strategy but instead involves empowerment, social embeddedness, and inclusive initiatives to approach the BOP market (Angeli & Jaiswal, 2016; Goyal & Sergi, 2015; Lashitew et al., 2020; Letaifa & Reynoso, 2015; A. T. Rashid & Rahman, 2009).

In the context of technology adoption and applications, the experience of technology and innovation development in developing economies has sometimes been slower than in developed markets. For example, research in technology applications within the BOP are still discussing technology upgrading (Dey et al., 2019), technology integration with local engagement (Dwivedi, 2015), and the role of IT for inclusivity (Howell et al., 2018). This shows that VCC facilitated by technologies within developing economies still depends upon

technology capacity and ‘fit’ (Dey et al., 2019; Nayak et al., 2019). This fact indicates that technology and innovation in developing economies can facilitate co-creation, but it requires market suitability and adaptability. Hence, co-creation in these markets should consider linking the concept with resources, skills, and competencies within the ecosystem to manage the community constraints and develop a transformative service provision (Hepi et al., 2017).

4.3.2 VCC Facilitators and Actors in the BOP Markets

Hamilton et al. (2014) argued that the approach to vulnerable populations, such as the BOP, requires understanding the diversity and context experience. They suggest a social gain orientation acknowledges the implications of market problems arising from the market and other institutional forces. According to Heikkurinen (2018), the re-emergence of a social purpose within organisational responsibility has occurred through integrating economic, social, and ecological value creation. To implement such endeavours and goals, consideration of salient stakeholders such as the future generations, the poor, and non-humans in terms of social fairness are crucial to enable an ethical and sustainable business (Heikkurinen, 2018).

However, research concerning developing economies has challenged scholars to explore the significant impacts for businesses in this market. Companies are recommended to identify how to deal with the root causes of market problems (Sinkovics et al., 2015). Primarily, within the BOP, VCC research has been dominated by analysis of multinational companies' (MNCs) market entry strategies (see Table 4.2), which are built upon collaboration with BOP consumers and facilitated by NGOs (Alkire et al., 2020; Blowfield, 2012; Brugmann & Prahalad, 2007; Dey et al., 2019). The global companies that originated from developed countries have attempted to explore novel business models and have established a new business ecosystem framework that builds upon the equal collaboration between multinationals and BOP consumers, which are facilitated by NGOs (Alkire et al., 2020; Blowfield, 2012; Brugmann & Prahalad, 2007; Dey et al., 2019). Scholars have encouraged collaboration and partnerships between MNCs and non-traditional business actors such as NGOs to tap into these markets. Cases analysed in this research have included those in the financial or banking services (Brugmann & Prahalad, 2007; Lashitew et al., 2020), health services (Angeli & Jaiswal, 2016), and the ICT industry (Dandonoli, 2013; Dey et al., 2019; Varman & Belk, 2012).

Table 4.2 Co-creation initiator and/or actors at the BOP

Initiator and/or actors to co-creation	Sources
Global companies/multinationals and BOP communities	(Borchardt et al., 2020; Dey et al., 2019; Lashitew & Van Tulder, 2020; London & Hart, 2004; A. T. Rashid & Rahman, 2009; Santos et al., 2015; Santos & Laczniak, 2012; Simanis & Milstein, 2012; R. L. Williams et al., 2012)
Global companies/multinationals, NGOs, and BOP consumers	(Brugmann & Prahalad, 2007; Dey et al., 2019; Santos & Laczniak, 2012; Vellema & Wijk, 2015a)
Large domestic (local) companies and BOP communities	(Lashitew et al., 2020; London & Hart, 2010; Nayak et al., 2019; Varman & Belk, 2012a)
Local BOP producers and consumers	(De Silva et al., 2019; Knizkov & Arlinghaus, 2019a)
Micro ventures and NGOs	(Facca-Miess & Santos, 2014)
BOP communities and key stakeholders	(Hernandez-Cazares et al., 2019)
Non-profit sector and BOP consumers	(Dwivedi, 2015; Howell et al., 2018; Makonese & Bradnum, 2018)
Service providers/manufacturers/marketers	(Bharti et al., 2014; Duarte et al., 2019; Goyal & Sergi, 2015a)

London and Hart (2004), who have studied successful MNCs pursuing business opportunities in the BOP market, have identified the importance of co-inventing business strategies by personalising solutions and incorporating local capacity development. Some argue that multinationals enhancing corporate recognition with Western-style patterns towards economic development for entering the BOP requires business strategies to adjust and modify the business model. Such economic growth may not occur in the BOP business environments (London & Hart, 2004). Local businesses have also been identified as activating co-creation initiatives by initiating cooperation and mutual support with other business entities and stakeholders, such as multinationals and NGOs, and governments (Borchardt et al., 2020; Dey et al., 2019).

The common theme to both the above approaches to VCC at the BOP is collaboration and relationship development between companies and non-traditional partners, such as local non-profit organisations to comprehend and penetrate the BOP market (Brugmann & Prahalad, 2007; Dey et al., 2019; Santos & Laczniak, 2012). These studies have explored how collaboration, partnership, and relationship development with locals at the BOP can leverage networks, expertise, and how stakeholders can collaborate with each other. The past research signifying participating businesses at the BOP and that this business opportunity can make profits by also contributing to solving development problems at the BOP. This shows the need for collaboration within various business networks to enable VCC at the BOP. Another study also suggests a VCC strategy through collaboration with stakeholders across the supply chain at the BOP (i.e., upstream and downstream stakeholders) (Hernandez-Cazares et al., 2019).

A study by Khalid and Seuring (2019) discussed VCC related to supplier integration, strategic purchasing, de-commoditisation, communication, and long-term relationships among the supply chain actors that are linked to sustainability. This study suggests that supply chain and sustainability perspectives can help understand collaborative partnerships amongst the supply chain actors to facilitate and foster innovation processes, economic rationale, and social-ecological aspects. Knizkov and Arlinghaus (2019) proposed a guiding framework for co-creation operationalisation and sustainable outcomes. They focused on VCC principles across the supply chains by involving various companies (micro, meso, and macro) and revealed the limitation of co-creation in companies operating at the BOP. There were trade-offs between economic/financial and social results from the supply chains in the BOP market, with no definite win-win scenarios between these factors in this market.

Regardless of companies' approach to engaging with the BOP markets, VCC has become the core idea to develop opportunities to do business or marketing 'with the poor' (London & Hart, 2010). It indicates an authentic engagement from the BOP population as the partner perspectives in the value chain. It enables BOP problem solving (Facca-Miess & Santos, 2014) and grows profitability (London & Hart, 2010). The cooperation and mutual support between companies and the BOP population by acknowledging them in various market roles (consumers, producers, entrepreneurs) can create an organic and symbiotic ecosystem called a 'co-creation mechanism' (Dey et al., 2019).

4.3.3 VCC and the BOP: Ideological Approaches

Attaching the term 'market' to the BOP economy may help change the 'mental thinking' of companies to start viewing this market as 'customers with needs.' Previous research presented VCC as a marketing strategy for engaging with developing economy markets under a development agenda (London & Hart, 2010). By adapting the VCC concept to BOP markets, the co-creation concept modifies collaboration with the BOP population by proposing value propositions and contributing to a better exchange (Santos et al., 2015). Thus, VCC at the BOP conceptualises companies' practices as facilitating collaboration and coordination amongst local actors (Lashitew et al., 2020). Collaboration with the BOP communities (Bolton et al., 2018; Dey et al., 2019) requires empowerment (Anselma et al., 2020) to facilitate their networking behaviours (Rossano-Rivero & Wakkee, 2019). Empowerment can ensure collaboration, authentic engagement, cooperation, and mutual support between companies and the local business communities (consumers, producers,

entrepreneurs). It also supports creating an organic and symbiotic ecosystem or ‘co-creation mechanism’ (Dey et al., 2019). Hence, VCC at the BOP has been characterised on a continuum. It ranges from the in-depth social transformation process to arms-length cooperation that merely legitimises a corporation as a development agent (Blowfield, 2012; Nahi, 2016).

Companies' interest in participating in the BOP markets led them to adopt distinct and specific strategies to answer the challenge. The current literature presents different strategies to approach the BOP from different angles. VCC at the BOP has been examined from development and social entrepreneurship marketing perspectives (see Table 4.3), but previous studies were typically MNCs initiated. ‘Selling to the poor’ represented the first wave of engagement, typically by MNCs, with BOP markets in what Prahalad and Hart (2002) called ‘BOP 1.0’. In this scenario, poverty reduction was deemed to occur through transactional-based ‘basic needs’ development.

VCC underpins the second iteration of BOP engagement, ‘BOP 2.0’. This approach focuses on a ‘deep dialogue’ between collaborators, joint capabilities, shared commitment, and business co-venturing, all of which are part of the VCC process (Prahalad, 2004; Simanis et al., 2008). The third and most recent iteration, ‘BOP 3.0’, extends VCC beyond a consumer’s value-in-use to an inclusive business strategy (Cañeque & Hart, 2017), involving multiple local supply members chains (London & Hart, 2010) through a bottom-up model of sustainable development. BOP 3.0, reconceptualising the concept of poverty by understanding the BOP market's complexity and its multidimensional nature (Cañeque & Hart, 2017). It addresses criticisms of unsustainable consumption behaviours associated with BOP 1.0 and 2.0 (Dembek et al., 2019). The strategy attempts to move from traditional income-based perspectives to a greater understanding of the BOP market complexity and its multidimensional aspects.

Table 4.3 The approaches to the BOP

Perspective	BOP strategy	Goal	Description	View to the BOP	Co-creation initiator	Focus
Development	BOP 1.0 (Prahalad & Hart, 2002)	Finding fortune at the BOP	<ul style="list-style-type: none"> • Intense listening • Extend distribution, re-design product packaging • Price reduction • NGOs as a mediator for the arms' length relationships 	BOP as potential consumer/producer	MNCs	Selling to the poor
	BOP 2.0 (Prahalad, 2004; Simanis, Hart, Dekoszmovszky, et al., 2008)	Mutual value creation for multinationals and the BOP	<ul style="list-style-type: none"> • Intense dialogue • Develop shared commitment, joint capabilities • Expand imagination • NGOs as a facilitator to build direct and personal relationships 	BOP as a business partner	MNCs	Business co-venturing
	BOP 3.0 (Cañeque & Hart, 2017)	Inclusive business strategy	<ul style="list-style-type: none"> • From protected space to the company's mindset, purpose, and level of motivation • Co-creation for BOP innovation to open innovation • Innovation ecosystem • Innovation for the last mile to be more collaborative and creative • Cross-sector partnership networks • Sustainable development at the BOP (environmental and integrated sustainability) 	BOP as small producers, employees, and business owner	MNCs	Innovation, sustainable development, bottom-up model
Social entrepreneurship marketing	Marketing in subsistence marketplaces (Weidner et al., 2010)	Collaboration for a sustainable marketplace	<ul style="list-style-type: none"> • Challenge and reconsider traditional business • One-to-one interaction, innovative communication • Understand and integrate consumer needs, increase product/services transportability • Costs reduction, increase livelihood, awareness, opportunities, networking • Providing access by calling for local partners, enlist local resellers 	BOP as social networks	MNCs	Authentic engagement (trust building, empowerment), adaptivity across local markets during the creation of solutions
	Social entrepreneurship marketing for the poor (Santos, 2013)	Empowerment, innovative social change, and sustainability	<ul style="list-style-type: none"> • Authentic engagement to empower the disadvantaged populations • Social and environmental VCC as problem-solving at the BOP • Creation of a sustainable ecosystem through innovative social change • Stakeholder involvement in representing the market • Financial feasibility and sustainability 	BOP as a sustainable ecosystem	MNCs	Empowerment, problem-solving, innovative social change, stakeholder involvement, financial feasibility, and sustainability
	Marketing with the poor (Facca-Miess & Santos, 2014)	A fair and long-term sustainable solution in the marketplace	<ul style="list-style-type: none"> • BOP as cultural experiences • Developing trust including transparency in the value chain • Solution processes involve beneficiary recommendations • Comprehend effects and opportunities of product/service lifecycle • Increase capabilities for participation (business skills, education) • Disintermediation (cutting out the middlemen) • Co-create innovative solutions based on segments • Ethical, economic exchange to benefit all stakeholders and sustained advantages 	BOP as cultural experiences	MNCs	Cultural immersion experience and co-creation of innovative solutions (considering the BOP context)

In addition to the role of ‘development’ in BOP engagement, VCC is also associated with ‘social entrepreneurship marketing.’ This approach engages the ideology of integrative justice to engage with the marketplace (Facca-Miess & Santos, 2014; Weidner et al., 2010) by balancing for-profit, social, and environmental objectives between individuals and collectives (Shaw & Carter, 2007). Culture-specific variations and social-focused norms might influence people's development in a specific society (Goodwin & Giles, 2003). The development perspective assumes that social situations play a role in engaging with specific societies such as the BOP. Social and environmental change orientation becomes essential for marketing at the BOP, and these aspects are considered problem-solving for the marketplace. Focusing on social aspects and culture-specific norms might influence people's collectivism in that specific society's development (Goodwin & Giles, 2003). Collectivism is one factor that influences social bonding in society, including relationships in marketing (Samaha et al., 2014). The integrative justice model used in social entrepreneurship marketing provides a recommendation to design marketing ‘to, for, and/or’ with the BOP market segments, including an evaluation to adapt to the marketplace situation. Therefore, the integrative justice model is a normative guideline on the principle of working with BOP markets, and how multinationals can participate to find solutions to the problems caused by these constraints (Santos & Lacznia, 2012).

The first approach, known as ‘marketing in a subsistence marketplace,’ was identified by Weidner et al. (2010), reflecting the MNC's authentic engagement in trust-building and empowerment. This approach focuses on harnessing the social value and considering BOP as social networks by involving the BOP local partners (e.g., enlisting local resellers). However, the concept of marketing with the BOP markets requires a more real commitment and the ability to amplify the market voice interpretation. Santos (2013) proposes ‘marketing for the poor’ by focusing on empowerment, innovative social change, sustainability, and problem-solving. This conception sees the BOP in a more holistic way as a sustainable ecosystem. Here, authentic engagement, social and environmental VCC can solve the problems at the BOP. Hence, the involvement of stakeholders becomes essential to realising marketing with the BOP segments.

In response, Facca-Miess and Santos (2014) proposed a second approach of ‘marketing *with* the poor’ (rather than the transactional G-D logic approach of marketing *to* the poor). They suggest viewing the BOP as a cultural experience. Here, global companies are recommended to penetrate BOP markets by building upon authentic mutual trust and transparency in the value chain

and work to co-create value by increasing participants' capabilities through business education. Developing trust, solution processes, participation capabilities, disintermediation, and sustained advantages are essential factors in marketing with the poor. Co-creation offers innovative solutions for all stakeholders involved with the exchange process (Facca-Miess & Santos, 2014).

Regardless of companies' approach to engaging with the BOP markets, VCC has become the core idea to develop opportunities to do business or marketing 'with the poor' (London & Hart, 2010). Therefore, VCC represents a marketing strategy for engaging with BOP markets under a development agenda (London & Hart, 2010). Collaboration with BOP communities is considered an essential factor in empowering low-income communities (Anselma et al., 2020; Bolton et al., 2018; Dey et al., 2019) and facilitating their networking behaviours (Rossano-Rivero & Wakkee, 2019). Either through the lens of development or social entrepreneurship marketing, both approaches can relate to each other by integrating the perspective of development and marketing theory to engage with poverty alleviation at the BOP (Facca-Miess & Santos, 2014; Simanis et al., 2008; Weidner et al., 2010), although, the key actor and initiator of VCC mainly focused on MNCs penetrating the BOP (see Table 4.3). Through the processes of authentic engagement, collaboration, cooperation and mutual support between companies and the BOP local marketing channel actors (consumers, producers, entrepreneurs), an organic and symbiotic ecosystem or 'co-creation mechanism' can be developed (Dey et al., 2019). However, this latter 'social transformation' represents one end of a continuum of VCC at the BOP. At the other end is arms-length cooperation, which merely legitimises a corporation as a development agent (Blowfield, 2012; Nahi, 2016). A key omission in consideration of this continuum is the strategic approach of local BOP organisations and their engagement with VCC in local BOP markets. Therefore, when engaging with VCC, local organisations' co-creation mechanisms form part of the research questions addressed in this research.

4.4 VCC Process

The VCC concept has developed to search for the most appropriate model integrating resources and how to activate the role of suppliers, intermediaries, and customers as value co-creators (Agrawal et al., 2015; Prahalad & Ramaswamy, 2004a; Vargo & Lusch, 2004, 2008). As VCC concepts continue to emerge, scholars have proposed various model developments on how VCC developed in some essential processes. VCC processes discover how to integrate the

resources of the co-creators of service providers (e.g., suppliers, intermediaries) and customers; the multiple joint actor activity demonstrates a simultaneous process and creation (Akaka & Chandler, 2011; Chandler & Vargo, 2011). The dynamic of VCC phenomena has evolved with the emphasis on multiple actor joint activities related to the simultaneous processes that occur along with the creation (Chandler & Vargo, 2011). This shows the importance of understanding the VCC process through the process orientation and activities to create value. The VCC process outputs can be transformed as the inputs to develop a strategy and programs by extracting and delivering the perceived and expected value (Chandler & Vargo, 2011; Payne & Frow, 2005). Resources and activities among VCC participants are the drivers for the VCC process (Bharti et al., 2015).

However, the conception of VCC processes in the developed economies and the developing economies may have a different focus and objectives. The differences may propose a different contribution to VCC in both different market settings and the body of knowledge. The Global North has its roots in industrialisation, which is shown through advanced development of technology, innovation, and the service sector. This situation led to the continued advance of scientific and technological growth towards acceptable living standards (Odeh, 2010). The focus from industry, academia, and governments has become more systemic in integrating management, service science, and engineering, known as service science or service systems science (Kijima et al., 2014). The improved industrial system has changed consumers' role, making them capable of influencing the business system (Prahalad & Ramaswamy, 2004a). Consumers' role has changed from passive to active, from unaware to informed, and from isolated into connected, manifesting itself in many ways. Consumers are armed with new tools to interact with companies or service providers, thereby co-creating value that facilitates innovation and technology. The following subsections present a further explanation of VCC processes in underdeveloped economy markets and the developing and BOP markets.

4.4.1 VCC Processes Based in Developed Economies

The development of the VCC model of interest in the process continues to date. During the last decade, the VCC process model relied on S-D logic and service logic. The advancement of the service science in the business marketing process of the developed country settings continues to dominate the research background on these models or conceptual frameworks of the VCC process. However, based on the literature, no study has considered a unified model to entirely understand

how to develop and operate co-creation processes (Durugbo & Pawar, 2014). Based on several studies on the VCC process model, customer involvement has become more vital and essential as the value creation locus (see Table 4.4). The concept of VCC has become divergent due to the variety of perspectives and contexts. Scholars hold diverse thoughts about the nature and modality of VCC. Some scholars highlight VCC as a front-end process to identify customer needs and wants (Lusch et al., 2007). Others paid attention to the extensive literature of the VCC process, relationship marketing, and consumer behaviour (e.g., Skourtis et al., 2019; Payne et al., 2009, Nöjd et al., 2020). Therefore, the marketing perspective should view the comprehensive process of VCC to find the appropriate value proposition and the procedures, responsibilities, activities, and interaction (Vargo & Lusch, 2004). It also aims to gain insight into the relationship between marketing providers and customers (Payne & Frow, 2005).

Relationship development amongst the actors or even in a broader scope of stakeholders has become the focus of the encounter process during the interaction and exchange process (Grönroos, 2008, 2011a; Payne & Frow, 2005). The purpose of VCC is to build consumer engagement and customise value co-produced based on the offered product (Payne et al., 2008) and discover customer lifetime value maximisation of the targeted market segments (Martinez, 2014). The co-creation actors expect to gain benefits either for business market exchange (Töytäri & Rajala, 2015) or customer value proposition (J. C. Anderson et al., 2006).

The principles of interaction or building blocks upon which VCC is founded have developed with the evolution of VCC. Prahalad and Ramaswamy's (2004a) early DART model (Dialogue – Access – Risk assessment – Transparency) was premised upon interaction encounters between a consumer and a company where both parties were provided with opportunities to collaborate and negotiate. Extensions to VCC reflect an evolving understanding of S-D logic, which considers customers as value co-creators; marketing as a structure of encounters, relationships, dialogue; and knowledge as the competitive advantage source. Here, operant resources (e.g., knowledge, skills) are the critical element of exchange (Payne et al., 2008).

Table 4.4 VCC process in the developed economy markets

Source	Proposed Model	Description	Focus
Prahalad & Ramaswamy (2004)	Dialogue – access – risk assessment – transparency (DART Model)	<ul style="list-style-type: none"> Interaction, engagement, intention to act between company and customer Availability of information and tools The probability of the co-created value to endanger the customer Reduce asymmetrical information with a customer 	Co-creation experience from a company perspective
Payne & Frow (2005)	Value customer – value organisation – customer lifetime value analysis (Process-based model)	<ul style="list-style-type: none"> Customer value proposition and value assessment (value co-production outcome) Acquisition strategy and retention strategy Customer lifetime value calculation from a variety of customer segments as a strategy to focus only on the profitable segments 	Customer relationship management
Grönroos (2008); Grönroos & Voima (2013)	Customer sphere – supplier sphere – joint sphere	<ul style="list-style-type: none"> The customer value creation process consists of processes, resources, and application used by the customer to exercise the activities Supplier value creation process consists of processes, resources, and supplier action to maintain customer and stakeholder relationship Encounter value creation process consists of processes and activities during the exchange and interaction 	VCC outcome
Kijima et al. (2014)	Co-experience – Co-definition – Co-elevation – Co-development (Four-co-phase model)	<ul style="list-style-type: none"> Sharing between internal provider and customer to co-define understanding toward service Learning and understanding of preference, capabilities, and expectations A process with a zigzag-shaped spiral up between customer expectation and provider capacity Co-innovation produced by collaboration with simultaneous process among parties 	Collaboration between marketing provider and customer
Agrawal & Rahman 2015	Role understanding – exchange – outcome	<ul style="list-style-type: none"> Customer role (11Co's) influence by customer interaction and resources that affect the co-created value outcome regarding value, experiences, satisfaction, and learning Firm role as facilitator influence by firm resources that affect the co-created value outcome regarding economic gain, customer insight, customer feedback, and customer loyalty 	The role of actors and resources in VCC
Zátori (2016)	Attention – involve – make discover (AIM Model)	<ul style="list-style-type: none"> Provoked targeted consumers to get attention Engage with consumers and let customer involve in the co-created value Making consumers discover the experienced value 	Experience-centric approach
Oertzen et al. (2018)	Co-creation services	<ul style="list-style-type: none"> Service provider's resources and customer's resources integration with prerequisites of co-creation (involvement, engagement, participation) Service process through regenerative co-creation (co-ideation, co-valuation, co-design, co-test, co-launch) and operative co-creation (co-production, co-consumption) Co-creation of services enables the co-creation benefits (economic, social, personal, hedonic, cognitive, pragmatic) and counterproductive outcomes (economic, social, personal, pragmatic) 	Customer-service provider collaboration through co-creation

The process-based VCC model focuses on customer involvement, which explicitly holds an equally critical level in the co-creation and considers S-D logic as the main fundamental proposition (Payne et al., 2008). In this framework, the VCC process is derived from the literature integration on value, co-creation, S-D logic, value chain, consumer behaviour, and relationship marketing. The model consists of the three main elements of customer value-creating processes, supplier value-creating processes, and encounter processes. The conceptual model integrates the evolving S-D logic by including the focus on customers as value co-creator; marketing as a 'structure' of encounters, relationships and dialogue; knowledge as the source of competitive advantage; and operant resources (e.g., knowledge, skills) as the critical element of exchange. This model has been reflected in Grönroos and Voima's (2013) description of the VCC process occurring in three spheres: the 'customer' sphere, 'supplier' sphere, and 'joint' sphere. In the process, VCC focuses on how co-creation interactions and opportunities can be managed (Grönroos & Voima, 2013). Each sphere consists of processes, resources, and applications for co-creating outcomes such as value-in-use. The encounter process in the joint sphere among actors is the focus of this model. It emphasises how to manage VCC and the interactions for co-creation opportunities (Grönroos & Voima, 2013). In the customer sphere, the value that emerges from the customer is the value-generating processes, and co-created value does not solely come from the marketer or company (Grönroos, 2008).

The above understanding shows that the universal level of VCC consists of a process that can improve customer satisfaction and prosperity and provide the customer with a better feeling when using or consuming the product (Grönroos, 2011a; Payne et al., 2008; Vargo & Lusch, 2008). Each co-creation sphere consists of processes, resources, and applications to exercise co-creation outcomes, such as ViU. This ViU refers to customer interaction with the business providers during the production process and value creation process and consequently creating the experience. One thing that can generate ViU is through service innovation as a new development process that occurs as the result of relationship development amongst two market actors (e.g., the customer and the company) (Witell et al., 2016). During this process, there is a stage of joint value creation that the customer and the company participates in to co-create value (Grönroos, 2011b).

The following model from Kijima et al. (2014) has suggested a four-phase model of VCC processes (Co-experience – Co-definition – Co-elevation – Co-development) based upon a systemic analysis of the recent success of e-commerce within developed country settings. The

model assumes that service innovation, defined as a new process that generates value-in-use (Witell et al., 2016), is facilitated by ICT through the interactions and collaboration with knowledgeable, technology-savvy customers who set high expectations from service providers (ifM and IBM, 2007; Kijima et al., 2014). Therefore, ICT enables this demand-led situation of facilitating VCC by delivering a service to meet customer expectations (Kijima et al., 2014).

VCC occurs to manage customer expectations in more active ways through technology utilisation (Kijima et al., 2014). Collaboration becomes critical in the value orchestration influenced by technology and more knowledgeable customers expect more from the service provider. In the process, VCC develops in more systematic stages and considers collaboration as a simultaneous activity during the VCC (Kijima et al., 2014). Collaboration occurs as an essential part of the co-created value to create value for the system and not for a single entity to co-produce the value generated from different actors (Kähkönen, 2012). In a broader VCC context, collaboration among stakeholders in the system or network can describe the value space that assigns each stakeholder a unique entity (Reypens et al., 2016). Different interests and orientations among stakeholders should interpret and seek integration opportunities on the co-created value.

The VCC process model focuses on customer experience, offered by Zátori (2016), to build customer experience to co-create value. It is built based on the tacit knowledge of tourism service providers (e.g., knowledge, expertise) in a developed country setting. The process begins by getting the attention of the targeted customers and pursue them to engage in the value development to reveal the unique experience at the end of the process (Zátori, 2016). This is labelled as AIM (Attention – Involve – Make Discovery). The model sought to create new experience schemes to deal with experience and service design.

Another model by Agrawal and Rahman (2015) focused on the VCC process based on the customer role in the co-created value process, and this idea becomes intriguing. The VCC process acknowledges the integration of customer resources that encompass customer capabilities and competencies, and customer-related resources could be influenced by customer roles (Agrawal & Rahman, 2015). Customer resources and customer roles contribute to the co-created value activity based on customer participation in the process, such as to examine customer involvement in product development and innovation (Agrawal & Rahman, 2015; Tardivo et al., 2017). Customer involvement in VCC has attracted massive attention as the cornerstone of value creators, although

customer involvement could potentially prevent company value proposition delivery (Williams & Aitken, 2011). To date, the role of the customer continues to grow as the Internet, and social media become an essential part of daily consumer life and accelerate the co-created value movement with the availability of freely distributed digital or online open-source content (e.g., online open learning, software) (Agrawal & Rahman, 2015; Balaji & Roy, 2017; Fernandes & Remelhe, 2016; Kim & Choi, 2019).

More recently, Oertzen et al. (2018) have focused on the importance of collaboration for resource integration in co-creation. This model describes VCC as the process of (1) resource integration between service providers and customers, (2) service process through regenerative co-creation and operative co-creation, and (3) co-creation benefits and outcomes. Resource integration serves as an essential part of the VCC process to activate the value co-creators' role (Kähkönen, 2012; Oertzen et al., 2018; Thiruvattal, 2017). It shows that VCC has developed to search for the most appropriate model by integrating customer resources, companies/service providers/intermediaries (Prahalad & Ramaswamy, 2004a; Vargo & Lusch, 2004, 2008). The contribution of the accessible and available VCC resources within the networks that consist of operand resources and operant resources has become essential to execute joint activities or collaboration among the co-creators of value (Chandler & Vargo, 2011; Vargo & Lusch, 2011). S-D logic as the principle of VCC suggests that the role of customers has shifted from passive into active contributors to co-create value, and business providers may view them as an active operant resource (Payne et al., 2008; Vargo & Lusch, 2004). The active participation of customers involved in the co-creation has become essential for resource integration through shared institutions and reciprocal exchange of the co-creators (Liang, 2017).

The stresses of collaboration in the VCC process have also been noted in previous research. The concept of collaboration has extended into a multi-stakeholder collaboration to facilitate the simultaneous co-creation activity in the market network (Kähkönen, 2012; Thiruvattal, 2017). From business perspectives, the importance of collaboration is the impact of the explosive development of technology and globalisation (Wilding & Humphries, 2006). Communication and trust creation for trustful relationships can generate collaboration in dyadic relationships (Kottila & Rönkä, 2008). A success cycle of collaborative relationships requires an iterative process that consists of relationship quality, relationship reliability, relationship creativity, relationship stability, and relationship communication (Wilding & Humphries, 2006).

4.4.2 VCC Processes Based in Developing Economies

The VCC process appropriate for developing economies may describe different initiatives and practices compared to developed economies. For example, developing economies encounter various constraints, such as limited infrastructure, resources, lack of information asymmetries and alternatives, including preserving specific socio-cultural context that requires additional facilities and support. These conditions can influence the co-creation process (Dey et al., 2016; Santos & Laczniak, 2012). The appropriate co-creation process and approach may determine the ViU of specific products or services offered by marketers or business providers. When the output of VCC at the BOP is to exercise the practices of a new business or marketing model, both the customers and business providers are expecting to optimally achieve the co-creation benefits (Hernandez-Cazares et al., 2019). The goal is to overcome their difficulties and accrue the offered values (Dey et al., 2016).

Previous research suggested a different focus on the VCC process frameworks by using the developing economy and the BOP market background. In the last decade, various scholars have continued to develop the most appropriate models for the VCC process for these markets (see table 4.5). For example, the early development of the co-creation process at the BOP aimed for solution-based collaboration, customer participation, and market dynamics (Bharti et al., 2014; Dey et al., 2016; Weidner et al., 2010), while others focused on wellbeing, authentic engagement, network involvement, and social value creation (Hepi et al., 2017; Kennedy & Santos, 2019; Lashitew et al., 2020; Wei et al., 2019). The recent work by Wei et al. (2019) focused not only on wellbeing in general but also on collective wellbeing by integrating multiple perspectives across levels. However, Dey et al. (2016) proposed an additional component of technology upgrading for BOP consumers. The various conceptions of describing the VCC process within the BOP markets indicate the adaptation and changes to the continued market development and conditions in various developing and BOP markets. The actors involved in the co-creation were not only the consumers and companies at the BOP but also the stakeholders in the BOP networks.

Weidner et al. (2010) discussed VCC processes that require solution development with prerequisite conditions, particularly to approach the targeted BOP population by adjusting the local market situation to develop collaboration and mutual learning in developing products or services. Some challenges may occur when introducing and implementing co-creation to collaborate with

developing economy populations both with the business markets and consumers. This means the co-creation actors need to be willing to collaborate, which may be a challenge to engage with this market considering the constraints. These indicate that VCC processes require adequate alignment of resources, skills, and competencies between the involved actors. This view aligns with the S-D logic regarding collaboration with customers, who can co-create their service experience, which is crucial in the VCC process (Prahalad & Ramaswamy, 2004a, 2004b). It also shows that through engagement and collaboration activities, VCC has become a fundamental principle underpinning S-D logic (Vargo & Lusch, 2017) and a potential marketing strategy for development in the developing economy markets.

When examining the developing economy population involvement and the strategy to approach the BOP, co-creation should not in any way indicate that both parties compete for extracting economic value. Prahalad and Ramaswamy (2004a) emphasize their perspective of ‘connected, informed, empowered, and active community consumers’ in joint value creation. They theorised that both the customer and company collaborate and compete – collaboration to co-create value and compete to accrue a series of benefits automatically. In the case of BOP markets (Khalid & Seuring, 2019), the benefits may occur not only as economic benefits but also long-term social benefits (Hamby & Brinberg, 2016; Lashitew et al., 2020). The latest models on the VCC focused not only on how to provide suitable goods and services that can serve as solutions for the market, but VCC should also consider wellbeing and social impacts on the market (see, for example, Hepi et al., 2017; Lashitew & Van Tulder, 2020; Wei et al., 2019).

Table 4.5 VCC process in the developing economy markets

Source	Proposed Model	Description	Focus
Weidner et al. (2010)	Marketing in a subsistence marketplace	<ul style="list-style-type: none"> • Research markets • Identifying critical needs • Negotiate social networks • Designing the value proposition • Co-create products • Developing sustainable packaging • Communicate to consumers • Providing access to products • Managing the adoption process 	Solution development through engagement and collaboration
Bharti et al. (2014)	Interaction driving process of customer participation in co-creation	<ul style="list-style-type: none"> • The relationship development between customer and marketer • Customer responses through an interaction process • Recognising the driving factors to customer participation in VCC: <ul style="list-style-type: none"> a. Dispositional factors (behavioural exhibit to the internal state of one's being) b. Situational factors (behavioural occur due to environmental factors) • Acknowledged marketers to the uniqueness of the BOP • Enabling marketers to a sustained competitive advantage 	Customer participation
Dey et al. (2016)	The DART model (Dialogue – Access – Risk assessment – Transparency) through intervention methods	<ul style="list-style-type: none"> • Understanding the limited resources and infrastructure of the BOP with specific cultural and communal context • Providing support and facilitating the BOP consumer to involve in co-creation processes and determine ViU • Co-creation driver activation: familial relationships and traditional communal networks and support for customer-dominant logic • Encouraging BOP customers for inventive actions to overcome difficulties • Optimising co-creation benefits and minimising costs 	Market dynamics and market intervention for technology upgrading
Hepi et al. (2017)	An activity system approach to co-creation as wellbeing	<ul style="list-style-type: none"> • Analysis of the user and social worker activity system • Analysis of the context, including historical and cultural development • Resources, skills, and competencies alignment between customers and service providers • Engagement with the micro-level (customer level) in the transformative service provision 	Wellbeing
Kennedy and Santos (2019)	Co-Creation applied for the ethical framework of social marketing	<ul style="list-style-type: none"> • VCC through social marketing facilitates for 'co-discover; co-design; co-deliver' for authentic engagement • Authentic engagement with all representation of stakeholders in the market • Empowering people • Co-creation outcomes are relationships management and long-term behaviour change that embedded in the system 	Authentic engagement in social marketing
Wei et al. (2019)	Service system wellbeing	<p>A system perspective of VCC by integrating multiple perspectives across levels:</p> <ul style="list-style-type: none"> a. Wellbeing in the micro-level: existence and transformational b. Wellbeing in the meso – level: community, cultural, collaborative, and social c. Wellbeing in the macro – level: strategic, governance, leadership, and resource <p>The emergence of collective wellbeing can drive the system wellbeing to complement the balance in the system by meeting the system needs throughout multiple domains</p>	Collective wellbeing
De Silva et al. (2020)	VCC through social enterprises	<ul style="list-style-type: none"> • Co-creation opportunities for social value commercialisation (relevance, prevalence, accessibility), economic value (supply creation and demand creation for pro-social behaviours and customer needs) • Co-create supply-side opportunities: fulfilling institutional voids, collaboration with strategic partners, collegial feeling development with BOP producers, culture of belongingness development, reputation of supportive working development, value addition processes involvement, addressing social needs 	Actors (stakeholders) involvement across the networks

Table 4.5 *Cont.* VCC process in the developing economy markets

Source	Proposed Model	Description	Focus
Lashitew and Van Tulder (2020)	BOP market approach	<ul style="list-style-type: none"> • Governance institution development by multinationals • Multinationals support institutional innovations development through their business capabilities • Co-creation through collective actions amongst market actors • The intervention of the company/marketer as a collaborator in the co-creation process • The BOP market adaptation to the changes, and the multinational implements market exchanges and costs reduction • The intervention of the company to develop a favourable social environment (socio-cultural institutions) by introducing new rules of educational practices or organising for business activities 	Social value creation

One of the latest studies by Lashitew et al. (2020) discussed VCC through social innovation that incorporates inclusive business initiatives. VCC can drive social impacts that advance wellbeing in these emerging economies (Alkire et al., 2020). An example of social impacts from VCC in the BOP markets is related to the fact that business provider resource utilisation for co-creation can offer price fairness for BOP customers (Santos & Laczniak, 2012). Kjellberg and Helgesson (2007) argued those markets are presenting a progressive movement as socially constructed. They also stated that implementing market fairness, such as fair trade, implements how norms as legal rules adaptation are translating into specific exchange settings. The term ‘justice’ can explain ‘fairness’. Justice can be defined as fairness, equity, and righteousness, derived from people's social nature articulating personal inter-connectedness between individuals and others to the greater community that supports the implementation of organisation operation as part of complex network relationships (Santos et al., 2009). This idea aligns with the VCC concept as a marketing orientation comprising relational and exchange perceived as social change to create value that benefited customers and the partner organisation (Hamby & Brinberg, 2016).

4.5 VCC and the Agri-food Industry

After explaining VCC as a general conception in marketing, including in the business management field, scholars began to integrate and examine the concept's significance in a specific subject, such as the agriculture and food industries (agri-food). VCC has been applied in different subjects, such as agri-food supply chains, marketing, and food service management (see Appendix A, Table 4), for example, the transformation of modern agri-food (Insch, 2008), consumer

behaviour changes towards foods (Gow et al., 2003; Hollebeek & Brodie, 2009; Hunt et al., 2012), multiple stakeholder involvement in the food supply chain (Handayati et al., 2015), co-creation in culinary tourism (Prayag et al., 2020), big data utilisation amongst agriculture businesses (Jayashankar et al., 2020; Protopop & Shanoyan, 2016).

4.5.1 VCC, Collaboration, Innovation, and Competitiveness in the Agri-food Sector

Previous studies show that the focus of VCC in the agriculture perspective has expanded not only from the relationships between business actors in the market or between business providers and customers, but also into the network perspective among business actors and stakeholders. Co-creation initiatives attract multiple stakeholders to get involved in the business process. Research on the agri-food industry has shown this movement (see, for example, Kähkönen, 2012; Vellema & Wijk, 2015; Makri & Koutsouris, 2015; Widjojo et al., 2020). VCC uses business support by understanding the business processes (D'Andrea et al., 2019) that reside to generate organisation prosperity in collaborative networks (Bititci et al., 2004). Kähkönen (2012) suggests shifting the value creation logic in food industries by emphasising the business actors' perspective in the networks and the importance of network collaboration. Managing stakeholder management and engagement in the agri-food sector can support gaining and sharing new knowledge to resolve stakeholder pressure (Giacomarra et al., 2020).

The changes in the business environment that also occurred within the agri-food sector have served innovation as the driving force of VCC. The new idea of innovation aims to determine superior customer value, superior value propositions, and consumer lifetime value maximisation. In the recent digital era, innovation development has contributed to the VCC process and accelerated both business providers and customers' role as the value co-creator (Borges et al., 2016). VCC applied for the agri-food marketing models can have a better view by emphasising collaboration as a new concept of collaborative knowledge and learning (Borges et al., 2016; Martinez, 2014) and exploring the perspective from multiple stakeholders across the chains may support this view. Dynamic interaction within collaborative network learning may drive resource integration to develop innovation and co-creation platforms (Widjojo et al., 2020).

The current literature also identifies VCC as a source of competitiveness by considering the importance of farmers' role as producers and agri-food firm capacities as opportunities to

increase agricultural productivity (Rankin et al., 2016). Competencies and capabilities are the keys to exploring VCC resources (Bititci et al., 2004). Unlocking the knowledge of innovation may develop capacities (Martinez, 2014). More opportunities may arise through new market access, business expertise, and financial aid for smallholder producers (Mutema & Chiromo, 2014). Unlocking these opportunities may increase smallholder farmers or small agribusiness firm ability to manage a more substantial commercial farm business. Driving agriculture into the VCC concept can create sustained competitive advantage in the long-run business (Lawson et al., 2008).

Research also tries to integrate VCC within the agri-food sector to integrate it with innovation with digital-based technology. The application of innovation and technology has changed competitiveness from the traditional perspective of competitiveness to the new emerging competitiveness (Jayashankar et al., 2020; Raheem et al., 2019). Innovation has become a new avenue for both research and business application in various fields, including in the agri-food area. The importance of innovation in the agri-food business model has become essential to deliver unique value propositions (Matzler et al., 2013).

4.5.2 VCC, Agri-food, and Developing Economies

Previous studies on VCC in the agri-food context primarily took place within the Western or the developed countries (e.g., USA, Europe, Australia, and New Zealand) and were rarely conducted within developing economies, such as the Asian Region. There are different features of agri-food business employed between developed societies and developing countries. For instance, the size of agricultural businesses or land ownership by farmers is significantly different. Big agriculture companies and vast land ownership are the most common characteristics of agriculture in developed countries (e.g., Jayashankar et al., 2019; Bush and Oosterveer, 2015; Leroux, Wortman, and Mathias, 2001). In contrast, conventional agri-food supply chains in the developing economy markets are typically fragmented and dominated by smallholder farmers and MSMEs with limited market power (e.g., Teklehaimanot et al., 2017; De Koning et al., 2016; Utami et al., 2019). The agriculture sector is typically the primary income generator for a significant proportion of BOP populations (Cervantes-Godoy & Dewbre, 2010).

Developed economy markets have more advanced agriculture innovation and technology adoption than developing economies. Researchers have shown that innovation and technology are

the driving forces of VCC and shifts in the agri-food business environment within the developed societies. The new idea of innovation can determine superior customer value, unique value propositions, and consumer lifetime value maximisation (Ehrenthal et al., 2014; Matzler et al., 2013; Payne et al., 2017). More advanced technologies experienced by developed economies enable the agri-food sector to be improved more than in developing economies. The factors of digitalisation, innovation, and technology capability are advantageous resources to support VCC success and advancement (Filieri, 2013; Gow et al., 2003).

Current research on VCC within developing economies has mainly emphasised the fields of health services (Angeli & Jaiswal, 2016; Johansson et al., 2018), innovation (Dandonoli, 2013; Nahi, 2016) or social commerce (Hain & Jurowetzki, 2018; Weigert, 2019), but has been limited when it comes to the agriculture sector. However, a high share of the developing economy communities depends on this sector's income (Cervantes-Godoy & Dewbre, 2010). Countries in the BOP market, such as many countries in East Asia (e.g., Indonesia, Malaysia, Thailand, Vietnam), heavily rely on this sector. The agriculture sector is crucial in these markets, given the dominance of agriculture as an income generator for a significant proportion of developing economy populations (Cervantes-Godoy & Dewbre, 2010). The complexity of problems in the agriculture sector may occur because of the conventional agri-food supply chains, which are fragmented and lead to complicated business processes ranging from production to the final product delivery.

The agriculture and food organisations confront serious problems, which can vary from persisting poverty, environmental degradation, food insecurity, and food safety, including biodiversity loss (Domenico Dentonia et al., 2012). As the consequences, agriculture producers and agri-food consumers in these markets are still seeking for-profit synchronisation, wellbeing, and sustainability built within inclusive communities (Nahi, 2016). Nevertheless, the agriculture sector can be driven as the potential industry for improving the country's economic situation in a more general perspective. Thus, although research on the BOP showed a new perspective on uncovering doing business in developing countries, it presents some limitations.

Previous studies on VCC in the agri-food sector within developing economies focused on various streams, for instance, co-creation as new business practices by developing collaboration and multi-stakeholder partnerships such as between the smallholder farmers and the downstream

stakeholders aiming to increase farmer wellbeing, poverty alleviation, profit-seeking initiatives, and create other beneficial business opportunities (Hernandez-Cazares et al., 2019; Varman & Belk, 2012). The business relationships with the local stakeholders in developing countries may accelerate the VCC process to reveal new mutual benefits (Vellema & Wijk, 2015). Hernandez-Cazares et al. (2019) explored the collaboration between the upstream and downstream agribusiness stakeholders to increase farmers' wellbeing and create additional opportunities by proposing a new business venture with the new process model. The focus was on MNCs' role in employing an innovative approach and adjusting the complex developing economy markets by providing agriculture-input products (e.g., fertiliser, seeds) and cooperated with the local agribusiness companies. Here, the role of multinationals was significant in the co-creation process.

However, VCC in the agri-food context depends on local stakeholders' needs, their involvement, and relationships within networks. It is a significant part of co-creation practices to achieve mutual benefits (Kähkönen, 2012; Vellema & van Wijk, 2015). Putting communities at the centre of the co-creation process by involving a wide range of stakeholders can be considered a modified process of empowering the local communities that consist of micro consumers and micro-entrepreneurs. Hence, successful co-creation initiatives in developing economies need to include local communities (Letaifa & Reynoso, 2015; Nahi, 2016; Santos & Laczniak, 2012; Sinkovics & Archie-Acheampong, 2020). Local communities' involvement in VCC activities can facilitate social embeddedness (Goyal & Sergi, 2015; Lashitew & Van Tulder, 2020). Social embeddedness with the local communities may enhance authentic engagement with all stakeholders (Kennedy & Santos, 2019) and further opportunities for social value creation in the ecosystem (Sinkovics & Archie-Acheampong, 2020).

Another focus that also found on the integration of VCC and agriculture is social enterprises' characteristics. However, exploration is required to define value in various ways from the co-creation actors' different ideas (Wheeler et al., 2005) and indicate the outcomes and benefits for both the business markets and consumers' specific economic setting. However, these market characteristics cannot be generalised either contextually or individually, and engagement should be with individual sub-segments of developing economy populations (Dey et al., 2016). Previous studies tried to use agriculture cases as examples of how the VCC concept applies to approaching a developing economy with a different focus and objectives. It presents the co-creation concept as

a potential strategy to approaching the agriculture sector in developing economies by generating competitiveness.

4.5.3 VCC, the Agri-food, and Digital Technologies in the Developing Economies

Looking at the current situation, globalisation and networked digital technologies have contributed to digitally linking these developing economy populations. Digital technologies such as mobile communication, the Internet, and social media have reconceptualised globalisation (Özsomer, 2019) due to low-cost barriers to entry and demand growth (Zeng et al., 2017). An individual or “social sellers” can operate in the global market. Mobile and village phone usage (Dey et al., 2016; A. T. Rashid & Rahman, 2009), IT projects (Howell et al., 2018), and ICT initiatives to engage with rural communities (London & Hart, 2010; Varman & Belk, 2012) were cases of technology utilisation amongst developing economy population. These are evidence that developing countries offer market opportunities, and the citizens are willing and skilled enough to use and adopt these new technologies. Developing countries indicate an openness to new opportunities, such as digital technology utilisation, that can support businesses and develop new business models and innovations. The BOP markets' transformations provide opportunities to organisations of all sizes, including micro-businesses in BOP markets, by enabling access to global markets (WTO, 2016).

VCC employed in the agribusiness of developed markets has also moved towards modern and advanced innovation and technologies. For example, digitalised agriculture can facilitate co-creation (Jayashankar et al., 2020), digital electronic food platforms, and retail networks (Raheem et al., 2019; Vassalos & Lim, 2016; Vyt et al., 2017). Within the food sector, e-commerce has driven the growth of electronic distributive channels (Leroux et al., 2001). Digital retail channels have surpassed other more established channels, with the main advantages being reduced costs (L. Lu & Reardon, 2018). However, e-commerce can also radically transform the way buyers and sellers interact and change consumers' food provisioning habits (Rolandi, 2017). Although digital technologies can give companies of all sizes access to both local and global markets, large companies lead in e-commerce markets (Molla et al., 2010), particularly in the food sector (Zeng et al., 2017). The availability of the online food channels as alternatives for consumers to buy foods may offer the advantages of convenience, product price, and range, including signifying a need to save time on food purchases and a more competitive price (Bryła, 2018). E-commerce presents an

example of diffused innovation by expanding consumer grocery shopping experiences. The significance of food purchases via online channels has opened opportunities for further studies on its impact on post-behaviour of e-consumers on grocery shopping (Lee et al., 2015).

The evolution of food retail (e.g., food e-commerce) that moving towards digitalised-based (L. Lu & Reardon, 2018) requires agricultural business actors to adjust to the change of business situations. For example, the new direction of agriculture trading and commerce using e-commerce has been associated with a shorter supply chain, offering higher profits for farmer producers and providing better products at lower prices for consumers (Lee et al., 2015). Consequently, the farmer producer and marketing actors' readiness may facilitate the retail transformation and how the online food scenario can be applied. For example, there is an indication of heterogeneity in farmer producers' preferences on participating in digital food chains to distribute or sell the products (Vassalos & Lim, 2016). This shows that individual actions have become one factor that internally affects agri-food providers' adoption of e-commerce, such as attitude and feeling towards e-commerce (Zeng et al., 2017).

The approach of social enterprise and inclusive business initiatives can be used to facilitate the potential limitation of developing economies (Lashitew et al., 2020). This also signifies the influence of the Internet, enabling co-creation and engaging customers in innovation practices (Mariussen & Ndlovu, 2012; Rayna & Striukova, 2016; Zhang et al., 2015). Research direction priorities for BOP related to technology advancement has suggested that leveraging technology for advanced services can promote inclusive business model innovation, which links to S-D logic because business activities at the BOP are predominantly services (Gebauer & Reynoso, 2013). However, under certain circumstances, the service provider acquires opportunities to engage with customers and co-create value simultaneously (Grönroos, 2011b).

4.6 Research Gaps and Formulation of Research Questions

The marketing literature on VCC and S-D logic has supported a solid fundamental argument for the business system. The S-D logic is also considered as a general theory for the market applied in various business management fields. However, the significance of VCC in developing economies and its implications for BOP markets is linked to emerging technology and

innovation in the agri-food industry. Thus, a few research gaps remain in previous studies that need to be explained in the present research.

4.6.1 Gap 1: The manifestation of VCC Within the Local Agri-food Chain Level

Current research on VCC within developing economy markets is typically dominated by multinationals seeking the best marketing and operation strategy to tap these specific markets. Limited studies focus on VCC, specifically at the local BOP, which involves collaboration within the local actors. There is a gap in research focusing on investigating the VCC model to develop a business model, marketing model, and business ecosystem mechanism based on the local-BOP business initiatives, practices, and innovation. However, previous research has identified that successful co-creation initiatives at the BOP need to include local communities (Letaifa & Reynoso, 2015; Nahi, 2016; Sinkovics & Archie-Acheampong, 2020). This could facilitate social embeddedness (Goyal & Sergi, 2015; Lashitew & Van Tulder, 2020) and enhance authentic stakeholder engagement (Kennedy & Santos, 2019). Nevertheless, the co-creation initiatives generated at the local level and the benefit of the various local actors in the business ecosystem and business network remain unexplored.

Current literature has discussed how new businesses and innovation have benefited both ethically and financially through the VCC concept. However, the views on this topic from the multi-actor perspective in developing economies, the BOP and explicitly in the agriculture sector are still under research. Research has focused on multi-actor views across the agri-food chain. Some argue that this multi-actor understanding of VCC in the agri-food context can improve the network and relationships amongst supply chain members (Bitzer, 2012; Bitzer & Bijman, 2015; Vellema & Wijk, 2015). Previous research has investigated specific actor perspectives involved in co-creation, such as micro ventures (Facca-Miess & Santos, 2014), local producers (De Silva et al., 2020; Knizkov & Arlinghaus, 2019), and manufacturers/marketers (Bharti et al., 2014). Previous research also identified business opportunities in different types of relationships within the supply chain when involving rural communities such as smallholder farmers and local traders to create mutual benefits to all parties (Vellema & Wijk, 2015). Specifically, when researching MSMEs in the food business context, they have different characteristics, and each of these business entities is not homogenous. The food supply chain within MSMEs is also influenced by the locality and business market networks (Bourlakis et al., 2014). However, key factors are missing from the

investigation of what may occur at the local level of the BOP. This means research is required to focus on how VCC can be initiated locally by the home BOP business providers, embedded, and created to attract the consumer voluntarily to participate in the co-creation.

Hence, investigating the co-creation across the chain within the local level of this market is required. Examining the actors across the chain may provide broader insights into the manifestation of VCC in this specific market. The emergence of innovation and technology in this market may also influence how local companies benefit from such improvement for their business and marketing. Exploring the business models and market ecosystem under which VCC operates at the local level of developing economies has become essential. Thus, the co-creation mechanisms that local organisations adopt when engaging with VCC form part of the research questions addressed in this study.

Regarding the first research gap found in the literature, the research investigates the elusiveness of the notion of VCC, which stands on the principle of S-D logic. Based on the literature review of business and marketing studies, VCC can conceptualise various economic, social, and industry settings differently. The wealth distributions amongst distinct countries may affect different obtained resources, competencies, and capabilities, which are antecedents to innovation, technology advancement, and competitiveness. They also affect the development and advancement of different types of industries in that specific economic market. VCC initiated by the local businesses at the developing nation level may drive and be supported by different factors. Thus, the first research question in this thesis focuses on exploring the manifestation of VCC within the local level of the business ecosystem in the agri-food industry in a developing market economy. the research also explores what type of business ecosystem and business model operate to facilitate VCC in this specific market.

4.6.2 Gap 2: VCC Dimensions and Processes

VCC is still an elusive concept (Dey et al., 2016). Current literature primarily focuses on the VCC process at the encounter stage induced by the service providers/suppliers. This stage occurs when all parties involved in the production and consumption during the exchange processes are creating value (Vargo & Lusch, 2008). VCC indicates joint value creation between actors (e.g.,

the company and the value beneficiary). Value creation occurs at all stages of interaction, not only at the point of exchange (Prahalad & Ramaswamy, 2004a, 2004b).

Various scholars proposed co-creation process for markets such as the BOP focused on different invested resources, competencies, and capabilities that influence the economic and social settings and create different VCC frameworks for each market. This also implies that co-creation within the business markets (B2B) and consumers (B2C) has different co-creation processes. The intervention of the external resources such as technology as the market solution may be experienced and developed differently in developing economies compared to the developed economies, which already have the required resources or competencies. Understanding the VCC process across the chain that comprises multi-actors is essential to understand the business knowledge and ability to operate in specific markets, including which actors initiate and actively participate in the co-creation.

Thus, the discovery of VCC processes in the developing economies requires holistic understanding. The encounter stage of the exchange interaction between customers and companies maybe need to consider the potential elements that could affect the pre-interaction process to empower the BOP communities and discover the impacts of VCC. It may also be advantageous to acknowledge the key elements that may influence the whole process of VCC influencing the investigated market, instead of only focusing on the encounter stage of the exchange interaction between the involved actors. This may provide significant implications for the co-creation processes, rationale, the object, and output for these markets.

Current literature shows that the research endeavours to explain if the co-creation process, dimensions, and mechanism are different within distinct social-economic settings. Based on the theoretical background about the co-creation process, there was a partial understanding of how to explain the dimensions and processes of VCC with specific social-economic settings. Limited research has also rarely conducted on the factors that drive, motivate, and empower multi-actors (i.e., various business provider categories, consumers) participating in co-creation initiatives. There is a gap in understanding the appropriate conditions to formulate co-creation processes in developing economies and the implications to the BOP markets. Hence, the second research question primarily focuses on discovering the VCC process, dimensions, and mechanism across the market chain in both business markets (B2B) and consumers (B2C).

4.6.3 Gap 3: VCC and the Modern Agri-food Development

Previous research shows partial information on how VCC elements and modern agri-food development based on digital technology facilitation can engage with developing economies. Also, identifying and exploring these elements' relationships in co-design efficient business and marketing innovation is still scarce. Digital technology adoption and use within these markets still depends upon technology capacity tailored for the community (Dey et al., 2019; Nayak et al., 2019). As Gebauer & Reynoso (2013) discussed in their study, the priorities of BOP directions about technology leveraging require further research on promoting an inclusive innovation business model. Nayak et al. (2019) also argued that the lack of technology roles such as digital technology implementation at the BOP aiming for social goals generates a unique value proposition that can facilitate business model framework development.

Moreover, as Vargo and Lusch (2004) suggest, 'the company can only offer value propositions' and increase the co-created value within the market networks with multi-actor involvement. In the BOP marketplace, value propositions can also mean 'offering market propositions' (Storbacka & Nenonen, 2011) and market fairness (Shaw & Carter, 2007). The integration of VCC and technology is an example of innovation for business support in the agriculture sector in developing countries, including the BOP markets. It may also contribute to other auxiliary industries to support the agriculture sector (Dey et al., 2019).

Previous research is also dominated by technological breakthroughs of typically large companies in industrialised markets. By linking to the first gap discovered for this research, further investigation of the essential VCC elements in developing economies involving local business markets and consumers requires further investigation. The local business ecosystem comprises local businesses, such as micro and small companies operating to become essential for developing an integrated business, and a marketing model which supports innovation. A co-creation approach may help create a successful new business model and innovation in low-medium income communities. Further exploration of innovative design that proposes inclusivity can give impact to these markets (Howell et al., 2018). Therefore, modern agri-food, which involves technology such as food digital retailing, which has begun to emerge in developing countries, is still under-researched. This primarily includes how this new type of food retailing enables maintaining the

crucial role to link the BOP business markets and consumers from the lens of the service ecosystem and VCC principle appropriately for this specific market.

The use of digital technology in the agri-food industry also means the involvement of both producers, traders/suppliers, retailers, and consumers as part of the value chain. Exploring VCC from the BOP and local networks' multi-actor perspectives may offer a different lens on looking at the BOP. A study by Knizkov and Arlinghaus (2019) also suggests further research on the possible best practices for VCC across the supply chain stage in BOP environments. The collaboration between the business actors and consumers can explain the basic premises of the S-D logic. However, the justification for these premises applied to different economic and social settings has not been fully discovered. A more nuanced perspective of a market and industries requires understanding by both the businesses (e.g., producers, intermediaries, entrepreneurs) and end-consumers. It can offer a more insightful view of the market complexity that occurs, such as developing economy markets. Therefore, further investigations are also needed to identify the drivers, elements, and consequences that affect VCC within both B2B and B2C contexts in the agri-food industry.

Regarding addressing the third gap discovered in the previous research, this research tries to clarify the role of digital technology in modern agri-food retail transformation to facilitate the co-creation of value. It establishes the appropriate VCC framework based on technology capacity and suitability for the specific industry of agri-food in this specific market. Consideration is also primarily given to the implications of the B2B collaboration, which involve BOP business markets and B2C relationships. As explained in the previous subsection (see subsection 4.5) and Chapter 2, although agriculture is the primary sector of the economy in developing economies, most business actors, specifically the farmer producers, are smallholders living at the BOP. Thus, further investigation also points to the need for VCC in this specific industry context and specific markets to identify the factors to facilitate a broader and more in-depth understanding of co-creation facilitated by digital technology. Therefore, the following research questions focus on clarifying the role of digital technology in agri-food retailing as the source for business innovation to promote VCC. Previous research shows limited investigation on customers surveyed concerning their participation based on S-D logic in VCC practices facilitated by digital technology, specifically within the developing country consumers. Therefore, the third research question is ‘what is the

role of digital technology in VCC in B2B markets at the BOP?’ and the fourth research question is ‘what factors (determinants and impacts) influence customers’ participation, involvement, engagement, and behaviours in relation to VCC facilitated by digital technology such as e-commerce?’

4.7 Chapter summary

This chapter has indicated the research gaps and formulated the questions proposed for this research. It presented relevant studies on the theoretical background on VCC that specifically focused on co-creation within developing economies in the agri-food industry from a marketing perspective and its relevance to economics, psychology, strategic management, and development studies. This research is essential to advance knowledge, understanding, and make a contribution to food marketing and business from a developing economy perspective. This chapter has compared the VCC theorisation movement and processes from the two different economic settings of the developed economies and developing countries, including the BOP markets. It also reviewed several critical conceptions of VCC in the agri-food industry within developing economy markets, such as collaboration, innovation, technology, and competitiveness. This research aims to present profound insights with a holistic perspective into the investigated topic. Therefore, this chapter covered the formulation of the research questions by presenting the existing studies, discovering the research gaps, and raising research questions. Following this, Chapter 5 explains the methodology applied in the research.

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CHAPTER 5 – RESEARCH METHODOLOGY

5.1 Introduction

This chapter elaborates on the strategy for the research design adopted in this thesis. Section 5.2 discusses the research philosophy and interpretation of the research paradigm for selecting the pragmatist approach. Afterwards, Sections 5.3 and 5.4 discuss the research design and the analysis approach. Before discussing the research design, it is essential to consider the research philosophy foundations of the selected mixed-methods. This chapter then describes the approaches to analysis and case selection taken for the empirical work presented in sections 5.5 and 5.6. Lastly, section 5.7 summarises the chapter. Following the justification for choosing the pragmatist approach is supported by mixed methods design (Creswell, 2009; Wisdom & Creswell, 2013), this research employed the qualitative and quantitative research. Lastly, this chapter outlines the procedures and stages of this research.

5.2 Research Philosophy and Interpretation

The chosen philosophy of science in the research is a critical part of defining the process of thinking theories that use to verify scientific knowledge. The idea of philosophy is essential, although it is sometimes covert in the study (Slife & Williams, 1997). Philosophy of science is crucial regarding how science is created and revealed as science, how science was discovered, and how the science is examined under the normative standards (Mantzavinos, 2009). However, the knowledge of social sciences has a distinction from the natural sciences. Social sciences explain social phenomena to comprehend the research problems (Mantzavinos, 2009), whereas natural sciences rely on logical empiricism as the result of idealism to respond to an idea (Easton, 2002). Social sciences pay more attention to the chosen rational theory, the function of an experimental technique to discover social phenomena, and decide whether there are fundamental laws for the social phenomena or mechanisms to be revealed, including searching for the social process (Mantzavinos, 2009).

The philosophy of science influencing the marketing field has followed a long journey. Starting in the 1950s and 1960s, the underlying thinking theories in marketing have indicated a shift to present the science philosophies. Although there were debates over philosophical basis within social science, such as in the marketing discipline in particular (Easton, 2002). The paradigms used in marketing study were either the subjective or objective perspective; or revolutionary transformation instead of regulation on sociology (Burrell & Morgan, 2019). The research philosophies that have mostly been applied in marketing were positivist, realist, interpretivist and radical humanist (Burrell & Morgan, 2019). The extensive use of paradigms in recent marketing research represents the complexity of social science and the discovery of methodologies adopted in the social world. Nevertheless, the marketing study has shown rigorously influence by positivism paradigm, rather than influence from other paradigms related to qualitative methods (Easton, 2002).

Adopting the appropriate research philosophy for research is essential to decide the assumptions about the way the researcher sees the world (Saunders et al., 2016). Ideally, a researcher should adjust to the advanced knowledge on the field of study and show critical thinking about the body of knowledge and use the philosophy of science as a tool to increase the contribution to knowledge. Philosophical assumptions should be considered in developing a research method for the proposed plan based on the worldview (Creswell, 2014) or research philosophy (Saunders et al., 2007) in the way a researcher views the world. A social scientist approaches the research based on the assumptions on how to see the nature of social reality and how the reality can be observed to determine research strategy and research methods (Burrell & Morgan, 2019; Saunders et al., 2016). The chosen research philosophy or paradigm will decide what research method will be used, and the research tool suits the methodology.

The purpose of research assumptions is to consider how the chosen research assumption influences the flow process of the research. Based on Burrell and Morgan (2019), four sets of assumptions conceptualise social science: ontology, epistemology, human nature, and methodology. Saunders et al. (2016) covered the three central philosophical assumptions of ontology, epistemology, and axiology to produce valid knowledge, while Walsh et al. (2015) relied only on two philosophical bases of ontology and epistemology.

The selection of the philosophy of science or thinking theories for the research approach is substantial and will influence the research methodology. Researchers should identify which philosophical ideas are best for the research because the chosen options will become an influential part of the research practice (Creswell, 2009). The philosophical bases of ontology and epistemology will build the research design and research methods (Creswell, 2014). Ontology is the assumption about the core of the observed phenomena (Burrell & Morgan, 2019), or what exists for the researcher (Walsh et al., 2015). The ontology is also underlying the commitment to using a particular perspective and the researcher's assumptions regarding how the world operates (Saunders et al., 2007). Epistemology is the assumption about the fundamental knowledge on how to begin to comprehend the reality that is interpreted into knowledge (Burrell & Morgan, 2019), which is considered as valid knowledge (Saunders et al., 2007; Walsh et al., 2015). Other assumptions used by Burrell and Morgan (2019) are human nature related to human relationships and the surrounding environment. The methodology is the consequence of the researcher's stance, applying ontology, epistemology, and human nature. Axiology, another philosophical assumption used by Saunders et al. (2016), is related to the role of values, which focus on the credibility of research outputs based on the researcher's judgment on value as the social inquiry process. According to Saunders et al. (2016), five dominant research philosophies are usually employed in business management studies: positivism, interpretivism, critical realism, postmodernism, and pragmatism. Table 5.1 shows a comparison between these philosophical assumptions and the type of methods that are typically used for business and management research. Each research philosophy stands on different assumptions, which influence the typical research methods employed for the research. This thesis adopted a pragmatist philosophy tailored to investigating the research questions, as explained in the following subsection.

5.2.1 Pragmatism

This thesis employed a pragmatist philosophy and mixed methods as the basis of the methodology. Mixed methods typically rely on pragmatic philosophy (Creswell, 2014; Harrison, 2013; Harrison & Reilly, 2011). Pragmatist philosophy stands between the extreme sides of positivism and interpretivism (Walsh et al., 2015). Pragmatism can also stand as an alternative between metaphysical thinking and positivism (Shannon-Baker, 2016). It posits the approach to the research question as to the key to using a specific approach, in which it is possible to employ

more than one research approach (Saunders et al., 2007). From managerial taxonomy, pragmatic sciences propose high theoretical, methodological, and practical relevance (Hodgkinson et al., 2001). Pragmatism is intuitively attractive because avoiding debates relating to the researcher's views on the phenomena, which probably uses the same constructs, serves as fact and reality. Thus, research output should have a value that is different to each researcher.

This research proposes a comprehensive result of the agri-food e-commerce on facilitating VCC from the business market and urban customer perspectives. The integration of VCC concepts, the role of digital technology, and food marketing in developing economy settings based on multiple market actor perspectives aims to propose more meaningful insights to the research topic. The research focuses on vegetable supply chains with research participants consisting of smallholder farmer producers or farmer associations, intermediaries, and customers. The participation of business providers along the chains and customers in the VCC interaction is substantial and supports the comprehensiveness of the research. The pragmatic approach can facilitate scientific thinking to achieve the research objectives. Pragmatic philosophy considers the meaning of objects with outcome-oriented (Johnson & Onwuegbuzie, 2004).

The background of this research on the role of digital technology in promoting VCC in a developing economy market such as Indonesia is in line with pragmatist philosophy. This philosophical stand occurs in actual actions, conditions, and effects rather than perceives ongoing situations (Creswell, 2014). The research explores the significance of VCC through e-commerce and is focused on the agri-food business practice solutions as the contributions from this research. Pragmatist philosophy can help the research process achieve this goal by focusing on practices and offering solutions to the observed problems (Creswell, 2014).

Table 5.1 Comparison of five major research philosophies in business and management studies

	Positivism	Interpretivism	Critical realism	Postmodernism	Pragmatism
Ontology	<ul style="list-style-type: none"> One true reality (universalism) Real, independent, external Ordered, granular (things) 	<ul style="list-style-type: none"> Multiple meanings, facts and interpretations Complex, rich, socially built thru language and culture Change of experience, process and practices 	<ul style="list-style-type: none"> Objective structures Layered/stratified (the empirical, actual and real) A causal mechanism, independent intransient, external 	<ul style="list-style-type: none"> Dominated by some meanings, realities, interpretations and silenced by others Complex, rich, nominal Socially shaped through a power relation Change of experiences, processes, and practices 	<ul style="list-style-type: none"> 'Reality' is the rational consequences of concepts and ideas External, complex. and rich Changes in experiences, processes, and practices
Epistemology	<ul style="list-style-type: none"> Scientific-like method Measurable and observable evidence Like-like generalisations Contribution through prediction and causal explanation 	<ul style="list-style-type: none"> Concepts and theories too simplistic Emphasis on perceptions, narratives, interpretations, and stories Attempt to provide new worldviews and understandings as the contribution 	<ul style="list-style-type: none"> Epistemological relativism Facts are social constructions Knowledge historically transient and positioned Contributions developed through historical causal justification 	<ul style="list-style-type: none"> Dominant ideologies decide what regards as 'knowledge' and 'truth'. Emphasis on rephrased interpretations, meanings, voices, and deficiencies. Revealing of power relations and challenge of the dominant perspective. 	<ul style="list-style-type: none"> The practical significance of knowledge in specific contexts Focus on relevance, practices, and problems Aiming contributed to problem-solving and acknowledged future practices
Axiology	<ul style="list-style-type: none"> Value-free research The researcher supports the objective stance The researcher is independent, neutral, and separated from what is studied 	<ul style="list-style-type: none"> Value-bound research The key to contribution established on researcher interpretations Researcher reflexive and maintains subjectivity Researchers are part of what is studied 	<ul style="list-style-type: none"> Value-laden research Researcher endeavours to be objective as possible to reduce errors and bias The researcher acknowledges bias by cultural experience, worldview and upbringing 	<ul style="list-style-type: none"> Value-constituted research Researcher radically reflexive and together with the research embedded in power relations Some narratives from the study are repressed and suppressed at the costs of others 	<ul style="list-style-type: none"> Value-driven research The researcher is typically reflexive, initiated and sustained by beliefs and doubts
Typical methods	<ul style="list-style-type: none"> Characteristically deductive with quantitative methods of analysis, but a range of data can be analysed Large sample, highly structured, measurement 	<ul style="list-style-type: none"> Characteristically inductive with qualitative methods of analysis, but a variety of data can be interpreted Small samples, in-depth inquiries 	<ul style="list-style-type: none"> Retroductive arguments (concomitance, co-occurrence) In-depth historically established analysis of emerging agency (actor, group) and pre-existing structures Application of a variety of methods and data types tailored to the subject matter 	<ul style="list-style-type: none"> Characteristically deconstructive-reading texts through qualitative methods of analysis with a range of data types In-depth inquiries of absence, anomalies, and silences 	<ul style="list-style-type: none"> Application of a variety of methods (mixed, multiple, quantitative, qualitative, action research) Subsequent the needs of research questions and research problems Emphasis on practical outcomes and solutions

Source: Adopted from Saunders et al. (2016)

5.3 Research Approach

Research is related to how to use the existing theory. The theory may be involved in the research implicitly or explicitly and used by the researcher to have a clear the position in theory (Saunders et al., 2007). The use of the research approach is one of the critical considerations before developing a research design. The researcher may choose to approach the project in inductive, deductive, or abduction reasoning. The inductive approach aims to have a better or more in-depth understanding of the observed problems, discover the research patterns, and formulate or develop a theory (Harrison, 2013; Saunders et al., 2016). The deductive approach involves the present laws as the explanation basis that apply to test the hypotheses and theories (Harrison, 2013; Saunders et al., 2016). Deductive reasoning follows the principles of developing the conclusion logically derived from a set of premises (Saunders et al., 2016). The abductive approach emphasises creating a solution instead of focusing on people (Nenonen & Storbacka, 2010). Abductive reasoning is considered a conclusion rather than a premise and then follows the conclusion to determine a set of propositions that explain the conclusion (Saunders et al., 2016).

The logic of the pragmatic approach acquires multiple approaches that may combine the use of inductive, deductive, and abductive reasoning (Harrison, 2013). This research adopted a pragmatic approach by employing mixed-method research of an inductive and followed by a deductive approach. Mixed methods can propose a more holistic perspective to address marketing problems rather than rely on one inductive or deductive approach (Harrison & Reilly, 2011). The first stage of qualitative research employed an inductive research approach to explore the multiple business actor perspectives across the vegetable supply chain experiencing retail channel transformation using e-commerce. The second study using quantitative research employed a deductive research approach and focused on the urban customer perspective concerning their online food purchase consumption experiences using agri-food e-commerce. At the end of the analysis, both qualitative and quantitative analysis results can identify and indicate a comprehensive understanding of the observed phenomenon. A comprehensive perspective that gains from multiple business providers along the food chain and customers aim to propose conceptual outcomes and solutions developed based on the modern marketing theoretical model and application in the marketing process and improvement.

5.4 Research Design

Research methodology is essential to prepare, execute, analyse, and interpret the data. The research methodology is determined based on the research questions and research objectives. The research methods reflect the allocated time and the resources used in the research (Saunders et al., 2016). This research relies on a research design based upon a mixed-method approach, which is pragmatically tailored to agri-food e-commerce in developing economies. The type of mixed methods approach may be suitable for VCC research due to the functions of value that try to identify solutions for all actors involved in the co-creation sphere (Grönroos, 2008), such as for farmers as producers, marketing intermediaries as sellers, and customers as buyers.

Mixed methods research refers to the type of research that combines both the components of quantitative and qualitative research methods, techniques, and concepts into a single study that aims to gain broader depth and breadth of understanding and corroboration (Johnson & Onwuegbuzie, 2004). Mixed methods employ different designs that involve philosophical assumptions and theoretical construct frameworks (Creswell, 2014). Mixed methods are considered relatively new; they started in the 1980s and began to be a systematic convergence method in the early 1990s (Creswell, 2014). The selection methodology on mixed methods is to grasp a comprehensive perspective and insight by combining research methods and it attempts to mitigate research design shortcomings and propose possibilities to integrate the techniques in a coherent and consistent logic. Mixed methods suggest a more reliable result than employing a single research method, and particularly, each approach could complement the other (Bahl & Milne, 2006). There are different typologies of mixed methods suggested by scholars. Table 5.2 shows five different types of mixed method designs: convergent, exploratory, explanatory, embedded, and hybrid. Each design has different characteristics in terms of variants, sequence, data collection, mixing technique, data analysis and integration, interpretation, and adequate application conditions (Creswell & Clark, 2018; Creswell & Creswell, 2018; Harrison, 2013; Harrison & Reilly, 2011). The rationale for employing a specific mixed method design could be varied. For example, the suitable inquiry to answer the research questions or address research problems requires mixing research methods with different priorities for different databases (data strands) in the research (Harrison, 2013). The objective of mixed methods is not to substitute each research design approach but to depict the strengths and deduct the shortcoming of each approach

(Johnson & Onwuegbuzie, 2004). Thus, the proposed results of the study are addressing the research problem comprehensively.

A study by Harrison (2013) reviewed the use of mixed methods in business studies. It revealed the recognition of this research method within business study scholars by mixing quantitative and qualitative approaches. The study shows that different disciplines show different domination of mixed methods techniques. In broader business research, exploratory sequential designs were more prevalent (Harrison, 2013), including more specific marketing research (Harrison & Reilly, 2011). The use of mixed methods in the marketing discipline is also encouraged based on its ability to emphasise rigorous research (Woodruff, 2003). Although mixed methods designs in marketing studies have a little scope, such designs are more frequently used in much social science due to the research methods movement (Harrison & Reilly, 2011).

This research selected the exploratory sequential design as the appropriate research method. Exploratory designs are beneficial for various purposes, such as exploring relationships when the observed variables are unknown. New measurements are developed based on initial qualitative results, and these results could be generalised by testing or refining a theory development (Harrison & Reilly, 2011). The chosen design aligned with evaluating mixed methods for business study types (Harrison, 2013). First, there is limited prior knowledge about the concept, constructs, or variables of the research phenomenon. Second, identifying new emergent questions gains from the qualitative data analysis, and this specific qualitative data cannot be answered. The first argument is related to the lack of conceptual and empirical foundation about the investigated topic. This subject requires a further fundamental understanding of the concept and the constructs by starting with the qualitative research to gain better insights and then follow a quantitative approach. The second argument is related to the emergence of interesting new findings on the observed topic from the first qualitative analysis stage, which requires a follow-up evaluation by employing a quantitative survey.

Table 5.2 Typology of mixed methods designs

Design type	Variants	Sequence	Data collection	Mixing technique	Data analysis and integration	Interpretation	Effective conditions
Convergent	Parallel database	Concurrent procedure (qualitative and quantitative at the same time)	Both forms of data (qualitative and quantitative) using the parallel or same constructs, variables, or concepts	Merging the data during the analysis or interpretation	<ul style="list-style-type: none"> Three phases of qualitative data analysis, quantitative data analysis, and mixed methods data analysis Integrating two databases 	Comparing the results from the two databases in a discussion section	<ul style="list-style-type: none"> Limited time for data collection Both types of data must collect in one field visit Equal value to collect and analyse both data to understand the phenomenon or problem Researchers have expertise or skills in both qualitative and quantitative methods and capable of managing extensive data collection
Exploratory	Theory development; instrument development	Sequential procedure (qualitative followed by a quantitative)	Two distinct phases by collecting qualitative data and test of the quantitative measures or features	Linking the data between the two stages	<ul style="list-style-type: none"> Analysing two databases separately Integrating the qualitative results to design the quantitative stage 	<ul style="list-style-type: none"> Reporting the results from both quantitative and qualitative separately The findings from both databases are not to be compared 	<ul style="list-style-type: none"> Research questions are more qualitative orientation (themes and patterns discovery) Researchers who have limited prior knowledge about the constructs are critical to study The researcher identifies or discovers new emergent or interesting research questions from the first qualitative data analysis that cannot be answered with the qualitative data No relevant quantitative measurements or instruments are available
Explanatory	Follow-up explanation	Sequential procedure (quantitative followed by a qualitative)	Two distinct phases with rigorous sampling for quantitative and purposeful sampling for qualitative	Linking the data between the two stages	<ul style="list-style-type: none"> Two databases (quantitative and qualitative) are analysed separately Linking the quantitative results into the qualitative data collection for data integration 	<ul style="list-style-type: none"> Reporting the results from both quantitative and qualitative separately Explain quantitative results support the quantitative results 	<ul style="list-style-type: none"> Research questions are more quantitative orientation (hypothesis/theory testing) Researchers can return to participants for the qualitative data collection in the second stage New research questions are emerged and developed based on quantitative findings that cannot be answered with quantitative data

Table 5.2 *Cont.* Typology of mixed methods designs

Design type	Variants	Sequence	Data collection	Mixing technique	Data analysis and integration	Interpretation	Effective conditions
Embedded	Embedded experimental; embedded correlation; embedded methodology	Sequential or concurrent	Both data collection support each other in a larger design	Embed or insert one type of data within a more extensive research design using the additional or different type of data	<ul style="list-style-type: none"> • The separate database is used to answer different questions • Supplemental method 	Research findings from one database are used to enhance the interpretation of findings from different research method (experiments, correlational)	<ul style="list-style-type: none"> • Researchers have limited prior information or experience about the supplemental method • Limited resources to put equal urgency/priority on both types of qualitative and quantitative data
Hybrid	Mixing results of two-phase follow-up data investigation	Mixing between concurrent convergent and sequential exploratory	The same participants for data collection both qualitative and quantitative research	A combination of various forms of concurrent and sequential research design	<ul style="list-style-type: none"> • The first stage of qualitative and quantitative data collection of an exploratory design • The second stage of two-phase follow-up data collection of qualitative and quantitative • Data were presented separately 	The findings are mixed in a discussion section	Researcher consideration to use multiple rationales by employing various research designs to understand the problem or phenomenon

Source: author compilation from Creswell and Clark (2018); Creswell and Creswell (2018), Harrison (2013); Harrison and Reilly (2011)

5.5 Approaches to Analysis

There were two stages employed in this sequential exploratory design: firstly, to collect qualitative data and present qualitative analysis; secondly, the subsequent quantitative research framework derived from the qualitative findings (Creswell, 2014). This analysis approach aims to measure the observed case better, using the first qualitative data as the initial database. The design directs the research into two stages (see Figure 5.1). Each phase followed different data collection types and data analysis, which means each study is conducted sequentially at a separate time. After completing the qualitative research, the second stage of quantitative research follows.

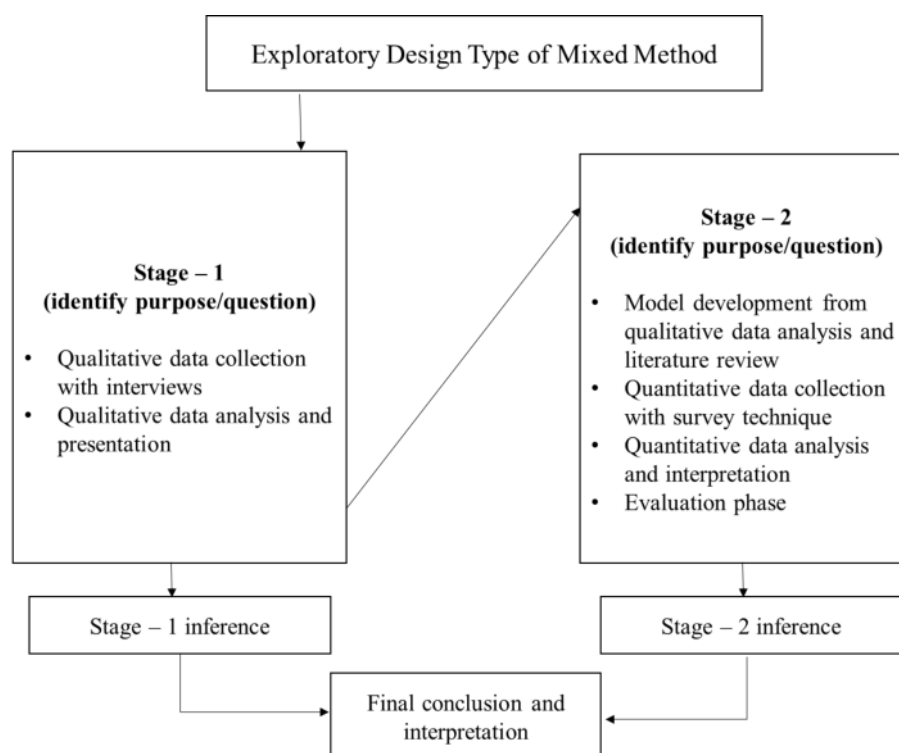


Figure 5.1 Research framework with the exploratory sequential mixed methods

Because this thesis aims to understand of a topic in a specific business environment, various types of research participants were involved. Each research of qualitative and quantitative research used different markets actors as research participants. This data collection approach is rarely used in mixed-method research. Usually, in exploratory sequential design, the samples used for both qualitative and quantitative phase typically come from the same population (Creswell, 2014). Therefore, each stage of qualitative and quantitative research approached different population or participant categories. The explanation for this is provided in Chapters 6 and 7.

Table 5.3 Summary of research components of the exploratory sequential mixed methods

	Proposed by Saunders et al. (2016)	Application in the research
Data collection	Qualitative data analysis used to develop research instruments for quantitative components	<ul style="list-style-type: none"> ▪ The qualitative data yield quotes, codes and themes that used to establish the quantitative framework and measurement ▪ The questions created for qualitative data collection and quantitative data collection were different (see Appendix 3 and 4) ▪ The samples used for qualitative and quantitative data collection were different and derived from the different population; participants for qualitative research were multiple business providers along the vegetable supply chains (specifically those business actors who involved in e-commerce channels); samples for quantitative research were customers whoever bought vegetables via agri-food e-commerce
Data analysis	Analyse two databases from qualitative and quantitative research individually and utilises the results from the preliminary qualitative data to develop the quantitative measures	<ul style="list-style-type: none"> ▪ Analysis of the two databases was conducted separately with different methods and techniques ▪ Qualitative data was firstly analysed through qualitative thematic analysis to explore the observed phenomenon and uses some of the themes to develop the quantitative measurement and framework (see Chapter 6) ▪ Quantitative data analysis was conducted after finished with the data collection by employing statistical analysis (see Chapter 7)
Interpretation	Interpretation of the findings is provided in the discussion section by reporting the use of qualitative and quantitative research and its purpose to the entire study	<ul style="list-style-type: none"> ▪ The order of interpretation from both studies of the qualitative and quantitative results was provided in sequence, by first discussed the qualitative findings and their usefulness to the study; then followed by a discussion of the quantitative results (see Chapter 8) ▪ The discussion was not made to compare the two findings because the data coming from different samples; but rather to provide a holistic understanding of the observed phenomenon
Validity	Validity from qualitative and quantitative data needs to check to provide rigorous data analysis	<ul style="list-style-type: none"> ▪ Each database from both qualitative and quantitative research was checked for validity utilising different validity techniques ▪ Validity check for qualitative research was through evaluation trustworthiness of the research (see Chapter 6) ▪ Validity check for quantitative analysis was through statistics validity check (see Chapter 7)

The first qualitative approach was interviews with multiple business providers across the vegetable marketing chains, whereas the second stage of the quantitative approach was a consumer survey. This was to gain holistic data from all actors involved in the chains, primarily various business actor perspectives. The business actors' insights and experiences about their B2B and B2C relationships were utilised to understand the research topic conceptualisation and understand how the research topic and context can affect consumers. As justified in Chapter 2 on the empirical study of the case selection, the agri-food retail transformation towards e-commerce is relatively new in Indonesia. This means more investigation is required to understand the observed phenomenon. The information from all the market actors, including

customers, was then considered essential. Hence, the qualitative analysis proposed two different objectives: (1) for theory development derived from this specific research context; and (2) to determine the constructs, develop and generate hypotheses in the second stage of the quantitative consumer surveys.

Table 5.4 The outline of empirical studies using exploratory sequential mixed methods

Research stages for mixed methods	First stage – Exploratory phase for qualitative research	Second stage – Confirmatory phase for quantitative research	
Main objective	<ul style="list-style-type: none"> Exploring and understanding the topic of a specific context chosen for the research Developing the qualitative model of VCC through digital technologies at the BOP 	Pre-testing the questionnaire before executing the primary survey	<ul style="list-style-type: none"> Confirmatory factor analysis (CFA) Testing and assessing the quantitative model of customer VCC through e-commerce at the BOP
Study	1	2a	2b
Data collection	Semi-structured interview	Pilot test	Survey
Sample size	20 (Indonesia)	20 (Indonesia)	441 (Indonesia)
Target population	Agri-food e-commerce chains	Consumers of one agri-food e-commerce company	Consumers of agri-food e-commerce who had the experience of buying vegetables
Location of study	West Java and Jakarta	Bandung	Bandung and Jakarta
Research Participants	Vegetable business actors along the supply chains (farmer producers to retailers)	Customers of one agri-food e-commerce, whoever bought vegetables via e-commerce	A person who had ever bought vegetables via e-commerce
Data analysis technique	Qualitative thematic analysis	Questionnaire evaluation and reliability check	CFA, CB-SEM, and moderation analysis
Software	NVivo 12	Descriptive check, SPSS 25	SPSS 25, IBM AMOS 26
Specific rationale	Creating a qualitative model of VCC of agri-food e-commerce chains at the BOP	Checking and refining the measurement scales	Studying the customer VCC resources, motivation, and behaviours and their effects on value-in-use, willingness-to-engage, positive affectivity, and behavioural intentions
Main RQs	1,2,3,4	4	4
Chapter	6	7	7

The focus elements of exploratory sequential mixed methods that required understanding as proposed by Saunders et al. (2016) are data collection, data analysis, interpretation, and validity. A summary of the research elements is presented in Table 5.3, while Table 5.4 summarises the sequence of empirical studies. An explanation of the processes and justification of the two research methods employed in this thesis is provided in Chapter 6 for qualitative analysis and Chapter 7 for the quantitative analysis. Research methods elaborate the strategies used for each study and describe the overall coverage of research procedures, starting with planning, executing, and monitoring the research as a systematic process (Johannesson & Perjons, 2014).

5.6 Research Context for the Empirical Studies

The research focuses on digital technology, promoting VCC within a developing economy's local market ecosystem, specifically in the agri-food industry. The perspectives from business markets and customers are critical in the research. The business market perspectives were the initial stage of understanding the research context, including the observed phenomena. Customer testimonials were the subsequent stage of the research to comprehend the market perspective. Hence, the empirical evidence used the business provider and customer perspectives tailored to the specific industry context, product, and service consumption in the agri-food business and marketing system in a developing country.

The agri-food e-commerce that operates in a specific developing economy market was a potential research context to study digital technologies on facilitating VCC. The agriculture-related sector is an appropriate example of developing economies because it is one of the economic growth sources in some developing countries (Khare & Varman, 2016; Prahalad, 2004). The use of ICT and digital technologies for agriculture industry application in developing economies has become more prevalent (Prahalad, 2004; Prahalad & Hammond, 2002; Varman & Belk, 2012). Selecting Indonesia as the case for this research, as explained earlier in Chapter 2, supports the aim of this study to represent a developing economy that has a BOP market, and the agriculture sector is one of the primary sectors for the economy. The agri-food industry in Indonesia has begun to enter digital retail transformation by the existence of e-commerce. In contrast, a third of the population is still in the BOP category (Euromonitor International, 2017). Because the research was context-specific in terms of the chosen industry, location of study, and target population, each research methodology required further justification.

The empirical data of case selection (see Chapter 2) was used to justify the chosen cases for this research and to mapping the appropriate locations and samples for qualitative interviews with the business actors and a quantitative survey with customers. The empirical data of the case selection shows that the agri-food e-commerce chains are dominated by MSMEs that offer fresh produce (e.g., vegetables) via online platforms and operate primarily in big cities. The upstream business actors (i.e., farmer producers, traders, suppliers, cooperative companies) were in rural areas. Hence, for qualitative research, West Java and Jakarta were chosen to collect the data from to represent Indonesia's vegetable production centres and potential vegetable trading markets. The quantitative customer survey conducted in Bandung and Jakarta represents the agri-food e-commerce targeted market and the primary locations where this business was operating. The justification for this will be elaborated further in the methodology section for each study, Chapter 6 for the qualitative research and Chapter 7 for the quantitative research.

5.7 Chapter Summary

This chapter has presented the research methodology used to approach the research questions that arise in this research. It introduced the general methodology adopted for the research conducted in this thesis, which applied mixed methods. In the first round, the research used a qualitative interview study, followed by the second quantitative survey study. Further explanation of the methodology applied in each study is provided in Chapter 6 for the qualitative research and Chapter 7 for the quantitative research. Thus, Chapter 6 explains the first qualitative study by providing a specific discussion on the research questions for this research, the data analysis, and the qualitative methodology.

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CHAPTER 6 – STUDY 1: THE ROLE OF AGRI-FOOD E-COMMERCE IN VALUE CO-CREATION IN THE BOTTOM OF THE PYRAMID (BOP) MARKET

6.1 Introduction

This chapter discusses the first empirical study based on qualitative exploratory research to examine the nature of VCC at the BOP in a developing economy, enabled explicitly by e-commerce in the agri-food sector. This research used multiple B2B stakeholder perspectives on the vegetable supply chain in Indonesia. The discussion of VCC conceptualisation is limited within the scope of the BOP. This research utilised the economic setting of LMICs, contributing to the development of emerging modern markets in the agri-food sector (Ha et al., 2015; Louw et al., 2010). A focus was placed on examining the role of digital technologies such as e-commerce that represent retail channel development promoting VCC. After the introduction (Section 6.1), this chapter discusses the specific research questions in the qualitative research (Section 6.2). However, a general discussion about this has been provided in Chapter 4. Section 6.3 elaborates on the research methodology and the qualitative analysis findings. Following this, Section 6.4 elaborates on the findings from this qualitative study and ends with a chapter summary in Section 6.5.

6.2 Research Questions for the Qualitative Research

For the first empirical study in this thesis, this qualitative research aims to explore the presence of VCC within agri-food e-commerce chains in a BOP market and amongst local companies (rather than by MNCs), which we refer to as the ‘local’ level and the circumstances under which VCC occurs. As presented in Chapter 4, the discussion provides the theoretical background for this research and identifies the research gaps. This thesis employed a mixed-methods methodology; hence, this chapter first elaborates the specific research questions for this qualitative research based on the research gaps explain in Chapter 4.

6.2.1 VCC, the BOP, and Local Businesses

As generally discussed in Chapter 4, the current literature primarily focuses on the VCC study at the BOP that typically initiated by multinationals trying to penetrate this marketplace. Previous studies showed that there is a limited understanding of multi-actor views on VCC across the agriculture supply chain in BOP markets. Research has investigated specific actor perspectives involved in co-creation, such as micro ventures (Facca-Miess & Santos, 2014), local producers (De Silva et al., 2020; Knizkov & Arlinghaus, 2019), and manufacturers/marketers (Bharti et al., 2014). VCC in the agri-food context depends on local stakeholders' needs, their involvement in relationships within networks, and the achievement of mutual benefits; and these could improve the network and relationships amongst supply chain members (Bitzer, 2012; Bitzer & Bijman, 2015; Vellema & Wijk, 2015). Putting communities at the centre of the co-creation process can be considered empowering. Therefore, research to explore VCC at the BOP involves actors across the value chains (producers, suppliers, retailers, and consumers). Successful co-creation initiatives at the BOP need to include local communities (Letaifa & Reynoso, 2015; Nahi, 2016; Santos & Laczniak, 2012; Sinkovics & Archie-Acheampong, 2020).

Storbacka and Nenonen (2011) discuss 'offering market propositions' by increasing co-created value within market networks through a market scripting approach that considers the business model, the involvement of multiple market actors and business practices. They argue that reinforcing the business model into the market can create a new configuration in the market ecosystem. The proposition emphasises developing mental models by scripting the market to alter the business configuration, shape value propositions, and discover new VCC opportunities (Frow et al., 2016; Storbacka & Nenonen, 2011). This study elaborates on this concept by exploring and discussing changes in the business ecosystems caused by the adoption of co-creation practices involving various BOP actors.

VCC theory and the involvement of key groups of the population, leading to price fairness and an inclusive business ethos, can enhance the value delivered within BOP markets by adopting a different approach rather than a transactional G-D logic (Santos & Laczniak, 2012). This approach, described as 'justice' (Santos et al., 2009) or 'market fairness' (Kjellberg & Helgesson, 2007), sheds light on how norms change within specific exchange settings. A market actor considers scripting the market when exercising new capabilities to influence other stakeholders to alter the current market configuration (Storbacka & Nenonen, 2015). Exploring VCC at the BOP through market scripting to ensure fairness for all stakeholders can introduce

a new theoretical approach in analysing VCC within this context. This approach is based upon a social change, leading to the creation of value that benefits both customers and partner organisations (Hamby & Brinberg, 2016).

Thus, a holistic understanding of VCC in the agri-food context can improve the network and relationships amongst actors in supply chains, such as building relationships with farmers as innovation users (Bitzer, 2012; Bitzer & Bijman, 2015). Thus, successful co-creation initiatives at the BOP need to include local communities (Letaifa & Reynoso, 2015; Nahi, 2016; Santos & Laczniak, 2012; Sinkovics & Archie-Acheampong, 2020). Scholars have argued that it could facilitate social embeddedness (Goyal & Sergi, 2015; Lashitew & Van Tulder, 2020), enhance authentic stakeholder engagement (Kennedy & Santos, 2019), and social value creation in the ecosystem (Sinkovics & Archie-Acheampong, 2020). Thus, the co-creation mechanisms that local organisations adopt when engaging with VCC forms the first research question addressed in this study, as follows:

RQ1: *How is VCC initiated and manifested by local organisations within their home BOP? Specifically, what values underpin the exchange approach and what are the observed principles of interaction?*

6.2.2 VCC, the BOP, and Digital Technology

Notwithstanding evidence that e-commerce has begun to be popular amongst MSMEs in BOP markets, there is limited information on examining digital technologies enabling VCC at the BOP amongst local businesses (Prahalad & Hammond, 2002). Although global or multinational companies have the know-how about technology, the local companies have the network and business infrastructure (Prahalad, 2012). The use of digital technology for the inclusive social model at the BOP (Nayak et al., 2019) means the involvement of the BOP communities' in the value chain. It can be argued that exploring VCC from the multi-actor perspectives within the local network of the BOP may offer a different lens on how to look at the BOP. Vellema and Wijk (2015) stated that VCC might tackle collective action issues through multi-stakeholder partnerships, enhance the ability to accommodate the problem-solving strategies stimulated by local stakeholders, and improve environmental sustainability.

The impacts of VCC enable technology fusion, collaboration amongst different actors in the marketplace to gain mutual benefits and symbiotic business relations through the appropriate innovation (Dey et al., 2019). Within food retailing, online food channels provide

alternative outlets to physical stores with the potential advantages of convenience, more extensive product ranges for consumers (Bryła, 2018), higher profits for producers, and lower prices for consumers (Lee et al., 2015). Within BOP agri-food markets, digitalisation, innovation, and technological capability support VCC success and advancement (Filieri, 2013; Gow et al., 2003). Thus, VCC has been identified as helping the prosperity of organisations in the agriculture sector (Bititci et al., 2004), improving business sustainability (Lawson et al., 2008) and supporting changes in the behaviour of actors in the supply chain (Insch, 2008). VCC can be used to identify the changes of consumers' perspectives on agri-food products toward non-monetary values (Jayashankar et al., 2020; Pratt, 2007); shifting consumer preferences (Gow et al., 2003); increasing customer satisfaction (Hunt et al., 2012); and customer participation in innovation processes (Matzler et al., 2013; Tardivo et al., 2017). Investigating the customer role as an active collaborator within the supply chain may increase the understanding of how value delivery becomes crucial (Grönroos, 2011; Payne et al., 2008). Little exploration has been done about the role of digital technology, such as e-commerce, within the local BOP market. Hence, the second research question is:

RQ2: What is the role of e-commerce in VCC within local supply chains at the BOP?

6.2.3 VCC Process, the BOP, Innovation, and Agri-food Sector

VCC at the BOP involves 'social transformation' as one end of the continuum to legitimise arms-length cooperation as a development agent (Blowfield, 2012; Nahi, 2016). A key omission in consideration of this continuum is the strategic approach of local BOP organisations engaging in VCC in local BOP markets, rather than MNC entry into new BOP markets. As explained in Chapter 4, a VCC model proposed by Kijima et al. (2014) provides an insight into the hypothesised processes (co-experience, co-definition, co-elevation, and co-development) that might be appropriate for VCC initiated within local BOP markets and this idea of VCC process informs the research questions. Additional principles underpinning VCC in BOP markets include Weidner et al.'s (2010) pre-conditions of sincerity in dialogue, understanding the local market situation, mutual learning and collaboration during product or service development. Also, related to engagement in communities (Hollebeek & Brodie, 2009; Hunt et al., 2012); the individual and situational factors of marketing chain actors (e.g. social, economic, cultural) (Barrutia et al., 2016; Barrutia & Gilsanz, 2012; Sandström et al., 2008); and empowerment of BOP actors (Agrawal & Rahman, 2015; Kijima et al., 2014; Zátori, 2016). Ranjan and Read (2016) have suggested that collaboration, which is key to underlying

value-in-use, should be rooted in reciprocal, joint, and iterative processes between customers and organisational entities in an engagement environment/or active communication. Although engagement characterises the business approach to the BOP community, their transformative products or services also need to ‘fit’ with the community (Hepi et al., 2017). This research sought to understand how VCC actors collaborate in BOP settings, notwithstanding social, economic, and technological constraints.

The transformation of the modern agri-food business has focused on actors' roles across the chain to co-create value by managing distinct VCC stages shown by supply chain actors' behaviour and investment (Insch, 2008). The same configuration about VCC in the agri-food sector also indicates the significance of working together with stakeholders in the business networks instead of working restricted between two business partners (Handayati et al., 2015). The co-creation model results make it possible to exploit supply chain actor knowledge and benefit the agri-food chain actors in collaboration, such as innovation projects (Giacomarra et al., 2020). Business relationships amongst the agri-food actors in the VCC process also reveal the importance of involving local stakeholders as partners in VCC processes to gain mutual benefits (Vellema & Wijk, 2015). Community support within the local environments may enhance social networks (Erickson et al., 2015). This also applies to linking local farmers as one of the key producers in agriculture with marketing channels (Gow et al., 2003).

The VCC process and mechanism in the agri-food context may be different compared to other industries. For example, VCC for creating competitiveness in the food supply chain and marketing requires specific treatments. The fundamental differences are naturally related to agricultural product characteristics, such as the products being perishable, voluminous, and bulky. These characteristics influence how to keep the quality, quantity, and continuity of the agriculture product along the supply chain until the marketing point. Thus, it may result in a significant change in the consistency of distributing and delivering the agriculture products from the farmer producer until the end-consumer as the final consumption point (Yu & Nagurney, 2013). Differences in business processes and characteristics between agriculture and other sectors may require suitable adjustment when adopting co-creation both conceptually and in practice.

Although VCC occurs at all stages of interaction (Prahalad & Ramaswamy, 2004a, 2004b), most of the empirical literature has focused on the encounter stage initiated by service providers (Dey et al., 2016). It assumes that VCC can have a positive long-term impact on BOP customers as beneficiaries of VCC. For example, VCC can drive social innovation (Lashitew

et al., 2020) and advance well-being at the BOP (Alkire et al., 2020). Innovation is the element that continues to impact on the VCC process and concept in the agri-food business. Innovation can be integrated with collaboration in agriculture by emphasising the components of collaboration, complementarity, and coordination in their model, endeavouring to succeed with ‘co-innovation’ (Bitzer & Bijman, 2015). The needs for collaboration has been identified as an essential part of innovation, co-creation planning, and interactive learning within agriculture suppliers and customers (Ngugi, 2019). Studies also show that the term collaboration has become more important for the agriculture business in small-medium scale companies (see Koning et al., 2019; Ngugi, 2019; Widjojo et al., 2020). Agri-food small businesses may be unfamiliar with the concept of VCC. They may be inexperienced with innovation, but recognition towards innovation has gained awareness amongst the business actors and enthusiasm for VCC also occurred (De Koning et al., 2016). Exploring the appropriate co-creation models for agriculture businesses may overcome the limitation obtained by small companies, making network collaboration with stakeholders important (Widjojo et al., 2020).

Despite recognising the co-creation process proposed in multi-models, little empirical work has been undertaken around the agri-food context. The investigation of VCC processes in the agri-food sector of the BOP market has also been limited. Based on the S-D logic, the determination of co-creation of value is relative and subjective based on the context, time and place and network dynamics within a specific system (Chandler & Vargo, 2011; Vargo & Lusch, 2008). Within the BOP population, a lack of alternatives and information asymmetries can influence value creation (Santos & Lacznjak, 2012). BOP markets are often characterised as having limited resources and infrastructure, requiring additional support and facilities to enable both consumers and businesses to engage in co-creation processes (Dey et al., 2016). Thus, value-in-use creation may require business models or practices that overcome cultural and situational difficulties to optimally achieve co-creation benefits (Dey et al., 2016; Hernandez-Cazares et al., 2019). However, some studies suggest that knowledge and participation enhancement appear to be essential in succeeding in co-creation in this field (Delate et al., 2016; Teklehaimanot et al., 2017), especially when involving rural communities such as smallholder farmers and local traders. However, the actors' mechanism to participate, to involve, and to engage in the co-creation initiatives can differ based on the expected outcomes that mutually fit and benefit each party. Hence, the VCC process at the BOP requires a holistic approach to understand the factors affecting the empowerment of BOP communities. Co-creation may occur at pre-interaction, encounter, and outcome stages to discover the impact

of VCC for all the involved actors. An analysis of the VCC process across the supply chain is provided in this study to address the research gap. Therefore, the third research question is:

RQ3: What are the underlying dimensions of VCC and practices of engagement among supply chain actors at the BOP?

6.2.4 Customer VCC, Small Businesses, and Agri-food E-Commerce

In the current digital era, consumers from emerging countries and those at the BOP have access to experiencing how developed country consumers live their lives and share or purchase the products they are using. The introduction and adoption of digital technologies have transformed how customers and companies can interact and redefine customer-company relationships (Rayna & Striukova, 2016). Digital connectivity has enabled individuals to interact and participate by adding new meaning in the process of identifying and perceiving the significance of co-creation (Özsomer, 2019; Ritzer & Jurgenson, 2010). This also indicates the opportunity for business markets in these markets to be facilitated by digital technologies to connect with their consumers. Digital technologies influence global consumer culture, which has more impact on people who are probably more involved with multi-cultural settings to participate in the consumption and collective construction (Özsomer, 2019). The influence of digital technology has lead consumers within developing economies to have the opportunities to move forward toward digitised-driven.

Interaction with customers by developing a high-quality relationship may create unique consumer experiences in VCC activity and serve as a new source of competitive advantage (Prahalad & Ramaswamy, 2004a). By involving customers directly in the VCC activities and bonds, a close relationship with deep emotions can influence consumer behaviour (e.g., customer satisfaction, enhancing consumer satisfaction, consumer loyalty) and pursuing customers for future intention (Bendapudi & Leone, 2003; Filho et al., 2015). Consumer participation in the co-created value is competitive by involving customers as the active partner rather than only as value recipients (Bendapudi & Leone, 2003). The involvement of the customer in VCC represents a collaboration between company and customer to utilise competence (i.e., knowledge) and capabilities (i.e., skills) as the efforts to create a new competitive advantage (X. Zhang & Chen, 2008).

The focus on consumers has been considered as the focal point for the company and business goal in VCC in the context of agri-food, such as considering consumer preference

(Gow et al., 2003); satisfaction (Hunt et al., 2012); customer involvement (Hollebeek & Brodie, 2009); and customer participation (Tardivo et al., 2017). The changes in agriculture business actor behaviour (Insch, 2008) have also changed the consumer perspective toward non-monetary values when purchasing agri-food products (Pratt, 2007). The idea aligns with co-creation as the source of market competition by involving customers as co-creators of value (Vargo & Lusch, 2004). According to Garcia and Jerez (2020), it is essential to involve customers and incorporate them with farmers, especially innovative farmers who might be early adopters to provide the best-required products and services. Customer orientation aligned agri-food VCC concerning the process of involving clients through their behaviour in the co-creation activities (Ferreira & Menezes, 2015; Insch, 2008). Today's knowledgeable modern consumers show an increasing consideration regarding the demand for high-quality food and expectation that the ultimate delivery will fulfil consumers' demand (Besik & Nagurney, 2017). The VCC category in the agri-food context based upon customer behavioural involvement has indicated a new value source rather than relying on conventional measurement through attitudinal behaviour (Hunt et al., 2012). Customer orientation in the agri-food context has been perceived as a critical factor to enable the success of VCC by sustaining process and profitability (Gow et al., 2003; Tardivo et al., 2017).

However, previous studies showed less focus on customer VCC based on the relationships between MSMEs and customers through e-commerce platforms within developing economies. Small-scale companies dominate the adoption of food e-commerce in developing countries (T. Zhang, 2017), while global and multinationals are more common for e-commerce in developed countries (Henderson et al., 2005). Although digital technologies can give companies of all sizes access to both local and global markets, large companies have been identified as leading e-commerce (Molla et al., 2010), particularly in the food sector (Zeng et al., 2017). There is evidence that networks play an essential role in the innovation process by enabling learning facilitation (Goyal & Sergi, 2015; Hudnut & Detienne, 2010). Researching the small-medium enterprises at the BOP can contribute to social innovation (Kistruck et al., 2013).

Therefore, the development of conventional e-commerce into social commerce (Z. Huang & Benyoucef, 2013) by involving social media platforms may present small businesses with wider business opportunities. However, exploring the factors that may influence customers' VCC when using agri-food e-commerce run by local small businesses, especially within consumers of developing countries, is still under research. Exploring customer VCC

determinants and impacts through e-commerce managed by local MSMEs within a developing country requires further exploration. Thus, the last research question is:

RQ4: *What are the determinants and impacts of customer VCC in emerging e-commerce in the agri-food sector in developing economy markets?*

6.2.5 Summary of the Research Framework

The review has identified several gaps in knowledge relating to VCC at the BOP. Figure 6.1 represents the framework developed for this qualitative research.

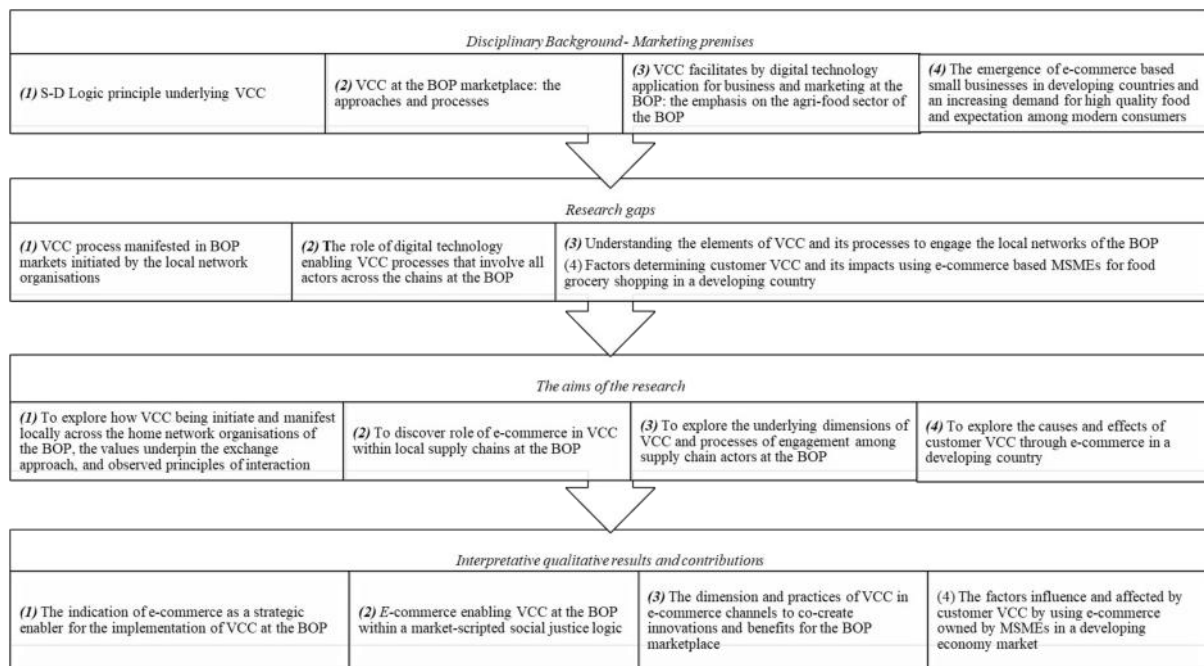


Figure 6.1 Qualitative research framework

6.3 Qualitative Research Methodology

This research employed a qualitative methodology facilitating the understanding of the topic by using a real-world example discussing the subjects' perspective by analysing their shared experiences (Berg, 2001). The inductive approach facilitated theory development based on the collected data and the critical analysis of the cause-and-effect relationships between the observed variables (Saunders et al., 2007). An inductive approach was relevant to this research to explore VCC, the processes supporting VCC and the potential impact of VCC on Indonesian horticulture B2C and B2B supply chains. The specific topic taken for this research tries to discover the nature of VCC, which facilitates e-commerce at the BOP, including exploring various aspects of the VCC process and elements—for example, exploring the underlying motivation, drivers, impacts, benefits, and elements related to the literature.

6.3.1 Semi-structured In-depth Interviews

The study employed interviews to facilitate qualitative research by utilising open-ended questions. Using interviews for qualitative research has become a powerful method often used for social science research to investigate various human experiences by understanding the world from the subject's perspective (Kvale, 2007). Interviews enable the researcher to make further exploration of a complex phenomenon (Tracy, 2013). Interviews allow the participants to talk openly about a particular topic responding to a specific question while allowing the interviewer or interviewee to control the questioning sequence (Creswell, 2005, 2014). The interview results are represented as textual data, which can provide insight into the research context and interaction patterns (Dominguez & Hollstein, 2014).

The type of interviews applied for this research is semi-structured in-depth with face-to-face interviews. Semi-structured interviews were chosen for their inherent flexibility, which was achieved by utilising probing techniques based upon the interviewee responses to the main questions, thereby enabling the interviewer to understand the interviewee's world view (Lune & Berg, 2017). By understanding the interview techniques, the interviewer can elicit detailed responses from their interviewees (Johannesson & Perjons, 2014). Consequently, the researcher needs to be aware of any answer given by the participants and should be able to make reasonable adjustments to maintain the unanticipated development during the interview process. Therefore, the interviewers can probe and prompt to obtain the expected answers from the interviewees in a more spontaneous way based on the questions in the interview guide (Goodyear et al., 2014; Lune & Berg, 2017).

This research has several reasons for selecting one-to-one interviews over other data collection approaches, such as focus groups. Firstly, the participants were spread over several locations and different cities. Other approaches may have incurred extra costs, such as time and travel costs. Some participants, such as farmers and local wholesalers, were in rural areas or even remote areas far from the city, and access to their location is also challenging. Secondly, if research participants were categorised as businesspeople, then they were more likely to agree to be interviewed rather than invited to a focus group discussion or complete a questionnaire. Focus group interviews may have obstacles, such as privacy, information confidentiality, and time arrangement difficulties for all the participants. This makes one-to-one interviews preferable. Participants were also interested in participating in interviews directly relevant to their current business situation. Focus groups may also potentially prevent the active involvement and participation of the participants during discussion time. So, some of the

participants may hesitate to share their thoughts and experience. In contrast, a one-to-one interview can avoid such a situation unless the participant refuses to answer the questions, which, of course, he/she can choose to do.

6.3.2 Data Collection Approach

The data collection approach addresses the selection of participants, the number of participants, how to approach the potential participants, interview brainstorming cues, and data analysis.

6.3.2.1 Sampling Selection

Before recruitment, the Indonesian vegetable supply chain was mapped to identify stakeholder categories from which to sample interviewees (see Figure 6.2). This research sought maximum variation (Patton, 2002) in sample selection, which was done by following a purposive sampling and a snowball sampling approach in sampling selection. Participant recruitment started purposefully through personal contacts of and then followed a snowballing approach (Berg, 2001). This research sampled producers and farmer groups from urban and rural locations, various intermediaries, including agri-food suppliers and channel members operating in diverse retail formats, such as traditional wet markets and modern retailers (i.e., supermarkets and e-commerce). Each of the sample categories had to be identified carefully to obtain the desired sample to gain a variety of participant categories. Hence, the two sampling approaches were used for different participant categories (see Figure 6.3).

The purposive sampling was employed to derive the research participants corresponding to criteria eligibility for the research. In contrast, the use of snowball sampling aimed to identify the participants that are difficult to find. Purposive sampling is the sampling method appropriate to selecting members of a specialised population by using the local knowledge and local experts, including my personal judgement (as the researcher), to select the cases to locate possible research participants (Neuman, 2014; Saunders et al., 2007). Purposive sampling was applied to obtain all potential cases that fit specific criteria based on the researcher's judgement (Saunders et al., 2007). The criteria developed for selecting research participants are created based on the potential participants who can provide the research information (see table 6.2). This sampling method aimed to gain representation and variation amongst subjects of interest to answer the proposed research questions with a deeper understanding of each case of the selected participant (Saunders et al., 2007).

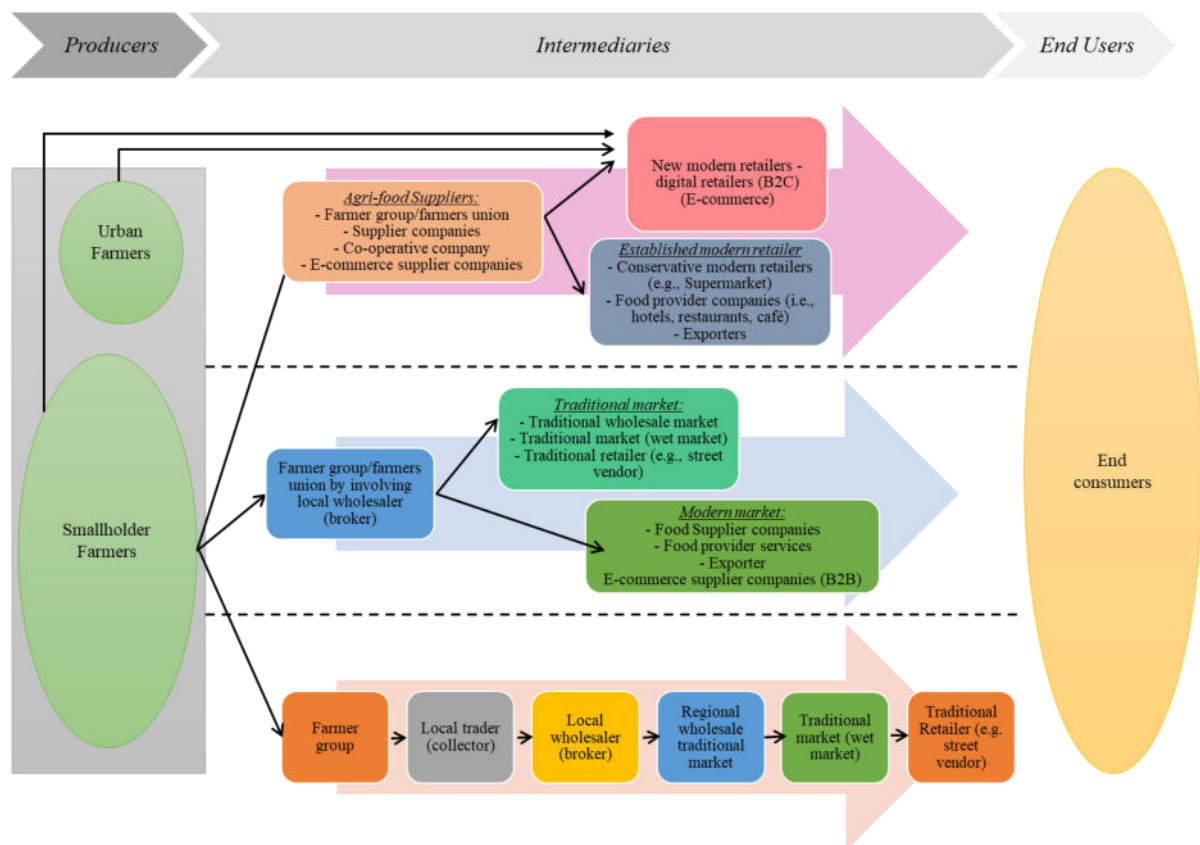


Figure 6.2 Market structure development of agri-food channels in Indonesia

Snowball sampling is commonly used to identify the research participants, who, due to one or more reasons, are difficult to find or the population is difficult to reach (Saunders et al., 2007). Snowball sampling is considered the best sampling method to locate the research participants with specific characteristics or attributes required in research (Berg, 2001). The premise is to apply snowball sampling based on the condition that the targeted population members need to know each other (Lohr, 2010).

Initially, the first step to get a list of potential interviewees was by mapping each participant category's potential location based on the secondary data regarding vegetable production centres in West Java. However, Jakarta was selected based on the information showing this location is the targeted market for distributing vegetables from West Java. The next step to gain further information regarding the prospective interview participants was conducted by having communication and discussion with one of the university research groups in Universitas Padjadjaran - Indonesia that focuses on agricultural logistics and supply chain systems. This research group was appointed as the expert participant for giving the information needed for selecting the interview participants based on their expertise and experiences on research in agri-food on Java Island. The discussion with the members of this research group

aims to get access to the names and locations of the selected participants. The purposive sampling applied was designed in the first stage to choose the research participants from the farmer producer, trader, and modern retailer categories.

However, because locating the traditional retailer participants was challenging, snowball sampling was applied for this participant category. The prospective participants were identified by directly visited two different wet markets in the two different areas. At the wet market, I asked for traditional retailers' names who fit the research attributes (i.e., vegetable retailers) to the informants who were also retailers in that wet market. I asked for their suggestion about people who can potentially be interviewed.

Three categories of horticulture stakeholders were identified after following the mapping of participants: 1) farmer producers (e.g., smallholder farmers, farmer group/farmers union); 2) traders (e.g., local wholesaler, supplier companies, co-operative company, e-commerce); and 3) retailers (wet market retailer, street vendor, supermarket, and e-commerce retailer). Table 6.1 identifies the interview participant categories and their potential roles in the agri-food chains. Interview participant categorisation could capture the VCC practices that occur along the local agri-food supply chain, which means the relationships occurred both in B2B and B2C, including the market orientation of each participant category (see Figure 6.4). Participant selection ensured representation from each category.

Table 6.1 Interview participant categories and locations

Interview participant category	Interviewee role in the vegetable supply chain	Location
Producer	Smallholder farmer	Bandung Regency, Cianjur Regency
	Farmer group/farmers union	Bandung Regency, Cianjur Regency
Trader/supplier	Local wholesaler	Bandung Regency
	Supplier company	West Bandung Regency
	Co-operative company	Bandung Regency
Retailer	Wet market retailer	West Bandung Regency
	Street vendor	Bandung City
	Supermarket	Bandung City, Jakarta Special Capital Region
	E-commerce	Bandung City, Jakarta Special Capital Region

Interview participants were drawn from five different locations: the suburban and rural areas of Bandung Regency, West Bandung Regency, Cianjur Regency, and Bandung and Jakarta cities. This is due to the geographical distribution of vegetable production centres in West Java. The farmer producers and suppliers are predominantly situated in suburban or rural area, while retail distribution outlets such as supermarkets and e-commerce retailers are in urban regions.

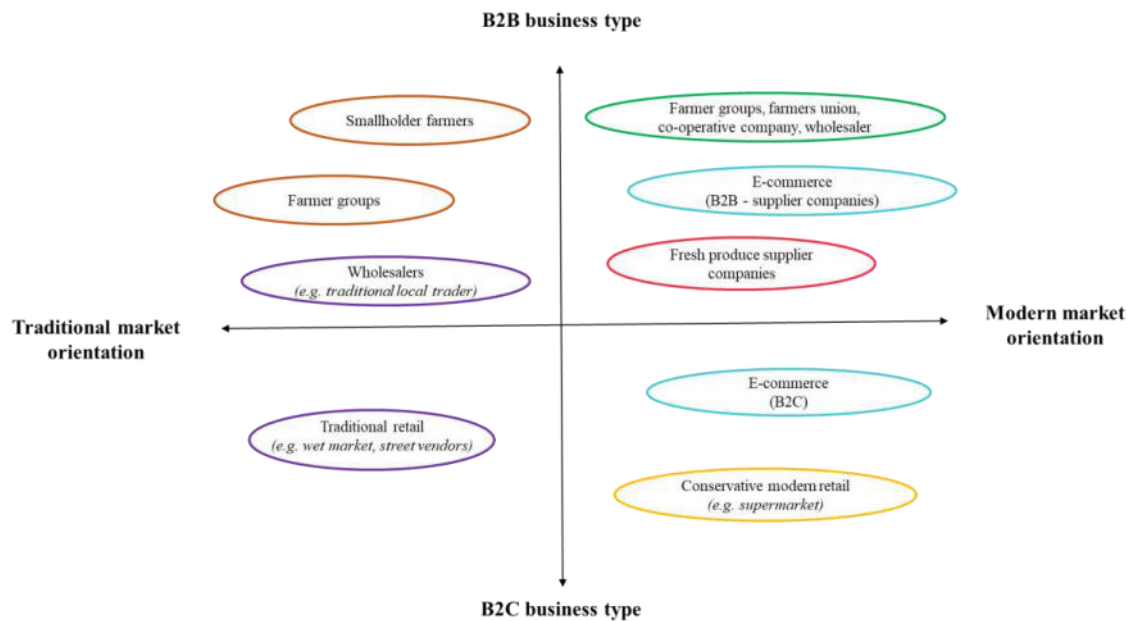


Figure 6.3 Interview participant categorisation

The potential participants had to be eligible for at least one of the criteria listed in Table 6.2 to be qualified for interviews. Each participant category has different criteria eligibility for an interviewee based on each participant's different role in the marketing channel. The interviewees selected in this research also represent the variety of business types and market orientation (see Figure 6.2) to enrich the database.

Table 6.2 The Participant criteria eligibility

No	Role in the supply chain	Interviewee category	Criteria eligibility to be selected as an interviewee
1	Producers	Smallholder farmer/farmer group/farmers union	<ol style="list-style-type: none"> 1. The selected person/group is the influencer market player in the selected location (*), and 2. The keypersons or the leader of the group/association, or 3. A decision maker at the group/association
2	Trader/supplier	Wholesaler (e.g., traditional local trader)	The selected person is the influencer market player in the selected location (*)
		Co-operative company	<ol style="list-style-type: none"> 1. The selected company is the influencer market player in the selected location (*), and 2. The keypersons or the leader of the selected company, or 3. A decision maker at the selected company, or 4. Someone responsible for the vegetable marketing or procurement or buying process and decision at the selected company
		Supplier company	<ol style="list-style-type: none"> 1. The selected company is the influencer market player in the selected location (*), and 2. The keypersons or the leader of the selected company, or 3. A decision maker at the selected company, or 4. Someone responsible for the vegetable marketing or procurement or buying process and decision at the selected company
3	Retailer	E-commerce supplier company (B2B)	<ol style="list-style-type: none"> 1. The selected company is chosen based on the number of followers in Instagram or number of friends or subscribers in Facebook page or company that already have mobile apps for running the business, or 2. The keypersons or the leader of the selected company, or 3. A decision maker at the selected company, or 4. Someone responsible for the vegetable marketing or procurement or buying process and decision at the selected company
		Supermarket	<ol style="list-style-type: none"> 1. The selected company is the influencer market player in the selected location (*), and 2. The keypersons or the leader of the selected company, or 3. A decision maker at the selected company, or 4. Someone responsible for the vegetable marketing or procurement or buying process and decision at the selected company
		E-commerce retailer (B2C)	<ol style="list-style-type: none"> 1. The selected company is chosen based on the number of followers in Instagram or number of friends or subscribers in Facebook have or company that already have mobile apps for running the business, or 2. The keypersons or the leader of the selected company, or 3. A decision maker at the selected company, or 4. Someone responsible for the vegetable marketing or procurement or buying process and decision at the selected company
3	Retailer	Traditional retailer (wet market retailer, street vendor)	The selected person is someone who has experience doing vegetable business at the traditional retail type.

Notes: (*) The influencer refers to a company/group/union or an individual who has the potential to influence other people in rural agriculture communities or the marketplace. It can also relate to a person who works at a prominent agribusiness-related company that can influence the business networks.

6.3.2.2 *Sample Size*

Given that this research employs interviews with different participant categories, the sample needs to represent each category. The purpose was to gain a heterogeneous perspective from multiple agri-food business providers and a deeper understanding of the observed phenomena. The data and information show that the number of potential vegetable supply chain actors in West Java and Jakarta represented less than 60 business entities. A list of 30 prospective participants was selected for this research. However, only 20 participants responded and agreed to be interviewed. Another ten potential participants either did not respond to the invitation or refused to be interviewed for various reasons. The interview participants need to agree to volunteer for an interview by filling out the provided consent form.

Determining sample size adequacy is also related to reaching adequate data for data analysis. Qualitative research can refer to the amount of data collected, and for this research, sampling ceased when concept saturation was reached (Neuman, 2014). Later interviews added little or no new information or change to the themes derived from the analysis (Hagaman & Wutich, 2017). For this research, the data was reached saturation after analysing 20 interviews, indicated from the interview memos. The range of opinions from multiple business actors across the vegetable supply chain has presented maximum variation for the data analysis. The sample size used in this research is also in line with those recommended in the literature (e.g., Marshall, Cardon, Poddar, & Fontenot (2013) suggest 20-30 interviews, and Hagaman & Wutich (2017) suggest 10-30). Another method to justify sample size is adapting the similar sample size used by other research that employs a similar research design (Marshall et al., 2013). By following this method, the sample size used by other studies that use qualitative in-depth interviews and focus on VCC was ranged from 10 – 30 interviews (Aarikka-Stenroos & Jaakkola, 2012; Candelo et al., 2018; Guenzi & Troilo, 2006; Soledad Janita & Miranda, 2013). Hence, the 20 interviews used as the sample size for this study have fulfilled the adequacy for sample size.

Table 6.3 Interview participants' profile

No	Position in the business	Business types				Role of company/organisation in the vegetable supply chain						
		Sole proprietorship	Start-up company	Family business	Co-operative association	Producer	Trader	Supplier			Retailer	
						Farmer/ farmer group/ farmers union	Local trader/ wholesaler	Corporation	E-commerce	Supermarket	E-commerce	Traditional retailer
1	CEO		√						√		√	
2	Farmer & trader	√				√	√					
3	Farmer & retailer			√		√					√	
4	CFO & CRM Manager		√						√		√	
5	Head of Co-operatives				√	√						
6	Founder & Valuer			√							√	
7	Head of general affair				√			√				
8	Co-founder		√						√			
9	Local wholesaler	√					√		√			
10	Founder				√	√						
11	Buyer Specialist		√						√		√	
12	Farmer	√				√						
13	Operational Manager			√							√	
14	Department Store Manager			√						√		
15	Store Manager			√						√		
16	Business Owner		√						√		√	
17	Smallholder Farmer & head of farmer group				√	√	√					
18	Smallholder Farmer & head of farmers union				√	√	√					
19	Traditional Wet Market Retailer	√										√
20	Street Vendor (<i>Waring</i>)	√										√

In this research, interviewees were grouped into three categories based on their company profile to specify each actor's role in the market (see table 6.3). There are: producers (e.g., smallholder farmers, farmer groups, farmers union); traders (e.g., local wholesalers, co-operative companies, corporation, or start-up supplier company); and retailers both traditional retailers (e.g., wet market retailer and street vendor) and modern retailers. Modern retailers were categorised as conservative modern retail (i.e., supermarket) and digital retail (i.e., e-commerce). The supermarkets were categorised as national companies, while e-commerce was categorised as local SMEs that operate either as a family business or start-up company. Eighteen participants represent MSMEs that are run either as a sole proprietorship or corporation. Some interviewees also run the business as social enterprises. Only two participants were appointed as supermarket store managers. Nine transcripts were associated with the e-commerce channel. A further inductive analysis sought to identify the business ideology underpinning the exchange process, the principles underpinning VCC, the use of digital technologies in VCC, and the processes underpinning co-creation.

6.3.2.3 Interview Procedure

The data collection was conducted with two different samples (see Figure 6.4). The data collected through the purposive sampling began by sending the invitation for an interview, which was disseminated through personal contact with the potential participants, such as via phone calls, emails, and mobile messengers. In the invitation, there was a research summary and explanation regarding the purpose of the data collection, for doctoral thesis research. Snowball sampling was used to recruit traditional retailers by finding the appropriate traditional markets in the expected locations (e.g., wet markets). The researcher then asked some people who act as retailers in that particular wet market to identify other retailers who have experience selling vegetables. Afterwards, the researcher asked the suggested persons to participate and if they were willing to be interviewed.

Before the interviews, all the targeted participants were informed regarding the required information they would deliver. They were asked to share experiences, insights, and expectations on the related topic of creating something new or creating value in their business. The explanation given regarding the topic is about the vegetable business and marketing and how any business changes and what developments there have been to date. They were informed that the interview had an estimated duration of approximately one hour, although it might last more than the proposed time in practice. The participants who were farmers/farmer

group/farmers union, from co-operative companies, supplier companies, local wholesalers, and modern retailers (supermarkets, e-commerce) were contacted either through a mobile phone, instant messaging app or email.

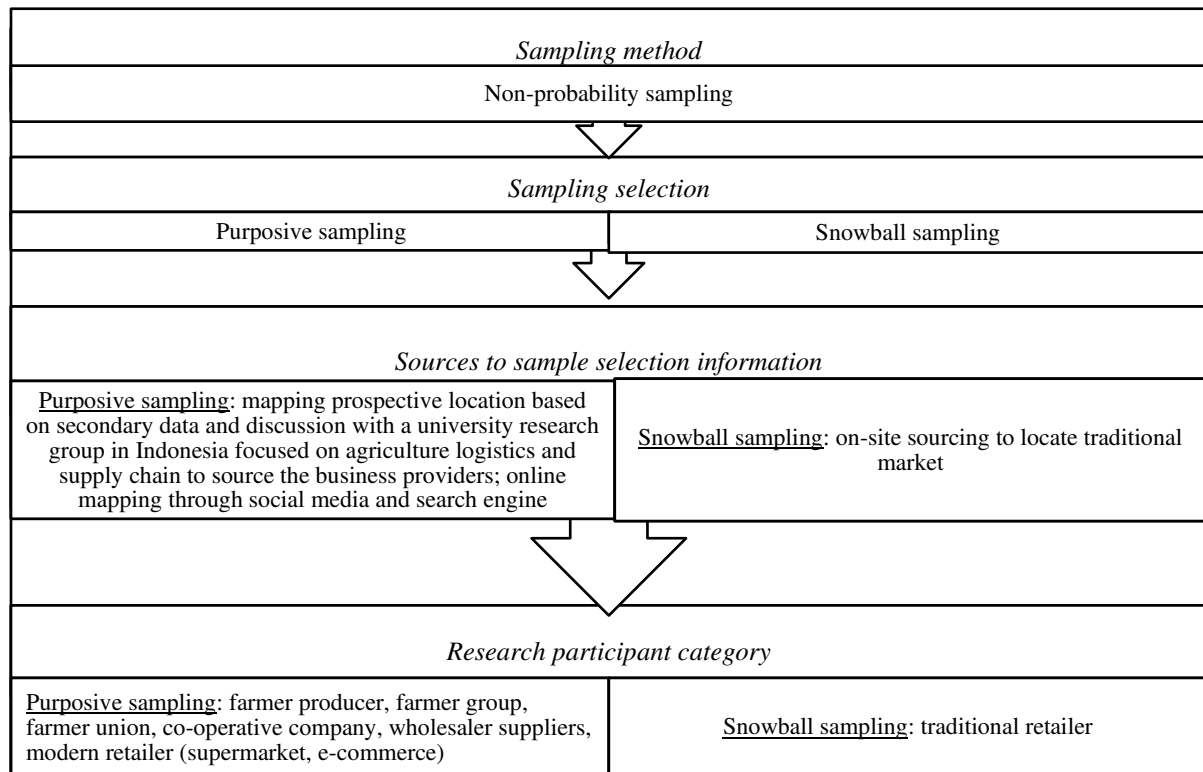


Figure 6.4 Sampling selection

Following up on this, the potential participants who gave a positive response and were willing to participate in the interview received the interview participant information sheet, sent via email or mobile messenger. The interview guides for all types of participant categories covered the questions about identifying and exploring the main topic on collaboration to co-create value within the B2B and B2C based on the market channel transformation through e-commerce innovation and creativity, which occurred in the Indonesia agri-food context. The interview questions were adjusted to the interviewee's role in the business. To request details on the interviewee's answer, probing or prompting was used to explore the answer further. The interviews lasted an average of 1 hour and 47 minutes. All the interviews were organised at a place convenient for the participants. Some interviews were conducted at the participant's workplace (e.g., company office, organisation/association secretariat), but others were in cafés or coffee shops.

The fieldwork for data collection was conducted from June to August 2018. All the paperwork for the fieldwork and interviews was prepared before the interviews. The process

followed Newcastle University's ethical guidelines. Corrections were made to prepare the interview guides based on the supervisors' discussion and suggestions. Because the fieldwork was conducted in Jakarta and some parts of West Java Province - Indonesia, the interviews were employed using Bahasa as Indonesia's official language or in Sundanese (*Bahasa Sunda*). This is the local language spoken by people living in Western Java, Indonesia.

6.3.2.4 Interview Guides

Interview guides was used as the reference list of questions for the interviewer. Interview guised refer to the list of open-ended questions posed to interviewees (Tracy, 2013) and act as an aide-memoire enabling the possibility of probing or prompting the questions (Blek, 2006). Interview guides are used to reconstruct participants' experience, confirm opinions, and explore their meaning (Seidman, 2006). Hence, the conversation during the interview process follows the participants' contributions. However, due to a semi-structured interview's characteristics, the prepared questions used as an interview guide have to be formulated in familiar words for the interviewees. The flow of conversation during the interview should also ensure a comfortable and conducive situation. Hence, it is often fruitful to adapt the actual wording used during an interview to the interview context (Lune & Berg, 2017). Also, the researcher should have sufficient knowledge regarding interview techniques, and it is necessary to prepare the media or tools to record the conversation.

The interview guides cover the interests of distinct audiences within the research coverage. The interview questions for the semi-structured interview are typically provided in a logical and systematic order that will contain the outline of the topic that needs to be covered in the research (Kvale, 1996; Lune & Berg, 2017). Thus, it is essential to develop questions based on the research objectives (Blek, 2006). The fundamental structure to develop interview guides is by focusing on each interview situation in the series by keeping the conversation on track to give further direction answering the research questions. For these reasons, this research develops three types of interview guides for producers, intermediaries, and retailers, using open-ended questions as an aide-memoire (Blek, 2006; Tracy, 2013). The questions sought to explore: agri-food business providers' awareness and understanding of their market channel development; the importance of business partners and customers and the degree of collaboration with them; the skills, knowledge, and value potentially acquired and created through collaborations; the use of digital technology by participating businesses; and the role of digital activities in their operations. Each type of interview guide encompasses the same

basic questions by focusing on the research questions. The differences are in adjusting the questions based on each participant's role in the chain and the type of business activities. Table 6.4 shows a list of interview questions and explains the relation with the research questions, while the actual interview schedules are presented in the appendix (see Appendix C, table 1).

Table 6.4 Interview questions linked to the research questions

No	Interview question <i>[prompts]</i>	Participant category ^(*)	The research question number ^(**)
1	Can you tell me your story about how you come to be in this position?	1,2,3	GP
2	In your business experience, can you tell me what kinds of products you provide and how the production and/or marketing process occurs? <i>[conventional/non-conventional]</i>	1,2,3	GP
3	Who are your primary customers, and what makes them the most important? <i>[Which customer means to you? Has it changed much over the years?]</i>	1,2,3	RQ1,2,3
4	How is the process you seek to initiate the search for potential partners? <i>[What factors that important to find and decide the business buyer? Cost, product quality, services? Why is it important?]</i>	1,2,3	RQ1,2,3,4
5	What are the business and marketing strengths, weaknesses, challenges, and opportunities, and the impact on competitiveness? <i>[any plan and action to the opportunities and face the challenges?]</i>	1,2,3	RQ1,2,3
6	What source of competitiveness that you consider can increase the local vegetable commodity sustainability? <i>[innovation capability, quality, delivery capability, supply capability, responsiveness, lower cost?]</i>	1,2,3	RQ1,2,3,4
7	Can you describe and give examples of business changes during this time, and what makes it essential compared to your competitors? <i>[Any new marketing attributes - products, pricing, distribution, and promotion, services marketing? Improving quality, production scheme, logistic? Any experience using different ways of production, logistic, or marketing?]</i>	1,2,3	RQ1,2,3
8	How do you aware of the retail food changes at present?	1,2,3	RQ1,2,3,4
9	Do you have any intention to make any changes on how to sell the products?	1,2,3	RQ1,2,3,4
10	By creating new ways for food marketing, what opportunities can you get for your business and market acceptance toward local vegetables?	1,2,3	RQ1,2,3,4
11	How do you consider the role of using digital technologies for a food business? <i>[why?]</i>	1,2,3	RQ1,2,4
12	How important is it to use digital technologies at present for a food business?	1,2,3	RQ1,2,4
13	How you distinct your electronic business from other food retails?	3	RQ2,3
14	How can electronic commerce help to improve business competitiveness?	1,2,3	RQ1,2,3,4
15	Whom do you consider as the most influencing parties and business partners selling vegetables, and what makes them the most important? <i>[why?]</i>	1,2,3	RQ1,3,4
16	How do you consider the critical role of the business partner and customer for business development? <i>[why?]</i>	1,2,3	GP, RQ1,2,3,4

Table 6.4 *Cont.* Interview questions linked to the research questions

No	Interview question <i>[prompts]</i>	Participant category ^(*)	The research question number ^(**)
17	How important is it to involve the business partners and/or customers in the business process? Have you considered them as a valuer for the business?	1,2,3	RQ1,2,3,4
18	How do you consider business customer preferences and decision-making changes that may affect the business? <i>[Future trends? Consumer behaviour change? Preferences? Decisions? Consumer interest? Buying system?]</i>	2,3	RQ1,2,3,4
19	How do you explore new ideas to improve the business and influence the market? <i>[Any examples? Is your business partners do the same thing to you? The idea based on business partners and/or customer insight and request?]</i>	1,2,3	RQ1,2,3,4
20	How do you explore customer needs and how intensive communication takes place with your customer? <i>[any example? How to manage it?]</i>	1,2,3	RQ1,2,3,4
21	How do you manage interaction and relationship with business partners and customers? <i>[What are the benefits? Partnership offerings? Do you plan to have long-run relationships? What is your expectation in the future? Have you experienced any problems? If yes, how you manage and solve it?]</i>	1,2,3	RQ1,2,3,4
22	Can you specify how the business changes processes occur and the impacts on marketing relationships with suppliers and/or customers? <i>[Any difference between the current market situation and the previous time?]</i>	1,2,3	RQ1,2,3,4
23	If you could collaborate with your supplier and/or customer, what factors to motivate the collaboration? How can collaboration benefit the business? <i>[any example/experience of collaboration? Which areas will be interesting to collaborate on? Production plan, post-harvest, marketing? Innovation? Information sharing? Funding support? Market access support?]</i>	1,2,3	RQ1,2,3,4
24	What is your role as your supplier and/or customer in the collaboration? <i>[Any examples?]</i>	1,2,3	RQ1,2,3,4
25	How do you find access and improve skills and knowledge by collaborating with business partners and/or customers? <i>[Any examples?]</i>	1,2,3	RQ1,2,3,4
26	What facilities and equipment possessed by your business/company to support marketing activities? <i>[Have you tried to improve the facilities and equipment during this time?]</i>	1,2,3	RQ1,2,3
27	How important are product quality, supply continuity, services, environmental approachability and production practices for your customers? <i>[Do consumers willing to pay for premium products?]</i>	1,2,3	RQ1,2,3,4
28	How do you consider the importance of shopping ambience and convenient, food choices (e.g. healthy fresh food, natural product), customer lifestyle, and customer well-being?	3	RQ1,2,4
29	Why do you think the customer wants to buy fresh vegetables from your store? <i>[Shopping benefits? Product attractiveness? Support for the local product? Support local farmers?]</i>	3	GP, RQ1,2,3,4
30	Do you have any other thoughts about these issues?	1,2,3	GP, RQ1,2,3,4
31	Can you tell me about yourself? <i>[e.g., age, education]</i>	1,2,3	GP

Notes: ^(*) – 1 (farmer-producer/farmer group/farmers union); 2 (trader/supplier); 3 (retailer)

^(**) – RQ (research question)

GP (question for general-purpose without aiming to respond for any specific research question)

6.3.3 Data Analysis Approach

All the interviews were recorded using a digital audio-recorder and transcribed and translated into English. Accuracy checking was conducted both by the researcher and the supervisor team before using NVivo 12 software to analyse the qualitative data. This software enables qualitative research to do coding and analysis from textual data, such as data from written and recorded interviews. Hence, the textual analysis was applied to identify critical issues and concepts.

The thematic analysis used for the data analysis created coding, grouping, and a description of the data and information. Thematic analysis was applied to identify, categorise, and conceptualise any aspects and themes that occur in relation to VCC in the BOP markets through digital technology enabling for the specific context of the agri-food sector. The thematic analysis used as the data analysis method to identify, analyse, and report themes or patterns of meaning across the dataset about the research questions can interpret various aspects of the research topic (Braun & Clarke, 2006). The purpose of thematic analysis is to generate the analysis, either beginning from the data (bottom-up) and shaping it to some extent by the researcher's standpoint, epistemology and knowledge discipline, or identify themes in more top-down structure to explore specific theoretical ideas (Braun & Clarke, 2013). The method of analysis flexibility gives a considerable advantage (Maguire & Delahunt, 2017) by offering the opportunity of coding skill and basic data-handling without requiring deep learning into theoretical constructs (Braun & Clarke, 2013). The use of thematic analysis in this research aimed to identify and analyse the themes and patterns of VCC processes and manifestations that may occur along the agri-food supply chain influenced by digital technology facilitation. The coding system's use may allow the coding to develop cause and effect combinations to identify the conditions of applying co-creation tools, describe business actor company internal structures, and reveal the emergence of co-creation goals through sustainability activities (Arnold, 2017).

There are six data analysis stages applied in the thematic analysis (Braun & Clarke, 2006). First, to be familiar with the data by reading the transcripts and labelling relevant pieces of information in each interview document. Second, generating the initial codes by making codes for the interesting features in the data and deciding which codes are essential and then creating categories or themes consisting of several codes that bring them together. Initially, the interview data is coded by creating free nodes to organise and facilitates data interpretation. Case classifications are also created to record the participant characteristics (e.g., demographic

data and business profile). Coding is the crucial part of the analysis to code the result of the interview data into a text, which thematic analysis procedures have enabled the process to simplify by focusing on specific characteristics that exist in the data by moving from unstructured data to more structured data to develop ideas (Nowell et al., 2017). As part of the thematic analysis process for the qualitative approach, the coding process can also allow the researcher to identify patterns across the data relevant to the research question (Castleberry & Nolen, 2018).

The third phase searches for themes to check whether the existing themes work linked to the code extraction and the whole dataset. In this phase, developing diagrams or maps may help display and explore the visual representation of codes, themes, and relationships (Castleberry & Nolen, 2018; Nowell et al., 2017). The diagrams or maps can also investigate inferences created during data coding and the theme search process. Fourth, reviewing themes by compiling the codes into potential themes, including gathering all the relevant interview data for each potential theme. Fifth, defining and naming the themes by labelling the theme categories and selecting what is relevant to the research topic and giving direction to answer the research questions; also describing the connection to each category. However, the coding and analysis process was iterative and incremental; the supervisory team also improved the research credibility in the ongoing analysis to refine the overall story and specify labels for the themes. The final stage of analysis is producing the report and concluding the result. The nodes or themes exploration in NVivo can be shown as tree nodes to create codes, and a node can be created with subgroups or subcategories that are presented as a parent (parent node) and children (child node) (Bazeley & Richards, 2000). As a result, the final code creation ended with 353 nodes, with 27 identified as the parent nodes.

6.3.4 Evaluating Trustworthiness of the Research

Assessing trustworthiness is required for any research approach. According to Guba (1981), there are four proposed criteria for evaluating the quality of research that employs qualitative enquiry: (1) credibility, (2) transferability, (3) dependability, and (4) confirmability. Wallendorf and Belk (1989) followed up by proposing a fifth criteria for evaluating the integrity of the study. Credibility refers to the confidence of showing the adequacy and trusted representations of the studied reality situation (Wallendorf & Belk, 1989). Transferability applies to the generalisability of inquiry (Tobin & Begley, 2004). Dependability concerns the data stability derived from which interpretation is developed to avoid data instability

(Wallendorf & Belk, 1989). Confirmability is concerned with establishing the data's interpretation, and ensuring the findings are derived not from the researcher's mind but the data (Tobin & Begley, 2004). The last integrity criterion refers to trusted data unobstructed by false information from the research participants (Wallendorf & Belk, 1989).

There are specific techniques that can be applied to evaluate the five criteria and establish the research's trustworthiness. According to Wallendorf and Belk (1989), these techniques include prolonged engagement, triangulation, on-site interaction, peer debriefing, negative case analysis, purposive sampling, member checks, searching limiting exceptions, reflexive journals, and audit trails. This research briefly addresses the fifth criterion for establishing trustworthiness through several techniques, as shown in Table 6.5. The following section provides the result from the analysis, presenting the findings.

Table 6.5 Trustworthiness assessment

Trustworthiness criteria	Research techniques for establishing trustworthiness	Application in the study
Credibility	Prolong engagement	<ul style="list-style-type: none"> - Prolong engagement with interview data (e.g. understanding the interview transcription by reading the manuscripts several times). - Being engaged during data input (data transcription), data analysis process and theory development by being truthful, immerse to the data and vigilant regarding participant views as well as pre-existing thoughts.
	Reflective thoughts	<ul style="list-style-type: none"> - Making fieldwork notes after finish with an interview. - Data management by providing raw data storage in a well-organised achieves (data files were stored and organised in MS word format and analysed in NVivo version 12). - Data management by keeping the records of all data sources (interview voice recordings, the text of fieldwork notes, raw data of interview transcription) in a repository of a personal computer and back-up on a hard disk.
	Peer debriefing	<ul style="list-style-type: none"> - Regular interaction and discussion with the supervisory team to perform debriefing function along the fieldwork process (pre-fieldwork, during fieldwork and post-fieldwork). - Seek out for supervisory team advice, suggestion and serve for critique during the data input and data analysis to test the growing insights.
Transferability	Triangulation	Sample selection of minimum two or more participants from each type of participant category to establish transferability of the studied phenomenon.
	Purposive sampling	The use of purposive sampling to ensure the “fit” of the sample selection of choosing qualified participants and get the desired information for the studied phenomenon.
Dependability	Audit	Supervisory team assistance to check the raw data transcription and examine the data analysis process.
Confirmability	Triangulation	<ul style="list-style-type: none"> - Triangulation of data collection methods by comparing various data sources to complement the data analysis process, such as fieldnotes, photographs taken from the fieldwork and the use of other sources of information regarding the participant’s business (e.g. internet and social media). - The presentation was conducted for the preliminary data analysis results to the supervisory team.
	Audit	Asking for the supervisory team to give comments on the report of the data analysis and results to confirm the inferences and plausibility of data interpretation drawn by the researcher.
Integrity	Prolong engagement	<ul style="list-style-type: none"> - Establishing trust with the participants by initiate to develop familiarity and engagement with the participants before the interview (e.g. making contact and communicate through a phone call, email, or mobile messenger). - Participant observation before the interview. - Learn the language and nuance of the setting phenomenon.
	Triangulation	- Comparing the information gathered from a different participant in the same category to avoid data bias and subjectivity.
	Good interviewing technique	<ul style="list-style-type: none"> - Conducted an interactive, friendly conversation to create a relax situation during the interview. - Adjust the language used by the participant for the interview either using national language or local language to facilitate the flow of the interview process.
	Participant identity protection	Assuring the participant to keep the participant anonymity.

6.4 Findings

This section, first, describes the interviewee's profile. Second, this section explains the presence of VCC within agri-food e-commerce chains in a BOP market and amongst local companies (rather than by MNCs), which I refer to as the 'local' level, and the circumstances under which VCC occurs. Then, the findings elaborated the factors proposed for the VCC framework and themes designed for customer VCC. This part of the results is examined in the second empirical study with quantitative research in Chapter 7.

6.4.1 Key Participants' Business Characteristics

There was variation in the type of business within the sample, supply chain type characteristics, market orientation, and the farming method for the provided vegetables they sell to the customers (see Table 6.6). This situation leads to the following information about business networks and relationships in serving either business customers, end-consumers, or both. The interview participants used different supply chain types to distribute and sell the products, varying from long supply chains to short supply chains. Different types of marketing channel orientation affect each interviewee's targeted market on their business operation. Each interviewee also has different product preferences to be produced and sold based on their business and market orientation.

Table 6.6 Business characteristics of the interview participants

	Role in the supply chain					
	Producer (farmer/farmer group/farmer union)	Producers & trader/ supplier	Producer & retailer	Trader/ supplier	Trader/ supplier & retailer	Retailer
Number of interview participant						
Customer relationships						
a. B2B	1	4		4		
b. B2C						6
c. B2B and B2C			1		4	
Number of interview participant	1	4	1	4	4	6
Supply chain characteristic						
a. Short supply chain		2	1	2	4	4
b. Long supply chain	1					2
c. Transition to short supply chain		2		2		
Number of interview participant	1	4	1	4	4	6
Marketing channel						
a. Modern market (brick and mortar)		1		1		2
b. Modern market (e-commerce)		1		1	3	2
c. Modern market (brick and mortar & e-commerce)	1		1		1	
d. Traditional market		2		1		2
e. Traditional market & modern market (brick and mortar)				1		
f. Traditional market & modern market (brick and mortar, e-commerce)						
Number of interview participant	1	4	1	4	4	6
The use of farming production method for the provided vegetables						
a. Conventional farming	1	2	1	3	3	2
b. Non-conventional farming (e.g., organic farming, hydroponic farming)		1		1	1	1
c. Mixed (conventional and non-conventional farming)	1					3
Number of interview participant	1	4	1	4	4	6

6.4.2 Vegetable Supply Chain Channels

The analysis revealed three types of vegetable channels, namely, 1) traditional marketing channels, consisting of wet markets and street vendors, 2) modern conservative marketing channels, involving ‘brick and mortar’ stores such as supermarkets, and 3) e-commerce channels, involving online stores. Each channel's characteristics are shown in Table 6.7 and indicate differences across multiple dimensions, including marketing ethos, stakeholder engagement and the uptake and usage of digital technologies. Two points are of note. First, the uptake and usage of digital technologies were identified in all three marketing channels. Retailers predominantly employed them, although the objectives and extent of digital marketing usage varied across the channels. Second, VCC was only identifiable in the e-commerce channel, for which digital technologies were a key strategic enabler.

6.4.2.1 Traditional Market Channels

Compared to modern channels, either the modern conservative chains or digital chains, traditional channels were typified by long and fragmented supply chains, which were product-centric, transactional and where pricing was opportunistic and experienced as volatile. The type of marketing transaction is following the traditional market channels with a cash and carry trading system. Transactional marketing applies with no contract agreement on price, quality, quantity, and continuity. Where digital technologies were known, their usage within the business was low and generally limited to social commerce and instant messaging apps. This channel can be characterised as having a logic G-D, neglecting the use of technology, and creating value or co-creating value was absent. A traditional wet market retailer gave an example of this:

I do not think there are any significant changes or developments for trading in traditional markets. There is no contribution to whatever sophisticated technology ... Conventional vegetables' sales are also more profitable than vegetables produced with advanced technology [Interviewee 19].

However, this long – fragmented channel has drawbacks in adapting to the market situation and business competitiveness. The results showed that actors involved in this type of chain generally feel disadvantaged by following this channel. They only focused on profit and disregarded the importance of business sustainability. Some interviewees reported that their current business situation has changed compared to the past. They explained that the disadvantages of conducting conventional agriculture led to losses and affected the farmer producers and local wholesalers, who suffered from the situation. The past experiences give higher motivation to shift from the conventional to modern agribusiness, which suggests that relational relationships can offer higher profitability.

The motivation to develop new farming methods is because of my 15 years of experience in agriculture production; many farmers face difficulties to be competitive ... Even worse, the smallholders will always be in poverty ... We need to keep the market demand in a position that will not disturb price stability and disadvantage the farmers. The perspective on this matter is entirely different from the traditional farmers that see market demand as the opportunity to gain higher profit. [Interviewee 10].

Thus, the conventional supply chain characteristics with a long marketing channel focus only on product and profit orientation (economic gain). The limited access to widening the business network becomes another consideration of preserving the traditional business process by selling the vegetables through the conventional market. This is why many smallholder

farmers and conventional intermediaries (e.g., local wholesalers) still follow and trust the conventional supply chain.

6.4.2.2 Modern Conservative Channels

In Indonesia, food grocery shopping at the supermarket is common amongst urban consumers. However, the typical supermarket solely relies on the advantages of better product quality, product varieties, as explained by a supermarket manager:

...the store is categorised as the A – grade or as the lifestyle store, so we provide all types of vegetables that you mentioned [conventional, hydroponic, and organic vegetables]. We also provide frozen vegetables such as edamame beans. The differences between our store and other supermarkets [regular stores] owned by the company are that they don't provide organic or hydroponic vegetables. [Interviewee 15].

Adapting to the retail channel development, some intermediaries have started to shift their targeted business buyer by relying on the traditional market channel and modern market channels such as supermarket and e-commerce channels. The changes in business orientation were presented, such as moving from a long supply chain to a short supply chain to promote more relational partnerships. Relational marketing enables each party to manage, likewise organise their bargaining position in the marketing sphere. It is also to gain more sustainable change in the horticulture commodity chains.

However, the supermarket shows less evidence of co-creation with consumers. Supplier and customer engagement were limited, and business orientation still heavily relies on low-cost orientation, and the use of e-commerce for marketing and trading was limited. Creating food values involving customers in co-creating the value is not the primary consideration of supermarket marketing objectives, indicating less involvement of customers to co-create the value.

The supermarket is categorised as a premium supermarket, but the product procurement is based on a low-price strategy; they use lower product quality solely due to targeting the low product prices [Interviewee 1].

6.4.2.3 E-Commerce Channels

The presence of agri-food e-commerce gives different options for fresh produce purchase. E-commerce is relatively new within the agri-food retail channel in Indonesia. It emerged during 2015. As a new type of channel, this channel mainly operates in big cities and mostly used by the urban consumers. This e-commerce typically sold fresh produce such as fruit and vegetables, but later the e-commerce began to diversify the products into various food

products. The business format of agri-food e-commerce tends to be local with start-up companies, sole proprietorship, or family business concept of MSMEs domination. It exists in two categories of e-commerce supplier companies (B2B) and e-commerce for end-consumers (B2C), which means some of these companies provide for B2B, and others serve the B2C channel. In operation, this channel facilitates social commerce (e.g., social media), instant messaging apps, websites, and mobile apps.

Retail food development has shifted consumer food shopping to modern retail channels, such as online and mobile shopping. However, traditional markets such as wet markets or traditional street vendors and modern supermarkets still dominate the marketplace for fresh produce retail. However, e-commerce has a different business process compared to the supermarkets. Although supermarkets have long experience as conservative modern retail with brick-and-mortar concepts, fresh produce is not the primary sales target. Food retailing transformation has been influenced by economic, social, and digital technologies. The food safety and health issue is another factor in shifting customer shopping habits from traditional to modern markets, particularly among the urban society consumers. For examples:

They [urban customers] prefer to do online shopping [Interviewee 13].

Many of our customers are working women who have no time to think about cooking a family meal daily. When they come to us, we offer solutions by providing cooking ideas from the vegetables we sell, such as providing the vegetable packages [ready-to-cook] for specific menus [Interviewee 4].

Table 6.7 The comparison of traditional food channels vs modern conservative brick and mortar stores vs agri-food e-commerce channels

	Traditional channels (e.g., wet market, street vendors/peddler)	Modern Brick & Mortar Channels (e.g., supermarket)	E-Commerce channels (e.g., social commerce via social media, websites, mobile app)
Marketing ethos			
Marketing orientation	Product-centric	Customer-led	Market-centric
Marketing relations	Transactional marketing	Relational marketing	Relational marketing with social relationships
Supply chains application	Long-fragmented chains	Transition to short chains	Short chains
Market approach	Commodity approach	Market-driven (market sensing)	Driving market (market scripting)
Types of marketing logic	Goods-dominant (G-D) logic	Moving toward Service-Dominant (S-D) logic	Social justice dominant logic
Business and marketing focus	<ul style="list-style-type: none"> ▪ Sales – profit-oriented ▪ Product centric 	<ul style="list-style-type: none"> ▪ Sales – profit-oriented ▪ The transition from product-centric to customer-supplier centric ▪ Customer satisfaction ▪ Customer experience 	<ul style="list-style-type: none"> ▪ Sales – profit-oriented ▪ Market-centric (supplier-customer) ▪ Inclusive growth ▪ Customer satisfaction and happiness ▪ Customer experience ▪ Engagement and participation ▪ Embracing consumers' ideas
Pricing	Opportunistic behaviour, volatile price	Low-cost orientation, price stability	Fair-trade (rejecting capitalism), price stability
Stakeholder Engagement			
Supplier and/or customer engagement	Transactional partnership - cash and carry	Partnership with formal and rigid exchange	Partnerships of solid collaboration
Community involvement	No involvement	Medium involvement - support local communities	High involvement (e.g., support local/rural communities, smallholder farmers, local traders): <ul style="list-style-type: none"> ▪ Social equality and empowerment ▪ Collective partnerships ▪ Rural community development and engagement ▪ Well-being
Social mission	No indication of support on social and environmental issues	Low support on social issues (e.g., a social programme for society - CSR)	<ul style="list-style-type: none"> ▪ Strong support for environmental issues ▪ Generating social change and social support (e.g., social entrepreneurship, integrated agriculture)

Table 6.7 *Cont.* The comparison of traditional food channels vs modern conservative brick and mortar stores vs agri-food e-commerce channels

	Traditional channels (e.g., wet market, street vendors/peddler)	Modern Brick & Mortar Channels (e.g., supermarket)	E-Commerce channels (e.g., social commerce via social media, websites, mobile app)
Digital technology usage			
Digital enabling	Non-digital technology application for marketing activities	Consider applying digital technology for future marketing tools	Digital technology utilisation (e-commerce) for business and marketing application
Role of digital application in business marketing	Non-digital to low usage of digital social commerce within B2B, limited to updates commodity pricing and product availability	Limited use of social media: <ul style="list-style-type: none"> ▪ Marketing communication purposes (cost-efficient promotional media, interactive communication) ▪ Customer experience ▪ Relationship development 	High utilisation of various internet and mobile apps: <ul style="list-style-type: none"> ▪ Trading ▪ Service offering and delivery ▪ Cost-efficient promotional media ▪ Farming-based technology ▪ Interactive communication ▪ Dialogue and negotiation ▪ Openness and transparency ▪ Knowledge sharing and renewal ▪ Customer experience ▪ Customer education ▪ Personalisation Relationship development
Types of digital application use in business marketing	Low usage of instant messaging apps (e.g., WhatsApp)	Limited usage of social media (e.g., Instagram)	High usage of digital applications over the internet: <ul style="list-style-type: none"> ▪ Social commerce (e.g., social media-Instagram, Facebook, Twitter), instant messaging apps – (e.g., WhatsApp) ▪ Websites ▪ Mobile app
Value Co-Creation			
Co-creation realisation	N/A (Solely profit and sales orientation)	<ul style="list-style-type: none"> ▪ Value creation ▪ Directing the customers ▪ Rigidity Increase competitive advantage	<ul style="list-style-type: none"> ▪ Value co-creation ▪ Learning from each other – the shared experience ▪ Flexibility Support for competitive solutions

6.4.3 Digital Technologies as a Strategic Enabler: The Emergence of Agri-Food E-commerce Channels

In the context of e-commerce channel, a brief explanation of ‘value’ and the role of digital technologies in traditional and marketing chains is provided. The traditional channels, including street vendors and wet markets, typically had long and fragmented supply chains, with a product-centric focus and transactional ethos. Fruits and vegetables were “pushed” from producer to consumer, and value occurred in the transactional exchange between B2B and B2C chain members. In common with all three retailer formats, digital technologies to support business operations were adopted mainly by e-commerce. In traditional food marketing channels, retailers only used instant messaging apps to share product availability and particularly pricing information with other retailers (B2B):

I share information regarding product price and other things through a communication network with other retailers using WhatsApp or SMS [short message services]. By sharing the information, every retailer can quickly know the market situation, such as when a good product quality arrives at the wholesale market or a price decrease as demand is lowered [Interviewee 19].

Within modern marketing channels, including supermarkets, the engagement between B2B and B2C was limited and generally unidirectional (from retailer to customer) with a low-cost transactional orientation focused on retailers providing consumers with ‘value for money’. Additionally, there was weak evidence of any customer involvement in the business or marketing process in this push-based supply chain that could represent co-creation. Digital marketing was used in a limited way and predominantly by retailers as a promotional tool, e.g., to communicate value-for-money, which was generally in the form of a price promotion. Resources to maintain a social media presence were incorporated with other roles (typically customer services), rather than having dedicated resources, as this supermarket manager explains:

... we are too busy to manage the whole thing [social media] every day, especially at peak times. Sometimes, it is hard to communicate or interact with customers during these times ... We have a supermarket [social media] account, such as Instagram. However, sometimes it takes longer for the customer service to post or share new information on the social media designed for the store ... The gatekeeper to make direct communication with the customer is Customer Service. However, they also have many other duties every day [Interviewee 14].

The new e-commerce channel tried to integrate digital technology, marketing communication and enhance market actor interactions. E-commerce was initiated by entrepreneurs who were typically Millennials under the age of 40. They were well-informed

about the usage of digital technologies and had the vision to recognise the opportunities of matching consumer demand to supply.

These self-identified socio-preneurs operated primarily as ‘e-commerce’ and farmer co-operative leads who worked as information, education, and empowerment brokers, connecting consumers’ requirements with producers’ outputs and reducing power asymmetry within a short supply chain. They partnered with smallholder rural farmers, rural agriculture communities (through either a farmers' group, farmers’ union, or co-operative companies) and small-scale urban farmers. They then connected them to customer markets via e-commerce channels. Aware of consumer requirements, the e-commerce identified potential new crops with producers (or their representatives), provided advice and training about agronomic practices (e.g., organic production methods), harvesting and grading and provided credit lines investment. Thus, producers were provided with the knowledge, skills, and capability for investing in their farms.

The collaboration between our company and the farmers is our strength compared to competitors. Other retailers may only be concerned about their own business and sell what the supplier offers without thinking about the farmer's welfare. However, we are willing to empower the farmers and improve their farming business [Interviewee 4].

I always try to make product innovation based on customer demand, which increases every day. They sometimes ask for products that are not listed on the product list, such as kale and butternut pumpkins. I try to communicate and discuss these customer requests with the farmers and try to make the planting demo grow the crops. It is like trial and error. If we succeed, we will continue producing and developing the production pattern schedule for the new commodities. However, if we fail, we cannot force them to plant the crops; because it might be because the soil or the ‘agro-climatic’ is not suitable for the commodity [Interviewee 16].

E-commerce relationships with consumers were established through social media and typically WhatsApp groups of circa 25 people (or some e-commerce may have many groups). Within the WhatsApp community groups, members were introduced to anticipated harvests, informed about product provenance, and told why vegetables have specific price points and given cooking advice on new ingredients.

In selling vegetables online, we try to provide our consumers with food recipes for everyday meals, which we post on social media such as Instagram. We also provide information and ideas to young women who have babies about vegetable food menus [Interviewee 4].

E-commerce also benefited other social commerce platforms such as Instagram and Facebook to give consumers new shopping ideas. Being creative by exploiting the social media features (e.g., Insta-story, WhatsApp business, Facebook fan page) has become an effective way to approach the targeted consumers by adjusting consumer lifestyle that is now also

influenced by on social media. It also improves customer engagement and relationships. A personal approach is used, such as direct interaction, interactive communication, and ease of access to the online platform. E-commerce tries to involve consumers in the business process, which reveals the likelihood of co-creating customer value. Hence, VCC has become more relevant within e-commerce chains.

We can develop creativity in the business by using social media for branding, such as for me, I 'brand' the store on Instagram. For example, instead of posting many new pictures on Instagram, I now prefer to use the Insta-story [Insta-story/Instagram story is a new feature that lets users post photos or videos that are removed from the account after 24 hours] ... Most Indonesian people love to be served. Most Indonesian people love to have personal interaction and communication, which applies to buying-selling interactions. WhatsApp is a chat application that we use for the customer service platform [Interviewee 13].

The WhatsApp Business [application] will provide the feature to keep the engagement with customers by giving them a notification if they had not received any reply or when they sent a message while the customer service is away [Interviewee 1].

Facebook users usually have many questions before they finally make a purchase. I need to be patient to answer all the queries [Interviewee 16].

These digitally based interactions created active 'consumption communities' enabling interaction between members and e-commerce. For example, using the digitally based consumer community, newly available vegetables are broadcasted or advertised approximately two days before the harvested vegetables are collected from the suppliers. Delivery directly to consumers was also organised via the social media community. This system created a pull or demand-driven supply chain.

Digital technology was, therefore, a key enabler of the initiation of the vegetable e-commerce channels and their ongoing construction. Digital technologies also enabled a shorter and integrated value chain, reducing the gap between producers and consumers. Moreover, this integrated value chain supported a multi-vendor system, matching demand and supply, supporting a trading activity, and attracting new partners into the network:

We have considered developing an integrated business. As a supplier company, we try to connect both farmers and producers with their vendors and customers. Thus, our next plan is to develop a multi-vendor system. We have developed the website to facilitate all food vendors in the culinary industry to join our website system as users. We collect their contact information in our database ... we are also eager to plan workshops and training for farmers and producers to help make them understand how business works; how we plan to develop the business, including giving them a bigger opportunity to develop their business by widening the networks with business customers [B2B] through our website [Interviewee 8].

The role of digital technologies in facilitating channel members' skills, knowledge, capabilities, and innovation is presented below.

6.4.4 VCC Within a Market-Scripted Social Justice Logic

Nine entrepreneurs participating in this study had developed e-commerce channels independently of one another but adopted business approaches that could be characterised as ‘inclusive’. Advocacy, inclusive collaboration, interactive communications, empowerment, and fair trade were part of the market practices ‘orchestrated’ or organised by these entrepreneurs. However, the principles upon which their market scripting was founded were based on what I have termed a ‘social justice ethos’, which represents a significant point of difference between traditional and modern marketing channels.

The ‘entrepreneurial e-commerce’ and ‘socio-preneurs’ had a common vision for their marketing channel based upon fair, equitable and sustainable development. The entrepreneurs recognised the development opportunities and the necessity of elevating the skills, knowledge, and capability of farmers who had very limited resources to meet the high standards of product quality sought by a growing, affluent, time-poor urban middle class. While market opportunities were clearly evident for the entrepreneurs, their aspiration for the market configuration was based upon societal benefit to local businesses and community welfare rather than personal gain.

... for fresh produce supplies, almost all the items sourced come from farmers. It is a small movement to empower smallholder farmers ... If I only think about the business profit, I can do other businesses because doing business with farmers is very challenging [Interviewee 6].

The farmers' union that we built aims to solve various issues. The first thing to do is develop a social enterprise, and I want us to become a socio-preneur because utilising the power of inclusive cooperation to grow together in the community will increase the level of success for business in agriculture [Interviewee 18].

This approach intentionally aimed to minimise the power and financial asymmetries which were experienced within traditional and modern marketing channels, particularly by producers:

All the commodities are sold to the traditional market facilitated by the local wholesale traders or the local dealers. ... The business situation disadvantages not only farmers but also society. However, the people who rule the industry gain more profit, such as the fertiliser companies, the pesticide companies, etc. ... Can you imagine how much the smallholder farmers who are farming in the mountains can earn [not profitable]? It is entirely out of control. ... To be fair, as a society, we need to take care of each other, be inclusive as a group, and improve everyone's business. For example, if we gather in a group consisting of twenty people, and eighteen people succeed in business, these eighteen people can help and support the two others to follow their progress. The farmers also do not need to borrow money from a wholesale trader. I am trying to change the farmers' mindset and guide them to be part of an inclusive group and cooperate. However, we need to develop farmers' abilities, such as farming methods and techniques, and be independent. The farmers should also know and master farming management, such as

determining the price agreement for selling the commodities and how to produce an excellent product that is saleable [Interviewee 17].

Thus, inclusive business practices based upon a social justice logic underpinned the social entrepreneurs' vision of the market. This proposition was based upon the processes of collaboration, strategic partnerships, interactive communication, empowerment, advocacy, and fair-trade practices, which facilitate VCC and are now discussed.

6.4.5 The Dimension, Processes, and Practices of VCC in E-commerce Channels

This section elaborates on the findings related to the dimensions and practices of VCC in e-commerce channels. VCC occurred both within B2B and B2C in this specific BOP market, although VCC within the B2C occurred between the e-commerce and the urban customers that represent developing economy consumers. VCC within B2B illustrates the interaction between small-holder farmers, farmer communities, and e-commerce. The findings may present a dynamic situation in an emerging country that also consists of a BOP market. The following subsection elaborates the dimensions and practices of VCC across the e-commerce chain.

6.4.5.1 Inclusive Business and Collaboration

Within the vegetable e-commerce marketing channel, collaboration occurred after the involved parties reached a mutual understanding of the business vision of the social entrepreneurs and the reciprocal benefits from such collaboration.

Collaboration can be used to gain more information regarding each party's willingness to join in the collaboration. The values attempt to deliver the same vision about the partnership and be understood by all involved parties. Following the business process conducted by each collaborator will create a distinct and unique value for the business. The company can develop more values because of simultaneous development ... The company should develop good engagement and good relationships with farmers to generate mutual benefits for both parties ... The collaboration between all parties in the supply chain will give mutual benefits to all parties [Interviewee 1].

Collaboration rather than competition was encouraged. This was apparent through smallholder farmers and traditional traders establishing community partnerships, such as farmers' groups, farmers' unions, or co-operative companies. Such collaborative ventures supported community development and provided a marketing hub to distribute farm output and extend marketplace networks. E-commerce therefore facilitated collaboration by linking committed actors across the horticulture supply chain to deliver benefits for all members of the new e-commerce market configuration. The benefits to new agribusiness initiatives result from

‘empowerment’, ‘advocacy’, ‘knowledge sharing’, and the ‘network function’, which are now explained.

Entrepreneurs provided advocacy to support and empower vegetable producers through knowledge sharing and the confidence to operate in a new market configuration. New collaborations have fostered new business practices by farmers, such as the co-production of value-added processes such as product grading, packing, and processing to meet the quality expectations of the networks’ consumers. Knowledge and skills development of farmers was considered essential in the co-production process by e-commerce. This e-commerce aware of their partner producers’ low education levels and transactional rural business habits.

Becoming an online food retailer supports innovation and other business opportunities, such as the food processing business. We can utilise the off-grade vegetables from the farmer’s harvest or the waste vegetables that cannot pass the post-harvest process but are still in good condition to make into processed food snacks [Interviewee 3].

The technology that we build is intended for smallholder farmers with limited production capability ... I deliver the knowledge in a simple way for farmers to understand agriculture production, make money from farming, and make the product competitive in the market [Interviewee 10].

... the farmers and I started the collaboration with the [agri-food] online supply company ... The supply company also gives us new information that we need to manage the product to look attractive, such as using fancy packaging for the vegetables ... I am willing to make the product look catchy ... The packing process is now conducted at my place by using plastic [Interviewee 9].

Advocacy aimed to support local agricultural products and empower potential business partners to access or adjust to market conditions. The promotion of local agricultural products increased farmers’ motivations to improve product and service quality to serve existing market opportunities and access new ones. As the business collaborator and ‘market scriptor’, social entrepreneurs provided smallholder farmers with the motivation and confidence to access e-commerce markets by developing local capacity, capabilities, and knowledge.

We are developing a community called the e-farming community based on the fair-trade system. All the community members will have a regular discussion to share their difficulties regarding farming activities, and we will try to solve every challenge and hardship experienced by members. We consider farmers as part of the family in the community. We run activities based on the principles of togetherness ... Can you imagine how many of the villages we have in our country have the potential for agriculture? The farmer partners or the students we have now mostly come from villages, and their parents are primarily farmers. We can persuade them to support both their children as well as increase their earnings ... The business that the community has is aiming to develop a socio-preneurship [social entrepreneurship]. It is a way to create economic activity, but we also make social change for society. We can empower young people from villages and improve their earnings [Interviewee 10].

The network function involved social entrepreneurs connecting small business entities (e.g., smallholder farmers) with other business entities (e.g., e-commerce) to achieve mutual goals. Networking also enabled the sharing of resources and enhanced intangible resources such as skills and knowledge. This resource exchange was an integral part of the VCC process. Together with inclusive collaboration, business integration through synchronised production and marketing signals created an integrated network partnership.

The output from farming production will then be collected and sold to cooperatives to facilitate trading activity ... The coops provide the virtual store to distribute the products for the market. We try to facilitate the business, starting from the production to the market [Interviewee 10].

6.4.5.2 Interactive Communications

Interactive communications supported the development of both B2B and B2C relationships and mutual learning through the co-creation process. Communications also helped to maintain and execute the expected value benefits of the network collaboration. In addition to co-production by farmers and farmer co-operatives, customers were also considered co-developers in e-commerce business growth through word-of-mouth (WoM) with non-channel customers. Here, digital technologies fostered this e-commerce and customer symbiotic relationship through interactive communications:

If I already have one loyal customer in one area, more customers from the same area will also buy my products. This means that one customer can influence other potential customers. For example, the existing customers can affect other people who interact or live in the same location and give their friends or neighbours information [Interviewee 6].

Digital technologies also facilitated interactive communication between members of the value chain to develop personal connections, which supported value-in-use:

I treat customers like friends; we often have a random conversation on the group chat. They are open to any talk, even in the evening time [Interviewee 6].

These connected networks increased customer awareness and knowledge about the quality and provenance of their vegetables, strengthened customer engagement with the network and reinforced the mutual benefits of the co-created ecosystem, as explained by the CEO of an agri-food e-commerce supplier and retailer:

The experience gained by customers while purchasing vegetables online is how we want to position the company in the customers' minds ... Social media is used as the media for customer education and gives customers more knowledge about the production activity and about the product itself ... I want to share the idea of business fairness in the agriculture sector ... The collaboration between all parties in the supply chain will give mutual benefits to all [Interviewee 1].

6.4.5.3 Fair Trade Practices

E-commerce channels also facilitated B2C marketing by directly selling products to the end-consumers using e-commerce instead of relying on B2B transactional marketing. E-commerce consumers typically pay a premium for having their vegetable requirements closely fulfilled through product choice and production methods such as organic or hydroponic production, which are rare in traditional markets. These premiums are transmitted back to farmers, who receive a fair price for their produce and labour, as this e-commerce entrepreneur explains:

I offer a higher price than the traditional market. I want the business to benefit not only me but also the farmers. Hence, I emphasise openness with the farmers about the profit margin they are willing to have. I am asking to avoid comparing business with the traditional market. In the traditional market, the product price changes every second [Interviewee 16].

Sustainable business practices such as fostering price stability through fair trade practices are part of the e-commerce supply chain operating ethos. The ethos also includes knowledge sharing and training, which underpins farmers' empowerment. For example, smallholder adoption of the technology enables smart agriculture to reduce waste, customise production to customers' needs, widen networks and market coverage.

Implementing a new farming method for smallholder farmers is possible, although there is a condition that we need to fulfil to make it possible ... The community and I are working hard to implement cutting edge technological approaches in our farms [Interviewee 10].

The use of digital technologies also addressed some of the transactional challenges associated with traditional and modern channels, such as price volatility, high logistic costs, and power asymmetries between actors. For example, although modern retailers such as supermarkets have led a transformation in the agri-food system, the problems associated with delayed payment and power asymmetries between more financially powerful supermarkets and their suppliers have been reported. By contrast, agri-food e-commerce provided the opportunity for faster payment to farmers, reduced logistics costs, improved services for consumers and improvements to local agri-food competitiveness:

I think we can have lower logistics costs than other retailers because we cut the supply chain and access the products directly from the farmers ... The farmers also receive orders continuously to keep them at a stable distribution level, and they accept faster payment than if they supplied supermarkets ... We offer product sustainability to the end customers that no other retailers can provide because we have farmer partners. We develop the production schedule for the farmers as the base of production. I think continuity in meeting customer needs will increase competitiveness in the market [Interviewee 4].

Empowerment, advocacy, network function, knowledge sharing, and fair-trade practices, therefore, create an exchange scenario to realise a collaborative co-creation process for producers, which I have termed ‘value in resource advancement’. Under a social justice ideology and mutually reinforcing inclusive business practices, co-creation is realised, where co-development increases the producers’ knowledge, skills, capabilities, resources, and revenue.

6.4.5.4 Innovation and Competitiveness

The combination of inclusive business practices ‘orchestrated’ by social entrepreneurs as described above increases the competitiveness and innovation capacity of the e-commerce channel, as summarised by this e-commerce owner:

To improve competitiveness, we’ve tried a new marketing strategy by charging a single price for all types of small pack vegetables. We sell the small packs of vegetables at the cost of five thousand rupiahs [Rp.5,000 ≈ £0.26]. The price is competitive and provides a higher profit margin to the farmer group and the farmers ... This requires mapping the customer survey to identify the customers’ preferences, including the price and quality of vegetables. We need to know whether customers are willing to pay for the vegetables at the price and quality that we have as standard. It is also another way of creating value that benefits both parties by asking the customer to discuss and agree on what is provided by producers and the price the customer should pay [Interviewee 3].

6.4.5.5 VCC innovation benefits

As inferred from the above analysis, the benefits of co-creation in the e-commerce value chain occur in the consumer, producer and e-commerce initiator or entrepreneur spheres. Figure 6.5 provides an in-depth analysis of VCC activities and benefits to these members, which are used to increase the participation in co-production, co-development, co-expectation of the social justice ideology.

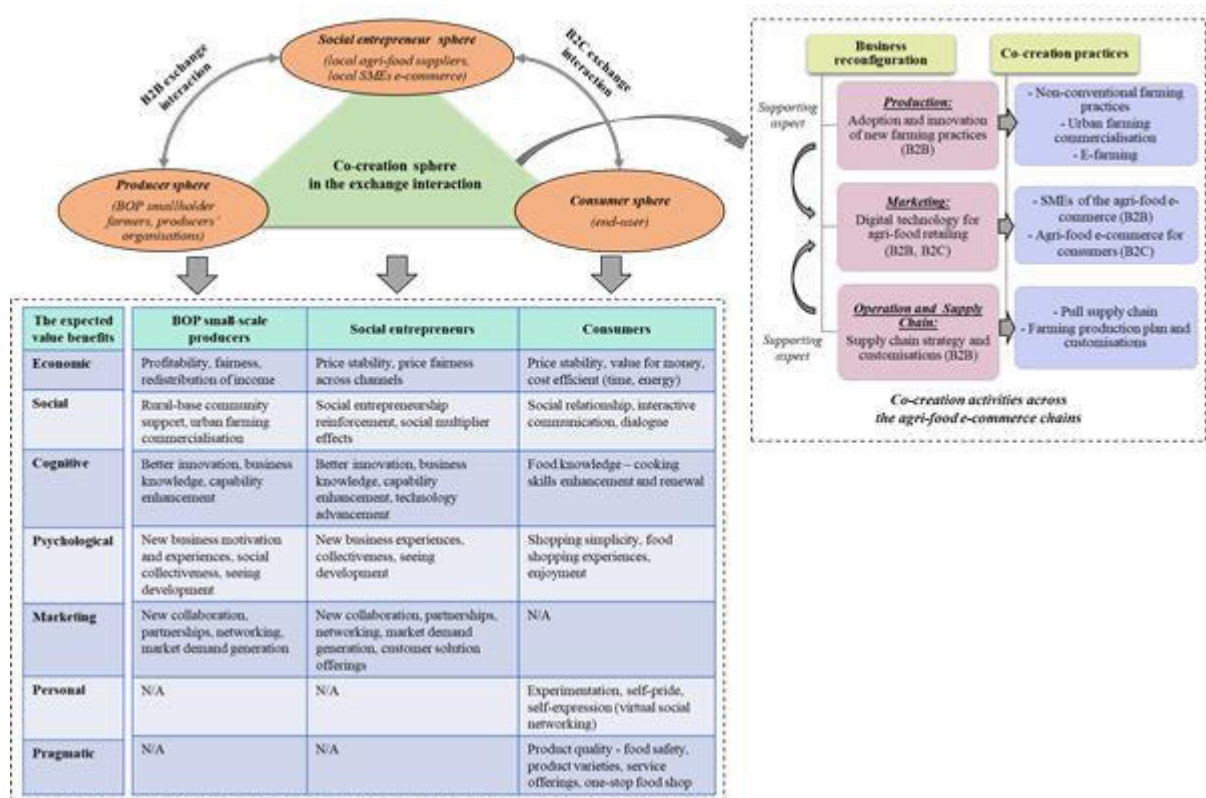


Figure 6.5 Co-creation practices and benefits across the agri-food e-commerce chain

Within the e-commerce marketing channel, there was a high level of interaction between up- and downstream channel members mediated by the entrepreneur. MSME producers dominated upstream. Their willingness to collaborate enabled a shift from conventional farming production to customised production planning and supply chain capability management based upon demand forecasting. This collaboration has created a dynamic communication system that is adaptive to the market situation. It relies on improvements to producer (rural agriculture communities or small-scale urban farmers) capabilities, such as knowledge sharing, enhancing skills, and access to R&D facilities. Increased awareness and the shared understanding amongst local business networks facilitated by e-commerce have supported collaborative partnerships and the activation of the co-creation process, in particular through the matching of forecasted customer demand to vegetable production plans, as this e-commerce entrepreneur reveals:

I have changed the system by asking the customer what kinds of vegetables they want to buy to calculate customer demand and apply this to the crops production schedules. We will plant more vegetables that customers frequently request and provide fewer products rarely ordered by customers [Interviewee 16].

E-commerce also created new business scenarios by developing close communications with customers to explore their needs and co-produce opportunities with producers to fulfil future customer demand:

...implementing new farming methods for smallholder farmers is possible ... I make communication with the farmers to discuss market requests ... we are trying to create new competitive technology [the digital precision farming method] ... The main distinction between other countries and us [Indonesia] is technology's commercialisation capability [Interviewee 10].

The effectiveness and accessibility of services for customers in e-commerce channels distinguishes them from other retail channels (e.g., supermarkets and wet markets). Digital social commerce (e.g., social media, instant messaging apps) is integral to providing services and developing customer engagement and novel grocery shopping experiences. Digital social commerce is also used to inform and educate customers about food selection and the role of food in a healthy lifestyle. Thus, for consumers, the benefits of e-commerce marketing channels include shopping simplicity, reliable delivery services, real-time updates of information, product usage and cooking information and customer complaint services:

The key is educating customers about products ... We need to spread information by giving direction; we provide the customer with recipes, how to cook or consume the foods ... We need to know the customers' needs and wants, and then we give them all they want [Interviewee 6].

'Simplicity' incorporates elements of convenience through the provision of trusted product quality, purchasing ease via online prompting of product availability and product accessibility through direct delivery of orders.

The targeted market is mostly working people that primarily, maybe, working women, because they have less time to go to the market to buy food for their family. We can offer customers simplicity and practicality by providing fresh produce without going to the supermarket or traditional market. It helps them ... Also, because, as you know, the traffic congestion that we have here in Bandung City, especially during the weekend, is tiring, for customers to go out only to buy vegetables. Thus, offering them the simplicity of providing foodstuff such as vegetables via online orders and providing extra delivery services increases customer likelihood of buying our products [Interviewee 4].

We manage all the customer orders and delivery through our mobile application ... First, the customer makes an order through the online application, or they can also order through our social media account or send us a chat message. After we receive the order, we directly deliver the product to the customer's address. We use our deliveryman and manage all the delivery vehicles [Interviewee 11].

A key benefit of e-commerce is providing real-time updates for consumers on fulfilled orders and new product opportunities. These communication touchpoints support continued consumer engagement with the network, as explained by an operational manager of an e-commerce organisation:

I now only use social media for running the business. I use Instagram for product branding, such as giving updated information about a new product or having a promotion programme for a specified period. However, to follow up the buying and selling activities such as receiving customer orders, providing updated information, and other customer engagement, we use WhatsApp [Interviewee 13].

This customer engagement is further encouraged through the provision of complaint services, in which a poor customer experience can be understood and addressed to maintain the integrity of the e-commerce network:

I would say that my business strengths are customer service and personal attachment with the customers. For example, we provide excellent service to ensure that the customer receives the best product, and if they receive a bad quality product, the customer can have the product for free in return. ... The complexity of the fresh produce online retailer is quite high. Thus, when I receive customer complaints, I need to understand that I serve many types of customers with different characteristics. It is challenging to be able to serve them one by one. My business needs to serve the customer in a 'butler' way. By this, I mean we must be ready when the customer makes contact. The business tagline is 'we serve you everything' [Interviewee 6].

Customers do not need bother to go to the stores to buy fresh produce such as vegetables and provide extra time for food shopping such as going to supermarkets. They only need to put the order [online], and we will deliver good quality products. Also, if they are dissatisfied with the product, they have the right to complain, and we will try to solve it [Interviewee 13].

From the perspective of e-commerce, the dynamic and personalised interactions between e-commerce and customers have enabled new online food purchase experiences, increased new vegetable trials, and increased customer satisfaction and happiness. These impacts and benefits were absent in the conventional channels (e.g., wet markets) and weaker in the modern channels (e.g., supermarkets).

6.4.6 Customer VCC through the Agri-food E-commerce: The Determinants and Outcomes

The results of this qualitative research were also used to develop the conceptual framework for customer VCC that is occurred between agri-food e-commerce and urban consumers in Indonesia. The emergence of agri-food e-commerce has opened a new avenue for customer VCC initiatives. In this research, customer VCC is conceptualised from the business actors' perspective along the agri-food e-commerce channel. The insights of multiple

business actors related to business and marketing ethos may influence the business operation and how they perceive customers, including how these business actors across the e-commerce channel involve customers in the business model and processes to provide better products and services. Various innovations and creative initiatives have occurred in this agri-food e-commerce stakeholders' new business process to improve competitiveness and gain mutual benefits.

The findings reveal two primary factors identified as customer VCC determinants: customer-related operant resources and customer motivation. The results also showed the indication of customer VCC behaviour in online food grocery purchases. The consequences of customer VCC are indicated through customer ViU, customer willingness-to-engage in the co-creation, customer positive emotions, and customer behavioural intentions for channel usage continuation and WoM. The following subsections present a further explanation of these factors.

6.4.6.1 Customer-Related VCC Resources

The results identify the VCC process between e-commerce and the customer. In the process, customers need to be equipped with VCC resources, primarily the e-commerce perceiving consumers as the operant resources in the co-creation activities. The analysis shows two factors of customer-related resources in VCC processes: **social expertise and customer openness**.

The analysis suggests that customer social expertise (customer social-related resource) may influence customer involvement in co-creating value. Indonesia's characteristics and social culture were indicated as strong reasons for the social resource obtained by online customers. The analysis shows the characteristics of the e-commerce customers, who are predominantly women who enjoy socialising. Indonesian consumers are also identified by e-commerce as high social networking site users. The e-commerce practitioners assumed that for Indonesian consumers, becoming part of a particular social community is essential. Social networking sites (e.g., social media) usage among many Indonesians may enrich and shape customer social context using e-commerce for food grocery shopping. Customer social relations within online communities, friendship communities, and social class can refer to the network of relationships to build a particular group of consumer social expertise. Consumers' characteristics and social context were identified as the sources that facilitate individual knowledge and skill enhancement to co-create value.

I think more people are now concerned about healthy products that can support the food diet. This is because of the social media information and trends that people use these days. I also think that more young generations who don't come from agriculture education backgrounds also contribute to this. Some of them have become the influencers who continuously show a healthy lifestyle, and this is imitated by the followers of their social media account [Interviewee 1].

The customers are spread in the specific area ... If I already have one loyal customer in one area, more customers from the same area will also buy my products. This means that one customer can influence other potential customers. For example, existing customers can affect others who interact [with them] or live in the same location and they will spread this information to their friends or neighbours. They might say that my products are fresh. I have one experience of one wealthy elderly customer who bought a considerable stock of vegetables. I asked her what they were for, and she said she wanted to give them to her relatives, who don't live with her [Interviewee 6].

I also think about that [the accessibility of women as the main customers for using the website for shopping] ... I did a small survey about this and asked my customers about it. They said that they do not care whether we have websites or not because they will keep using WhatsApp to make orders ... Most Indonesian people love to have personal interactions and communicate, including while doing online shopping. WhatsApp is a chat application we used for Customer Service. Most Indonesian people prefer to have direct interactions. They love to talk [Interviewee 13].

The e-commerce entrepreneurs also suggest that customer openness is one of the keys to initiate collaboration with customers, including introducing this new agri-food e-commerce platform for food grocery shopping. Customer characteristics related to personality that are open to new digital technology usage may influence how open consumers do online food grocery shopping. Other factors, such as the length of engagement using the food e-commerce and consumer age, may show different digital technology usage behaviour for daily food grocery shopping. Customer openness can be indicated through open communication, dialogue, close interaction, and new information acceptance. The online interaction and communication throughout the purchase consumption experiences are different from face-to-face interaction (e.g., physical stores). However, customer openness may give both the e-commerce and the customer more information and enabled knowledge sharing, including other VCC behaviours facilitated by digital technology, such as social media.

They [customers on Facebook and Instagram] are different. Facebook users usually have many questions before they finally purchase the products. I need to be patient to answer all the questions. However, consumers who buy vegetables from Instagram are more straightforward. I mean, they ask fewer questions and put in the order afterwards. Most of the customers on Facebook are predominantly younger consumers [Interviewee 16].

Because I'm using the online marketing channel, many public figures shop at my online store. Some of them are actresses, singers, the wives of the government officials, and the Indonesian vice president's daughter. I cannot believe it myself. Although they are famous, when they do online shopping, they are the same as others. Even some of them only buy one piece of carrot cake. But I know them [Interviewee 6].

6.4.6.2 Customer VCC Motivations

The analysis suggests that customer motivations are factors that initiate and execute customer VCC through e-commerce. The findings identify two customers motives to co-create value, namely **intrinsic motivations**, and **skill development motivations**. E-commerce tries to provide various fresh produce choices, including providing extra benefits such as services. For example, providing better fresh produce quality provides unique features (e.g., packaging, label, brand), product choices (e.g., high-value vegetables, organic vegetables, hydroponic vegetables, certified vegetables), better product handling, price fairness, and customer service provision. The e-commerce marketing approach aims to create a new perception of purchasing food groceries via online shopping. The overall expected benefits that customers could receive by purchasing from e-commerce may occur as intrinsic motivations for consumers to acquire such new experiences and better value propositions in the consumption experiences.

If we can give different perceptions about the products, the customers will perceive them differently [Interviewee 6].

We give them something more than only buying the vegetables [extra services] ... We can provide them with other experiences such as farm visits because most of the consumers are married women who have children; they can bring their family to the farm field. It also creates customer engagement and offers other marketing products, such as offering membership, where customers can claim such services [Interviewee 1].

E-commerce also provides new knowledge and skills about food-related information through dialogue, conversation, and personalised experiences. For instance, e-commerce delivers product knowledge regarding their fresh and healthier vegetables to consume, which may be better than the traditional market or supermarket. New skills are offered by providing cooking recipes and cooking techniques for healthy food preparation. E-commerce entrepreneurs stated that many consumers request this information, which may help develop further customer engagement. This finding suggests skill development improvement, which motivates customers to be involved in VCC.

I provide additional menus for the vegetables I sell. The menus that I share for customers are healthy food menus suitable for the customer segments, such as for people with an illness. I even suggest that customers use healthy seasonings, such as using sea-salt and natural coconut oil. Many of my customers are suffering from diseases. They have dietary restriction toward specific foods such as dietary salt and sugar intake ... I often posted on Instagram the cooking methods to share the recipes and suggest all the food ingredients needed. The food menu concept that I prepare is to cook natural, simple, and healthy foods. For example, the healthy food cooked with sautéing cook method [sautéing is cooking food quickly in a minimal amount of fat over relatively high heat]. A slow cooker is also a good option for a healthy cooking style. However, the slow cook method needs more time to cook, and I guess most moms ask for faster cooking time. I give them solutions for healthy food recipes with easy-to-follow steps [Interviewee 6].

6.4.6.3 Customer VCC Behaviour

The analysis identifies customer VCC behaviour in the interaction between e-commerce and the customers. Identifying customer VCC behaviour refers to the required customer behaviour and voluntary behaviour to participate in co-creation activities. Customer VCC behaviour may support the co-creation process through interactions and resource exchanges of the value propositions. A variety of business concepts and marketing programme modifications offered by e-commerce have prompted more customer VCC ideas. The findings suggest customer participation behaviour and extra behaviour that support the implementation of co-creation activities. The analysis synthesises customer behaviour related to customer participation, knowledge and information sharing, interaction, feedback, advocacy, helping, and tolerance.

❖ *Information seeking*

Customer participation is presented in the form of B2C interaction in the co-creation process. Customers are actively involved during the consumption experience (pre-purchase and purchase process), leading to co-creation behaviour - For example, active customer participation in seeking advice about food preparation recipes shared by e-commerce.

Giving solutions and new ideas for the customer about food preparations will increase their decision to buy more vegetables, such as providing an idea of making mixed veggie juice. We know that sometimes, customers find it difficult to prepare foods using vegetables [Interviewee 1].

❖ *Knowledge and information sharing*

Information and knowledge sharing refers to how customers provide sufficient information and knowledge to use resources in co-creation activities. E-commerce shares information about vegetable varieties, qualities, traceability, also about food menus and recipes and healthy cooking methods to trigger this behaviour. However, some of the information shared by e-commerce was coming from customer requests and ideas. Hence, e-commerce was initiated to provide more of this information for customers. This will increase customer curiosity and propose solutions.

We don't share the food menus regularly, but we share some info on Instagram. However, sometimes, customers ask via WhatsApp about the idea of a particular vegetable's food recipes. In that case, we will give them food recipe options that customer can explore to make various home cooking foods. This kind of initiative gives them solutions [Interviewee 13].

❖ *Interaction*

Interaction refers to developing conversation and open communication with e-commerce. The e-commerce perceived interaction with customers using online platforms will be open to co-creation interactive learning. Adjusting communication with digital technology utilisation, such as using the internet (e.g., instant messenger apps, social media), can simplify rapid communication. The online conversation also offers effectiveness in sharing various pieces of information (e.g., product promotions, new product information, promotional events). Customer responsiveness and interaction are crucial to engage in online conversation.

... we do online marketing; it is possible to interact and communicate with customers. Otherwise, the customer can also send us emails if they have questions [Interviewee 11].

❖ *Feedback*

Feedback is related to how customers provide information to e-commerce and enhance e-commerce willingness to provide better products and services to satisfy customer needs. E-commerce plays an essential role for customers to present and activate such behaviour, such as actively asking customers for feedback about their products and services. Customers' feedback can vary; it can occur during the interaction of transactions or in the post-purchase activities.

We usually ask for customers' feedback. Some of them stated that they choose to purchase vegetables from us rather than going to the traditional markets ... Customers can be used as the source for research and development to implement new ideas to the business. However, to implement it for marketing development, we confirm it through customers' feedback. It's like a process [Interviewee 1].

❖ *Advocacy*

Advocacy refers to customers' effort in recommending the new online food retailing to other prospective customers. In this specific case, advocacy can be represented through WoM occurring in social network sites (e.g., social media, messenger apps) or spread the information through face-to-face social interaction amongst customers' personal networks (e.g., families, relatives, friends, neighbours).

I never use customer reviews [for branding] and share them on Instagram, like many online stores. However, many of my customers posted how they were satisfied [with the purchase] and shared positive experiences by tagging my online store on the post. Usually, they write a lengthy review of the products that even sometimes look too tacky. They shared and posted excellent photos of the food, awe-inspiring images ... If I already have one loyal customer in one area, more customers who live in the same place will also buy my products. This means that one customer can influence other potential customers ... They say that my products are fresh [Interviewee 6].

❖ *Tolerance*

Customer VCC behaviour also is also presented through the tolerance that they show during the exchange transaction. Customers are willing to endure delayed services or other factors that do not fit with their requirements. Customer willingness to tolerate can be part of customer cooperation with e-commerce services. For example, the customers were willing to pay extra charges for the delivery or endure delayed delivery time.

When I started this business, I provided orders for daily delivery. It was not efficient. It was costly because the farmers need to harvest regularly, and I also need to provide more time and energy to deliver the products. Then, I changed the order system to three times a week every Monday, Thursday, and Saturday ... I will ask them [the customers] if they want to order for the next delivery time, or I will ask the farmers if they have extra from the harvest to fulfil the orders ... I charge the delivery cost based on the location. It ranges from 5,000 to 10,000 rupiahs [Rp.5,000 – Rp.10.000 ≈ £0.26 - £0.53] ... They are willing to pay the delivery cost. They don't mind it. I also charge the business customers [B2B] the same cost for delivery. No matter how large the order quantity is, I charge them the same delivery cost [Interviewee 16].

❖ *Helping*

The analysis also suggests the behaviour of helping that contributes to customer empowerment to being involved in VCC activities. Customer awareness of this new food channel of e-commerce has enabled VCC practices. Helping means customers are willing to help or assist other customers in using e-commerce to buy products (e.g., vegetables). The data shows that e-commerce can initiate customer education by sharing various beneficial information to improve customer knowledge towards food-related products, including the benefits of using online platforms for food purchases. Although food product purchases (e.g., vegetables) are assumed to be a low involvement buying decision process (e.g., repetitive, low risk, straightforward), purchasing food products using online platforms has different buying processes. Encouraging this customer co-creation behaviour of 'helping' can enhance the likelihood of the existing customers encouraging other potential consumers to use e-commerce for food grocery shopping. Educating customers means that customers are enthusiastic about using digital channels and are eager to gain more food-related information because of limited knowledge about various food issues. This result shows that e-commerce tried to gain customer trust and persuade them to use digital channels for food product purchases. Such endeavours may enhance consumer pre-purchase and purchase processes to use e-commerce.

We also use Twitter for educating customers, such as giving product information or other relevant information, such as food and health; but [Twitter] is not used for receiving customer orders ... Social media is used for educating customers and giving knowledge about related activities, such as farming activities and its products. For example, some customers lack

information about red spinach. When they cook and boil the spinach, and the water becomes red, they think we have added artificial colour. This kind of misleading information needs to be shared wisely with customers by educating them about such relevant information [Interviewee 1].

6.4.6.4 Customer Value-in-Use (ViU)

The results identify two factors that contribute to realising customer ViU, specifically **customer relationship development** and **customer experience**. Purchasing products from e-commerce requires customer familiarity with the online food purchase process. Customer knowledge and familiarity with using e-commerce may lead to customer involvement in the co-creation process. Relationship development and customer experiences appear to be the manifestation of customer VCC through e-commerce. This digital retailing anticipated different food grocery shopping experiences from other food retail channels (e.g., supermarkets, wet markets) long experienced by customers. ViU is identified as the result or manifestation of VCC. The ViU of utilising this online food retail was about better value proposition, better relationship development, and e-commerce usage experiences. Customers will undergo joint action that reciprocally benefited both e-commerce and customers.

❖ Customer relationship development

The first element of customer ViU related to relationship development can facilitate sustainable value creation. It is also associated with providing customer services to complete customer requirements. Relationship development is translated into seller hospitality and attitude. E-commerce used various strategies to develop customer relationships, such as customer relationship management, customer complaints handling, and service consistency. VCC manifestation also occurs in e-commerce interaction with customers for relationship evaluation, which is implemented in customer review and customer feedback.

I love to talk with customers and make a personal approach. I provide excellent customer handling to gain a strong relationship with the customers ... We need to spread the information by giving direction; we provide the customer with the recipe for how to cook or eat the food. We need to know what the customer needs and wants, and then we give them all they want [Interviewee 6].

❖ Customer experience

The analysis identifies the second element of customer ViU regarding customer experiences using e-commerce for food groceries such as vegetables. In this context, customer experience refers to customer opportunity to develop authentic experiences through buying

process modification. E-commerce provides product customisation by offering different experiences to buy food products using e-commerce, for example, providing parcels for gifts and prepared vegetable set selections. Customers can make a personal selection and customise the packaging and product items.

The e-commerce services regarding home delivery and company logistic capabilities are the factors that support customer consumption experiences. E-commerce offers unique locally grown vegetables from various locations in Indonesia that other food retailers rarely provide. E-commerce also offers personalised experiences by providing farm visits to farming sites. These activities provide unique personalised values of experiences. It also means personalised experiences is presented as ViU by utilising consumer commodity culture to obtain product rarity, individuality, and uniqueness.

We targeted customers based on the shopping affordability and willingness to pay premium prices. Customers buy the products to send them as gifts because we also provide the services for gift parcels, so anybody can request them and send them to someone else. Customers can choose the products they want. We will personalise the parcels based on our store's available products, or customers can even come to our store hub and request such product customisation [Interviewee 11].

Customer experiences can be presented in various forms that enable consumer creativity, consumer discovery and understanding toward farming production, including making food shopping entertaining and enjoyable. For example, some e-commerce provides customer education through entertainment (i.e., edu-farm - education farming) by providing farm visits to share knowledge and the ambience of farming in the countryside. This can increase personal interaction experience with e-commerce and farmer producers. In a specific situation, the new ideas of co-creating experiential value also develop customer requests. E-commerce captured the opportunity to co-create value by implementing consumer ideas into the business process and customer shopping experiences by engaging customers with various co-creation initiative activities.

I provide farm visits for customers who want to see organic farming activities and meet with the farmers who produce the vegetables [Interviewee 16].

6.4.6.5 Willingness-to-Engage

In the analysis, e-commerce practitioners mentioned that to run the business, they used Indonesian people's habit of using social media and enthusiasm for trying everything related to online activities. The interviewees indicated that their consumers positively respond to using

e-commerce for food product purchases. The increase in market demand for fresh food with varieties of consumer preferences became the drivers for e-commerce to discover more consumer potential needs (market demand generation). Knowing customer characteristics and their interest in food is essential for marketing strategies. For example, e-commerce may offer faster consumer buying processes, approach more potential customers, and make product development. Some interviewees attempt to adjust the product positioning with the actual customer needs, including predicting their future needs. More competitive offerings were anticipated to realise more value for consumers. Directing consumers was the e-commerce strategy to approach consumers and engage them with various co-creation initiatives. Customer willingness-to-engage with e-commerce also follows consumer interest in and perceived expected benefits from using e-commerce for food purchase.

We have started identifying customer characteristics. We can get customer attention and develop a faster buying process by directing customers about the meals they can make from the vegetables we offer. We provide them with options and ideas for the types of foods they can make. Although we give the options or direction indirectly, they will unconsciously follow it [Interviewee 4].

We can transform customer ideas into marketing approaches. For example, we offer customers delivery services and send the products directly to their address, and we have their contact details if they want to buy them at another time. Some customers request that we deliver it to their office [Interviewee 1].

E-commerce used different marketing approaches to conventional retailers or conservative modern retails (e.g., supermarkets). They captured opportunities to co-create value with customers by implementing customer ideas into the business process innovation and creativity. The incorporation between digital technology utilisation, digital marketing, better product propositions, personalised services, interaction, and dialogue may indicate factors that may influence customer willingness-to-engage with e-commerce.

6.4.6.6 Customer Positive Affectivity

VCC facilitates customer positive affectivity (emotions of happiness and satisfaction) by using e-commerce. Food grocery shopping at supermarkets also aims to increase positive customer emotion in shopping experience and satisfaction. However, e-commerce suggests more than just satisfaction; it brings customers happiness to have a healthy lifestyle with better food consumption. The interviewees indicated that customer experience and the ability to fulfil consumer needs could increase customer happiness and satisfaction. After conducting such shopping experiences, such as offering a wide range of product assortment and providing better

service, customers may feel positive emotions during online food shopping consumption experiences.

I made the business based on kinship, which means that I do the business with personal persuasion and personal interactions. In contrast, other businesses have started with mobile or digital applications that provide less personal communication. They might not have the admin personnel to develop customer interaction and dialogue. But I'm using a different approach. I love to talk with customers and make a personal approach. I provide excellent customer handling to gain a strong relationship with the customers. I have sufficient knowledge of customer handling, especially for the middle –and high–end customer segments. I provide personnel in charge of customer service to operate social media, and she [the employee] has a qualified background in customer service. The employee knows how to communicate, deliver customer service, and make customers happy and capable of directing customers [Interviewee 6].

Customer satisfaction in using e-commerce for food product purchases also identified through customer reviews. Online shoppers express their satisfaction by giving product reviews on the e-commerce platform. For example, making social media posts (e.g., the pictures of products they bought), sharing them and tagging the e-commerce as a trusted seller.

Many of my customers posted how they were satisfied [with the purchase], shared positive experiences by tagging my online store on the post. Usually, they write a lengthy review of the products that even sometimes look too tacky. They shared and posted excellent photos of the food, awe-inspiring images [Interviewee 6].

6.4.6.7 Usage Continuation Intentions

Agri-food e-commerce has driven the market for its marketing approach. The use of digital technology has enabled this and changed the buyer-seller relationship in the virtual world. The situation has shown the influences of technology use on consumer consumption experiences and transforms it into habit and behaviour shaping consumer shopping behaviour. Rapid changes in consumer behaviour toward online food purchases require business adaptation. The presence of agri-food e-commerce facilitates the changes in agriculture activities starting from production system improvement, operation and supply chain and digital support marketing.

This is a start-up company ... we use the internet in this business ... We serve end-customers through an online store ...we emphasise online marketing, especially the application of social media [Interviewee 11].

E-commerce adjusted consumer shopping patterns and lifestyle shifting, whereas conventional retailers neglected the importance of adapting to the market situation. This might be one of the reasons why the traditional markets fail to tackle various market problems. More knowledgeable consumers and massive changes in food trends among urban consumers also

increase consumer curiosity about making online food product purchases. The shift in food retailing via e-commerce shows its revolutionary way to communicate the overall benefits of using this digital retail channel. Customers co-create value through the experience along the buying process by proposing a better value proposition. It can be advantageous for e-commerce to explore more new ideas for more customer value propositions and e-commerce usage continuation intentions.

6.4.6.8 WoM Intentions

WoM has become the way for expressing both customer satisfaction and dissatisfaction. The interviewees argued that WoM could affect the emotional involvement within the consumers' social communities. It may also influence other potential consumers' behaviour, such as willingness to try a new product they buy online and use similar shopping channels. Customer intention to spread information about food groceries using e-commerce may influence other online shopper awareness to use the same channels and experience this new online food retail. The findings indicated that WoM would affect shaping consumer behaviour (e.g., determining customer satisfaction), generating new demand, and improving business profitability.

Customer satisfaction is my priority in doing business. Gaining a high profit is not everything, although the company target is to get a high financial profit. I mean, if you can satisfy your customers, they will give you free marketing to persuade other customers via word-of-mouth [Interviewee 11].

Also, the traditional WoM has been extended to spread in online discussions with the advent of the internet. The interviewees argued that WoM could be used for their marketing communication by spreading positive information via social networking. The existing customers can potentially share positive WoM and become voluntary influencers for other potential customers in the online world. Social media influencers also contribute to spreading a healthy lifestyle, which benefited food e-commerce. Electronic word-of-mouth (eWoM) has opened the opportunity for shoppers to develop consumer opinion and influence other potential consumers in the online market.

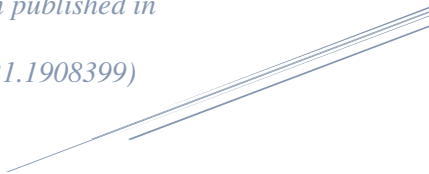
By involving customers in marketing activities, they can be influencers for their communities. For example, when one consumer buys certain kinds of vegetables and at the same time their friends or colleagues ask about it, they can suggest that other prospective consumers buy the same products from our online store... I also think that more members of the young generation who do not come from an agriculture education background are even concerned about the agriculture business. Some of them become influencers who continuously show a healthy lifestyle, followed by their social media followers [Interviewee 4].

6.5 Chapter Summary

This chapter has outlined the first study of the thesis, using qualitative research. It explained the specific research gaps and research questions, qualitative research methodology, and key findings from this qualitative research. This qualitative research explored how VCC in the BOP market facilitates digital technology, mainly through e-commerce in the agri-food industry. The results aim to explore VCC across the agri-food e-commerce chain, including further explaining VCC that emerges within the B2B and B2C context. Within the B2B context, this research explores the manifestation of VCC within the local home network of e-commerce channels at the BOP, the role of digital technology enabling the VCC process, and the dimensions and practices of VCC, which contribute to a reciprocal exchange for business innovation and creativity in the BOP markets.

Within the B2C context, this research has discovered the factors as determinants and consequences of customer VCC that occurred among urban consumers in Indonesia as a developing country. Further, the customer VCC results are presented as the conceptual model employed for the second study, using quantitative research. Hence, Chapter 7 explains the second quantitative consumer survey research for a specific emerging market in Indonesia based on the new food retail of e-commerce amongst urban consumers.

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CHAPTER 7 – STUDY 2: CUSTOMER VALUE CO-CREATION THROUGH AGRI-FOOD E-COMMERCE AMONGST INDONESIAN URBAN CONSUMERS

7.1 Introduction

This chapter discusses the quantitative study of the project. The research examines customer VCC through the agri-food e-commerce usage experiences. It has been undertaken by considering Indonesian urban consumers as a context representing e-consumers of a developing economy market. This quantitative research was the follow-on study in the exploratory sequential mixed methods approach employed for this project. The collected data was analysed using Structural Equation Modelling (SEM) to test the hypotheses included in the conceptual framework.

As discussed in Chapter 4, scholars have expressed various views about the nature and modality of VCC. Research on VCC processes in general and the role of e-commerce in the agri-food industry of a developing economy is scarce. There is limited empirical evidence about customer VCC process and practices (Dai et al., 2019; Gordon et al., 2018), in particular customer VCC in virtual environments, such as e-commerce utilisation. There is also limited information about the factors that drive customers to participate and engage in VCC processes and practices, including the behavioural responses and consequences (Ferreira & Menezes, 2015; Prayag et al., 2020). The qualitative research findings identified that the VCC concept in virtual environments facilitated by e-commerce managed by local MSMEs had changed Indonesia's food marketing designs. Hence, it is essential to understand the VCC process from the customer perspective concerning their consumption experiences using agri-food e-commerce.

Therefore, by referring to the fourth research question presented in Chapter 4 about the determinants and impact of customer VCC in emerging digital food commerce in developing economy markets, this quantitative research examines customer perceptions on the drivers and consequences of VCC facilitated by e-commerce. The conceptual framework built for customer VCC also aligns with the research objective on discovering the VCC process. The drivers of customer VCC are related to customer-related operant resources and VCC motivation on

customer VCC behaviour. The VCC consequences are indicated through customer VCC behaviour on customer ViU, behavioural responses (i.e., willingness-to-engage, positive affectivity) and customer future intention-behaviour (i.e., continuance intentions, WoM intentions). This research also examines the moderating effects of the length of engagement in VCC processes and customer demographic factors – i.e., age to the relationships between variables in this research framework. This chapter comprises the theoretical background and hypothesis development (Section 7.2), research methodology (Section 7.3), and research findings (Section 7.4).

7.2 Theoretical Background and Hypothesis Development

7.2.1 Consumer-Related Resources in VCC

Grounded on S-D logic for a general theory of VCC (Brodie et al., 2019; Pohlmann & Kaartemo, 2017; Vargo & Lusch, 2016), value is co-created through the integration of resources (Grönroos, 2008; Grönroos & Voima, 2013). Based on this view, investigation into customer resources has become a crucial part of understanding the co-creation process, and resource integration exposes how value is derived through interaction and consumption (Ranjan & Read, 2016). Resource integration refers to integration of consumer resources and company resources as the building blocks of co-creating value (Barrutia & Gilsanz, 2012) in a mutual service process (Vargo & Lusch, 2004). This implies that immediate recognition of resource integration applies not only at the company level but also to individual customers (Vargo & Lusch, 2006). Examining customer resource integration can clarify customer co-creation active roles in a reciprocal exchange (Agrawal & Rahman, 2015; Bharti et al., 2015; Liang, 2017).

Based on the extended resource-based theory (ERBT), the resource perspective has been extended focusing on the internal resources and the external resources. The ERBT introduces dynamic capabilities by modifying other resources such as value creation (Kozlenkova et al., 2014; Peteraf & Barney, 2003). The new perspective draws resource-based theory to be extended by maintaining external resources such as resource leverage, resource exchange with other actors in the value chains, and market-mediated transactions (Mathews, 2003). The new concept of dynamic capabilities refers to continuous creation, upgrading, extending, maintaining, and protecting any unique and relevant asset base of the company (Teece et al., 1997). The ERBT concentrates on company capabilities and resources based on

the interplay between the company's internal and external environment. Customer-related resources are part of the market ecosystem of the company's external environment. Customer-related resources have been considered as the extended resources (Kozlenkova et al., 2014) and have become one source for the company's competitive advantage to be managed. Based on the perspective of cultural resource-based theory, customer resources are defined based on the patterns of meanings and experiences embedded in consumers' cultural life-worlds (Arnould et al., 2006). For example, customer knowledge development resources (Hult et al., 2007) can be used as company resource-performance relationship strengths (Kozlenkova et al., 2014).

The ERBT perspective aligns with this research on examining customer-related resources in VCC processes. As explained in Chapter 3 about the VCC process, the integration of customer resources involves operand (tangible) and operant (intangible) resources. However, VCC focuses more on the operant resources based on the S-D logic (Vargo & Lusch, 2004). Company perspectives have changed the way of communicating value by viewing customers based on their intangible capabilities of knowledge and skills (Payne et al., 2008; Vargo & Lusch, 2004, 2008b). Customers serve as the company's collaborative partner to co-create value. Customer VCC operationalisation, specifically customer operant resources in online or virtual VCC, has continued to investigate the effect of the digital revolution in human relationships (Akman et al., 2019; Frempong et al., 2020). In this research, customer VCC resources are identified through social resources and personality resources. In VCC processes, customers are the integrators by using their operant resources, including social resources (Baron & Harris, 2008; Barrutia et al., 2016; Barrutia & Gilsanz, 2012; Paredes et al., 2014) and personality resources (Aihwa, Tseng, et al., 2013; Barrutia & Gilsanz, 2012; Busser & Shulga, 2018; Yoo & Gretzel, 2011). By combining the qualitative study results to explore customer VCC and reviewing the literature on customer-related resources to co-create value, this research focuses on social resources (i.e., social expertise) and personality resources (i.e., openness to online food purchase experiences).

7.2.1.1 Customer Social Expertise and VCC Behaviour

Social resources refer to networks of relationships between individuals and others, including social class, families, ethnic groups, friendship communities and other subcultures (Arnould et al., 2006). Social relation serves as the extension of the realm of exchange in the future processes of VCC with the intervention of other parties (Edvardsson et al., 2011; Nguyen, 2017). Customer social context may enrich customer knowledge to do a specific task

(Barrutia & Gilsanz, 2012). Alba and Hutchinson (1987) define expertise as the capability to conduct product-related tasks successfully. Expertise includes cognitive structures and the cognitive processes needed to successfully perform those tasks (Alba & Hutchinson, 1987). Cognitive structures are related to beliefs toward product attributes, while cognitive processes cover decision rules to execute those beliefs. Expertise also specifies declarative knowledge about product class classification by knowing facts (Philippe & Ngobo, 1999). There are five dimensions of consumer expertise: cognitive effort, cognitive structure, elaboration, analysis, and memory (Alba & Hutchinson, 1987). In the VCC concept, customer social context can support VCC processes representing the source of personal knowledge and skills (Arnould et al., 2006; Lusch & Vargo, 2011) and may influence consumer capability (Baron & Warnaby, 2011; Barrutia et al., 2016). The S-D logic suggests that the customer social context is an essential part of initiating VCC because consumers are reliant on each other within a dynamic, vivid, and collaborative service ecosystem (Chandler & Vargo, 2011).

The focus of this research was on customer online food purchases using e-commerce. To perform the buying process, the customer has to search for information about the latest online channel, such as through social interaction with others who have knowledge and experience about this particular channel. Social expertise seems to be one of the customer resources to perform their involvement in the new channel services. Examining the knowledge that shapes customer social context from family, friends, and other social network references can elaborate the initial VCC process. Customer social context can be identified as one of customer resource to co-create value based on customer social-related resources. Customer interaction with e-commerce will not occur unless they have the required skill and expertise to undertake the behaviour (Novak et al., 2000).

In an interactive collaboration, such as VCC, the customer role plays an essential part in VCC success. This active customer role can be considered from the customer performing participation behaviour to search for information from others based on social relations (Novak et al., 2000). Customer participation in co-creation activities is presented as voluntary voluntarily to complete their involvement in dyad interaction (Yi & Gong, 2013). This VCC behaviour is related to active customer role to involve in VCC that can be categorised in two categories of in-role (i.e., participation behaviour) and extra-role (i.e., citizenship behaviour). The distinction between in-role and extra-role is related to the individual performance domain of task performance and contextual performance (Yi & Gong, 2013). Participation behaviour involves the expected behaviours that are necessary to be performed to fulfil successful service

delivery. Citizenship behaviour includes voluntary and optional behaviours that are not essential to succeed in VCC. Social construction as part of VCC is interpreted through how the involved actors interact, use, experience, act, and evaluate propositions (Baron & Harris, 2008; Lusch & Vargo, 2006; Prahalad & Ramaswamy, 2004b). Customer resources related to their expertise will affect customer online behaviour (e.g., customer involvement, exploratory behaviour) (Richard et al., 2010) and value-in-context experienced by customers (Paredes et al., 2014). Therefore:

Hypothesis 1: Social expertise has a positive effect on (a) participation behaviour and (b) citizenship behaviour when using the agri-food e-commerce

7.2.1.2 Customer Openness and VCC Behaviour

Customers are potential partners in VCC when they can validate the suitability between personal (individual) value and business practices (Grönroos & Helle, 2010). Customers specify the compatibility based on their willingness to personally correspond to such business practices and understand such practices (Busser & Shulga, 2018). Personality has been discovered to be a specific influential trait that predicts individual behaviour but can also become the constraint to content creation (Yoo & Gretzel, 2011). Personal characteristics express customer evaluation of their experience and interaction throughout the service process, which may influence value actualisation (Ferguson et al., 2010). Customer personality shows congruence with the facilitation of valuable co-creation opportunities of customers' experiences during the interaction and the consumption process (Seljeseth & Korneliussen, 2015). Customer personality also signifies a potential role in co-creation appraisal (Busser & Shulga, 2018). Therefore, customer personality has been identified as customer VCC resources based on their understanding of business provider practices.

Customer-related personality resources can be measured through customer personality traits by examining a specific customer personality trait associated with the context (Barrutia & Gilsanz, 2012). Customer openness is represented curiosity, broad-mindedness, enjoying new things, and experience (C. C. Wang & Yang, 2007). Customer openness is defined as the degree of one's willingness to acknowledge, consider, and incorporate new ideas through VCC (Busser & Shulga, 2018). Based on qualitative research findings, customer openness is considered the key access for e-commerce operations to interact and engage with consumers and facilitate the co-creation of value. Customer personality-related resources of openness also refer to customer innovativeness and openness about specific activities (i.e., openness-to-

experience). In food product purchase processes, customer openness to using e-commerce has become essential to evaluate agri-food e-commerce opportunities and success in this research context.

Customer involvement in VCC can be identified through customer willingness to present VCC behaviours (i.e., participation behaviours, citizenship behaviours), and create interaction with the business providers. Such co-creation behaviours of the customer to actively participate and voluntarily join the co-creation activities may indicate engagement in responding to the other actors in the co-creation, involving social interaction and making contributions (Yoo & Gretzel, 2011). In this research context, encouraging customers to use e-commerce for food purchases and make customers willing to participate in the co-creation may be challenging. The business provider or marketer highly depends on market intelligence from their customers derived from online comments or opinions about their products and services (Yoo & Gretzel, 2011). In the online environment, customer active role behaviour (i.e., participation behaviour, citizenship behaviour) is particularly essential to support the interaction between the company and customer with a virtual interface (Anaza, 2014; Nambisan & Baron, 2009). Thus, customer openness to knowing and experiencing new shopping platforms via e-commerce may influence their contribution within consumption experiences, which is shown through participation behaviours and citizenship behaviours. Thus:

Hypothesis 2: *Customer openness has a positive effect on (a) participation behaviour and (b) citizenship behaviour when using the agri-food e-commerce*

7.2.1.3 Customer-Related Resources and Willingness-to-Engage

Collaboration with customers requires both the company's willingness to develop co-creation efforts and consumer engagement in the co-creation activities and processes. In VCC processes, customers should possess resources to be empowered, presenting an active role to achieve VCC success. This means the customers can activate their co-creation role when there are enough resources while interacting with the company. Customer willingness-to-engage refers to the customer's voluntary willingness to invest the resources that are expected to accomplish their expectations and objectives (Fernandes & Remelhe, 2016). The suitable strategies adopted by the business providers can generate consumer willingness-to-engage in the co-creation activities (Lazarus et al., 2014). However, the business provider's willingness to co-create value may vary amongst different brands and services. By providing realistic and

practicable benefits for the consumer to participate in the co-creation, consumer willingness-to-engage can be generated (Lazarus et al., 2014). Developing strategies to increase consumer willingness-to-engage in co-creation requires resource integration of the actors involved (Prahalad & Ramaswamy, 2004b). The idea behind VCC underlying S-D logic is value-driving experience and resource integration.

Customer social resources such as social expertise (Novak et al., 2000) and personality resources such as openness (Yoo & Gretzel, 2011) indicate customer involvement in the VCC. Customer social context can improve customer knowledge (Barrutia & Gilsanz, 2012), which may generate and display customer willingness to co-create (Lazarus et al., 2014). VCC is an interactive process involving resource integration of the involved actors and willingness to contribute their resources to engage in such mutually beneficial collaboration activities (Frow et al., 2015). Different customers possess different resources, and these resources, such as customer expertise, will determine the co-creation experience and their contribution to the co-creation (Novak et al., 2000; Paredes et al., 2014). Customer personality resources will influence customer openness to experiences (Anaza, 2014) and customer willingness to participate in the co-creation (Handberg et al., 2018). Customer perceived value is a consequence of customer openness through co-determination of the anticipated impacts and the process of reciprocal and mutual learning (Domegan et al., 2013). The effort from e-commerce to engage with customers related to their resources, objectives, and expectation of value outcomes beyond purchase (Vivek et al., 2012) may influence customer involvement in co-creation (Fernandes & Remelhe, 2016). Hence, customer involvement in virtual environments such as online shopping can support such efforts from the business provider to attempt to co-create value with the customers (Nambisan & Baron, 2009). Therefore:

Hypothesis 3: *Social expertise has a positive effect on consumer willingness-to-engage with the agri-food e-commerce*

Hypothesis 4: *Openness has a positive effect on consumer willingness-to-engage with the agri-food e-commerce*

7.2.2 Customer VCC Motivation

The integration of S-D logic and relationship marketing concept can identify customer VCC that manifest the customer engagement concept. The perspective of relationship marketing is the foundation of customer engagement (Grönroos, 2011a; Gummesson, 1997), and S-D logic has been introduced as a more formal expression of this view (Vargo & Lusch,

2004). The nature of reciprocal relationships in customer engagement is conceptually relevant with VCC or joint value creation (Grönroos, 2011b). One of the fundamental premises in the S-D logic suggests that service supports the motivation for an interactive experience and network development (Vargo & Lusch, 2008b). Hence, motivational drivers can go beyond transaction into behavioural manifestation (Van Doorn et al., 2010).

VCC proposes collaborating with customers to develop the design, products, and innovation improvement (Dey et al., 2016), and customers are forever value creators (Vargo & Lusch, 2004). Customer propensity to contribute to the co-creation process requires motives to engage in such activities. Customer motivation relates to customers' goals, expectations, and resources in acquiring value outcomes (Vivek et al., 2012). Customer motivation regarding their willingness to invest a significant amount of their resources (i.e., monetary and non-monetary) such as time, knowledge, and ideas (Etgar, 2008) will contribute to the VCC process (Fernandes & Remelhe, 2016). Motivations can occur in various forms, such as monetary (Zwass, 2010), technical, social, and psychological factors (Füller et al., 2008). Customer VCC motivation includes intrinsic motives (e.g., fun, altruism) and extrinsic motives (e.g., learning, reputation).

Customer motivation to participate in VCC can signify consumer propensity towards creativity and learning, which can be specified as the circumstances to facilitate a specific type of motivation, such as intrinsic motivation and skill development (i.e., knowledge) motivation. Customer intrinsic motivation, primarily related to the motivation for its own sake (Vivek et al., 2012), is critical for customer engagement in creative activities (Fernandes & Remelhe, 2016). The tendency to search for challenges and novelty (e.g., innovation), including exercising and extending new capacities, learning, and exploring new things, is the potential source of intrinsic motivation of human nature (Ryan & Deci, 2000). Although intrinsic motivation is internalised from human evolution and the nature of human curiosity, there are situations when humans need encouragement and positive suggestions from the social environment (Engström & Elg, 2015). Intrinsic motivation is one of the key drivers for engagement in creative endeavours, such as taking part in virtual VCC can offer intrinsic rewards and cognitively stimulating behaviours (Fernandes & Remelhe, 2016). Engaging the users in leisure activities such as virtual co-creation could explain customer intrinsic motivation to involve in VCC facilitated by the virtual world (Füller, 2010). Suppose consumers value such endeavour for its own sake. In that case, it may intrinsically motivate consumers to be

involved in co-creation, including increasing the likelihood of being involved in virtual VCC enabled by digital platforms.

Customers require knowledge and skills to initiate their involvement and engagement in VCC, and such motivations are needed to acquire information and enhance consumer knowledge (Brodie et al., 2013). Cognitive motivation (e.g., skills, knowledge) can stimulate customer behaviour and intrinsic rewards to obtain an enjoyable experience and participate in virtual co-creation activities (Füller et al., 2012). Under the S-D logic, skills and knowledge are the required factors to be obtained by both business providers and customers to proceed with VCC processes (Edvardsson et al., 2011; Lusch & Vargo, 2011; Skourtis et al., 2019). The collaboration between customers and companies to co-create value is by integrating the cognitive sources (skill, knowledge) (Vargo & Lusch, 2008a) of the involved parties. The integration of cognitive sources possessed by the customer and the company can mutually advantage the exchange activities (C. Chen et al., 2017). Customers may also be motivated by a willingness to gain knowledge from technology use (Hoyer et al., 2010). Developing a highly engaged customer in virtual environments requires continuous dialogue and involvement in the social element of customer knowledge (Sawhney et al., 2005). A knowledgeable customer may accelerate the process of new ideas, which can be applied differently to create new value for all involved actors, including consumers (Fernandes & Remelhe, 2016). Therefore, improved consumer skills and knowledge may enhance their resources to be involved in VCC processes actively.

7.2.2.1 Customer VCC Motivation and VCC Behaviour

Customer participation level about the extent to which degree the customer is involved in supplying and delivering the service (Bolton & Saxena-Iyer, 2009) may differ based on initial customer motivation (Bijmolt et al., 2010). Customer motivation may involve volunteering behaviours based on a sense of citizenship to participate in collaborative activities (Engström & Elg, 2015). Consumer ability to integrate their skills and knowledge may increase customer motivation to express their VCC behaviours to enjoy the co-creation outputs (Skourtis et al., 2019). In virtual co-creation, consumers may participate in co-creation activities to seek advice and assistance from others in the online worlds (Mathwick et al., 2008). This indicates that customer motivation influences active customer participation and voluntary behaviours in co-creation activities. Hence, in this research context, customer motivation may

influence customer VCC behaviour and gain new experiences from using agri-food e-commerce. Therefore:

Hypothesis 5: *Customer skill development motives have a positive effect on (a) participation behaviour, (b) citizenship behaviour and (c) online experience when using the agri-food e-commerce*

Hypothesis 6: *Customer intrinsic motives have a positive effect on (a) participation behaviour, (b) citizenship behaviour (c) online experience when using the agri-food e-commerce*

7.2.2.2 Customer VCC Motivation and Willingness-to-Engage

Customer VCC motivation is essential to engage customers in innovation activities (Füller, 2010). Collaboration between the business provider and the consumer to employ resource integration involves specific motivation for the consumer to collaborate (Fernandes & Remelhe, 2016; Nambisan & Baron, 2009). Consumer motives related to their willingness-to-engage in VCC may differ based on the product and service context (Neghina et al., 2017). VCC enabled by online platforms has involved the Internet's role in engaging customers in behaviours and making them an active co-creator (Fernandes & Remelhe, 2016; Prahalad & Ramaswamy, 2004b). Understanding customer behaviour related to their free and voluntary participation in collaborative value creation, especially in virtual environments, can strengthen customer relationships with the company, product, or brand. Integrating or collaborating with consumers facilitated by the virtual environment will only work when the consumers are qualified and willing to participate in the VCC (Füller, 2006). Customer motivation to willingly participate in virtual co-creation can influence customer expectations towards the co-creation results (Füller, 2010). In the process, customer motivation will encourage them to share their ideas, contribute knowledge-skills (i.e., know-how), and inform customer preferences (Füller, 2006). The idea means that customer motivational drivers can be the source for customer engagement that can go beyond transaction into behavioural manifestation (Van Doorn et al., 2010). It also implies the relationships between customer motivation to engage in VCC initiatives. Hence:

Hypothesis 7a: *Consumer skill development motives have a positive effect on consumer willingness-to-engage with the agri-food e-commerce*

Hypothesis 8a: *Customer intrinsic motives have a positive effect on consumer willingness-to-engage with the agri-food e-commerce*

7.2.2.3 Customer VCC Motivation and Positive Affectivity

It has been argued that psychological, emotional, and mood arousal can determine a person's motivational and subjective state (Gibson, 2006). The affective condition can interact with reactions and mood to create emotional stimuli (Canli et al., 2004). Concerning VCC, the business provider's effort to involve the customer in a collaborative activity of product and service delivery known as customer VCC is crucially affected by customer behaviour (Chathoth et al., 2016). In the process, engaging the customer becomes crucial, and it will prompt feelings of accomplishment that increase customer assessment (Park et al., 2019; Xu et al., 2018). Based on these logics, customer motivations to participate in co-creation activities can influence their state of emotions and feelings towards the overall interaction with the business providers, including their consumption experiences (Novak et al., 2000; Rose et al., 2012; Verhoef et al., 2009). Specifically, the VCC processes stimulate positive affective reactions that enhance the customer expected values from the products and/or services (Xu et al., 2018). This research assumes that food product purchase via e-commerce is influenced by customer motivation to have different experiences of food grocery shopping instead of conducting the conventional way of food purchase from physical stores. Thus, the following hypotheses are proposed:

Hypothesis 7b: *Customer skill development motives have a positive effect on customer positive affectivity when using the agri-food e-commerce*

Hypothesis 8b: *Customer intrinsic motives have a positive effect on customer positive affectivity when using the agri-food e-commerce*

7.2.3 Customer VCC Behaviour, ViU, and Behavioural Responses

In the current world of information technologies, the active customer role in the exchange interaction with companies and the consumption process is more empowered than before (Filieri, 2013; Hoyer et al., 2010). The changes from 'passive customers' to 'active customers' have shifted customers' roles from isolated to connected, enabling collaborative

value creation (Prahalad & Ramaswamy, 2004b). VCC presents the changing of consumer role as an active collaborator to exercise their influence in the business system (Grönroos, 2011b; Payne et al., 2008; Prahalad & Ramaswamy, 2004b). Customers now have a more significant role in the value creation process by empowering such behaviours that are manifested in the interaction process referred to as co-creation (Bolton & Saxena-Iyer, 2009; Hoyer et al., 2010). Customer VCC behaviours are linked with customer behavioural roles to perform active involvement as value co-creators (T. Chen et al., 2018; Felleson & Salomonson, 2016). Although customer behavioural roles do not involve the customer buying process journey or a financial transaction, these behaviours may add value to the company (Paulssen et al., 2019) and provide a source of competitive advantage (Payne et al., 2008).

Previous research has divided customer VCC behaviours into two types: customer participation behaviour and customer citizenship behaviour. The scale for customer VCC behaviour developed by Yi and Gong (2013) proposes assessing customer-related behaviours required to represent their co-creation activities. The typology for customer VCC behaviours into customer participation behaviour and customer citizenship behaviour corresponds to the traditional management literature about employee behaviour categorised as in-role and extra-role behaviour (Yi & Gong, 2013). Customer participation behaviour refers to in-role behaviour, which can be defined as the necessary behaviour to gain VCC success. In contrast, customer citizenship behaviour (i.e., voluntary behaviour) is described as extra-role behaviour and reflects the company's exceptional value but may not be essential for VCC (Groth, 2005; Yi et al., 2011). Recent studies show that customer participation behaviour and citizenship behaviour significantly affect VCC (Dennis et al., 2017; Revilla-Camacho et al., 2015; Vega-Vazquez et al., 2013; Yi & Gong, 2013).

Based on the cognitive role theory, understanding roles focuses on the relationship between role behaviour and cognitive structure (Collier & Callero, 2005). Role theory is derived from a dramaturgical metaphor, and can explain a group of social indications that direct and lead an individual's behaviour in a specific setting (Solomon et al., 1985). The conception of consumer role in consumer behaviour related to socialisation includes consumer-specific cognitive (e.g., knowledge) and social skills (John, 1999). The development of role theory related to role behaviour is linked to psychological literature and perceives 'role as a resource' by assuming roles are experienced by cognitive structures that are simultaneously appointed as a component in the reproduction and construction of the social structure (Collier & Callero, 2005). By drawing upon this theory, the role is conceptualised as role-related stimuli

of associative networks of constructs capable of role activation. The role is activated based on the capability of responding to specific situational signs that can be stimulated without conscious awareness; then, it is repeated, and consistently activated psychological or emotional representations (Dijksterhuis & Bargh, 2001). VCC presents the changing of consumer role as an active collaborator to exercise their influence in the business system (Grönroos & Voima, 2013; Kijima et al., 2014; Oertzen et al., 2018; Zátóri, 2016). Thus, adopting cognitive role theory in customer VCC behaviours is related to stimulating customer expected role behaviour to be involved in the whole co-creation process. Customer active role may determine the co-creation success (Yi & Gong, 2013).

7.2.3.1 Customer VCC Behaviour and ViU

In terms of activating the customer role as active participants and collaborative partners, customer participation and involvement is essential in VCC. Previous studies have emphasised the essential role of customer involvement as the value creation locus in VCC processes (Grönroos & Voima, 2013; Kijima et al., 2014; Oertzen et al., 2018; Zátóri, 2016). As value creation has grown by definition, shifting from a product-centric and company-centric to personalised consumer experience, interaction – the exchange between consumer and the company has become the locus of VCC (Prahalad & Ramaswamy, 2004b). Based on the S-D logic, customer active role behaviours are critical during the co-creation process (Grönroos & Voima, 2013; Prahalad & Ramaswamy, 2004b). From this perspective, the VCC concept expresses the more connected, empowered, informed, and active consumers. VCC can offer consumers a relationship with the company on how value should be created based on their perspective. Also, the qualitative findings indicate that e-commerce provides opportunities to co-create value with customers rather than traditional retail or modern conservative retailers (e.g., supermarkets) for food product purchases. Hence, in the co-creation concept, the customer can co-construct the experience to fit his context, including creating joint problem definition and problem-solving with the company (Prahalad & Ramaswamy, 2004b).

Through this perspective, VCC is referred to as 'value-in-use' (ViU) by focusing on employing value creation over time as customers utilise the company offering (Roy et al., 2018). As explained in Chapter 3 about ViU, this component is considered one of VCC actualisation. ViU is manifested in the way actors interact, use, interpret, experience, and assess the propositions based on the social reconstruction where they belong (Lusch & Vargo, 2006; Prahalad & Ramaswamy, 2004b). Consistent with this view, ViU can be defined as an ongoing

process that comprises customer experiences, ability, and logic to capture value out of the offered products and other available resources used (Grönroos & Voima, 2013). ViU assesses the extent to which customer experience can create value and how customers feel the positive value or negative value (i.e., better-off, worst-off) of products or services (Roy et al., 2018). Customer ViU extends beyond exchange and ownership of products (goods, services), and requires customer willingness to use, fix, and manage the product proposition (Vargo & Lusch, 2004).

When the company facilitates co-creation activities, and the contributing customers perceive the co-created value positively, it may lead to a positive relationship development (Sreejesh et al., 2019). Hence, understanding VCC from the perspective of ViU means customer involvement is always required in value creation (Vargo & Lusch, 2008b). ViU accumulates over time by seeing customers as co-creators of value and not only as the recipient to determine a value (Ranjan & Read, 2016). The conception has shown the transformation of relationships between the company and the consumer by involving their ongoing experiences over time (Prahalad & Ramaswamy, 2004b). Value is co-created by the customers when they used the resources and then evaluate the invested resources based on the experience over time (Vargo & Lusch, 2008b). Therefore:

Hypothesis 9: *Participation behaviour has a positive effect on (a) customer experience, (b) relationship development when using the agri-food e-commerce*

Hypothesis 10: *Citizenship behaviour has a positive effect on (a) customer experience, (b) relationship development when using the agri-food e-commerce*

7.2.3.2 Customer VCC Behaviour and Willingness-to-Engage

User behaviours related to their participation and citizenship behaviour may generate willingness-to-engage in the co-creation activities, such as collaboration in the virtual environments. As an attitudinal concept, willingness-to-engage can be used to identify which consumers willingly shared resources with the business provider (Arnould et al., 2006; O'Hern & Rindfleisch, 2010). Customer VCC behaviour with technology-mediated services results from opportunities to develop partnerships and be more engaged with the customer (Anaza, 2014; Dennis et al., 2017; Groth, 2005). For instance, a study shows that the value co-creators' intended behaviours have a significant positive effect on the actor willingness to participate in collaborative activities (Charatsari et al., 2018). A successful VCC occurs in intense interactions between the customers and the business provider and leads to the suggestion about

the co-creation actor's willingness to interact in the collaboration (Skaržauskaitė, 2013). Customer co-creation behaviours and reciprocity reflect the extent to which the customer willingness-to-engage in collaborative activities, in turn, may generate customer engagement (Fernandes & Remelhe, 2016). The customer interaction using e-commerce reflected through their intended, voluntary, and free behaviours can influence the VCC processes and incorporate them into an integrated diagonal process. Such thinking aligns with this research context, which focuses on customer VCC based on consumer consumption experiences using e-commerce. Thus:

Hypothesis 11a: *Participation behaviour has a positive effect on consumer willingness-to-engage with the agri-food e-commerce*

Hypothesis 12a: *Citizenship behaviour has a positive effect on consumer willingness-to-engage with the agri-food e-commerce*

7.2.4 Customer ViU and Behavioural Responses

Value is co-created in use based on customer evaluation and determines the value proposition specifying their usage (Edvardsson et al., 2011; Vargo & Lusch, 2008b). As explained in Chapter 3, ViU is the VCC component or VCC manifestation rooted in reciprocal and interactive processes between the customer and the company in an engagement or active communication (Ranjan & Read, 2016). Customer experiences (Grönroos & Voima, 2013; Macdonald et al., 2011) and intensive interactions or relationships with customers (D. Ballantyne & Varey, 2006; Bititci et al., 2004; Parvatiyar & Sheth, 2001) has become the primary approach to ViU. Customers' lives are enriched by the dyadic and networked acts of their identity and beliefs (Merz et al., 2009) and generate relationships and associations with the proposition (Heinonen & Strandvik, 2009). Customer legitimization of employing the opportunity to generate subjective evaluation can create ViU (D. Ballantyne & Varey, 2006). Most importantly, ViU focuses on capturing customer-experienced value through customer active role activation (Heinonen & Strandvik, 2009). Thus, customer experience and relationship development can identify ViU (Ranjan & Read, 2016).

Experience is a manifestation of the company's products and services (Day et al., 2004) from the use-value (Edvardsson et al., 2005) and it also derives from customer ability to connect these displays across their cognitive, physical, and affective dimensions (Ranjan & Read, 2016). As intangible artefact, the experience is determined based on an emotional, empathetic, and memorable interaction that contains an intrinsic value (D. Ballantyne & Varey,

2008; Lusch & Vargo, 2006). Customer experiences can determine co-creation (Holbrook, 2005; Prahalad & Ramaswamy, 2004b), which means the sense of value is processed through the lens of customer personal experience. The experience would generate value if the offered and the obtained services were enabled to offer self-transformation (Ranjan & Read, 2016). VCC is derived from the process of learning and collaborating with customers, including adapting their dynamic and individual needs (Vargo & Lusch, 2004). The value will not be obtained not until customers have participated in the VCC activities by acquiring the product or service and using it (Sandström et al., 2008). More importantly, there is an argument that creating a compelling experience in online environments (e.g., online purchase, online shopping) can be more critical than offline environments (Novak et al., 2000). Digital technology applications for e-commerce may offer different customer experiences based on technology-mediated interaction (Verhoef et al., 2009). These online purchase experiences can be determined based on online shoppers' sensory data from various stimuli composed of visual images, text-based information, audio, and video delivery (Rose et al., 2012). The experience provided by e-commerce is the cumulative result of both the tangible resources provided (e.g., types of digital technologies, products) in the online platform and the impact of consistent exposure to the e-commerce's offer online (Rose et al., 2012).

Relationship marketing perspective comprises reciprocal, collaborative, and iterative processes of active engagement and/or communication between the customer and the object in an environment (Ranjan & Read, 2016). Relationship marketing can also refer to all activities associated with developing, establishing, and managing successful relational exchange (Morgan & Hunt, 1994). Developing relationships with customers aims to seek long-term, trusted, committed, and supportive relationships with customers (Bennett, 1996). A genuine concern and openness are the essential characteristics of customer relationship marketing for the marketer to deliver high-quality goods or services. Business providers are expected to respond to customer fair dealing and feedback or suggestions to gain long term relations (Bennett, 1996). Value is created from collaboration and relationship results from empowering the customer to generate solutions (Bonsu & Darmody, 2008).

However, value is a construct that is perceived subjectively; different customer segments have distinct value over the same product (Ulaga & Eggert, 2006). Developing a collaborative relationship with the customer can increase customer lifetime value and customer retention (Mishra & Vaithianathan, 2015). Hence, the manifestation of a relationship in the used value can occur in various forms such as engagement for collaborative resources (Zaborek

& Mazur, 2019), collaboration (Ind & Coates, 2013), reciprocity (Chandler & Vargo, 2011), and interaction within the customer sphere in co-creation (Anker et al., 2015; Grönroos & Voima, 2013).

In the context of online purchases, online relationship development is captured by online shoppers through the interactive features used or provided in the online platform to build mutual relationships with customers for a long-term goal (Lydia Gan et al., 2007). The elements to develop online relationships with customers are often employed to create interaction, personalisation, advocacy, engagement, and collaboration support (Ahn et al., 2014). Online relationships support specific elements to deliver services: reciprocity, interactivity, and synchronicity (Boateng, 2019). Thus, information technologies' ability to facilitate communication and interaction has been acknowledged as an effective instrument to maintain relationships within online environments (Colgate et al., 2005).

7.2.4.1 ViU and Willingness-to-Engage

According to the cognitive role theory, an actor's cognitive effects associated with his role in an environment are likely to be driven anytime, and behaviours such as customer willingness to cooperate with the company can be measured (Fitzsimons et al., 2008). The consumer attachment with the company may impact their willingness-to-engage in co-creation to experience the process itself (Kolomiiets et al., 2018), including the function of the ViU. The company's effort to facilitate VCC can accomplish its goal through a reciprocal response of customer willingness to co-create with the company (Lazarus et al., 2014). Customer attitude to respond favourably to the situational factors can indicate customer willingness-to-engage with the company and be involved in co-creation activities. The results of the exchange interaction between the company and customer represented in interactive experiences and interactive customer relationship in ViU are the basis for engaging consumers in the co-creation (Brodie et al., 2011), such as in virtual co-creation (Fuller et al., 2006; Sawhney et al., 2005; Shamim et al., 2017). Customer decisions to continue the interaction will depend on the company engagement to attract customer participation in the co-creation (Grönroos, 2011b; Grönroos & Gummerus, 2015). The process of influencing the customer to be involved in co-creation is, to begin with, a dialogue, which may cause customer willingness to participate and provide a positive response and enable co-creation (Shamim et al., 2017). Thus, customer active role behaviour as co-creator of value activation and stimulation through ViU (i.e.,

experience, relationship development) may influence willingness-to-engage with the company in co-creation activities. Therefore:

Hypothesis 13a: *Customer online experience has a positive effect on consumer willingness-to-engage with the agri-food e-commerce*

Hypothesis 14a: *Relationship development has a positive effect on consumer willingness-to-engage with the agri-food e-commerce*

7.2.4.2 ViU and Positive Affectivity

Emotions can be identified as the critical element to define consumption experience and consumer reactions (Babin & Griffin, 1998). Consumers may perceive different emotions over-delivering and evaluating the consumption experience. The expected output is positive emotional responses or positive affect (Havlena & Holbrook, 1986). In co-creation processes, ViU – i.e., online experiences and relationship development - may affect various emotional responses (Xu et al., 2018) and customer selections between effective alternatives that are comparable in other respects (Havlena & Holbrook, 1986). ViU, such as a successful relationship development, aims to engage with customer emotions that may influence customer cognitive behaviour (Young, 2006), including developing emotional bonds (McAllister, 1995). A study by Park et al. (2019) shows that an effective and communicative service positively impacts positive affect. The manifestation of customer ViU can create memorable experiences can also include developing emotional experiences (Prayag et al., 2017), predicted through positive affect. Emotional reactions are also found in the online interaction between a consumer and a service provider, such as identifying consumer empathy in the online interaction (Carrier et al., 2015), including consumer excitement and happiness (Park et al., 2019). Hence, it can be assumed that ViU as co-creation results has a direct influence on positive affectivity as customer behavioural responses. Therefore:

Hypothesis 13b: *Consumer online experience has a positive effect on positive affectivity when using the agri-food e-commerce*

Hypothesis 14b: *Relationship development has a positive effect on positive affectivity when using the agri-food e-commerce*

7.2.4.3 ViU and Channel Usage Continuance intentions

ViU articulates customers' experiential assessment of value propositions (products, services) corresponding to individual motivation, competencies, interest/expertise, processes, actions, and performances (Edvardsson et al., 2005, 2011). ViU-based digital-mediated platforms manifest VCC through the utilisation of various online applications and features through specific marketing programs or activities, such as social network service usage (Gao & Bai, 2014), online platform interactivity (Fang, 2012; Jeon et al., 2017), multi-channel retail usage (Melis et al., 2015), and e-retailing (Rose et al., 2012). The Internet and digital technologies have been used to develop relationships to deliver marketing signals and propose transparent communication, privacy, and security (Mavlanova et al., 2012). Such marketing programs and digital platform usage can help attract and persuade more consumers to buy or use the offered products and services. Digital marketing activities also can be used to develop interaction, engagement, collaboration, and personalisation aiming for long-term relationships with customers (Guo, 2014). This phenomenon also indicated that the increasing use of digital technologies or IT to deliver signs to customers aims to influence customer perception and behavioural intentions (Benlian & Hess, 2011).

The interactive relationships between customers and companies in the online world have been identified as the predictor for customer behavioural intentions (Fang, 2012; Gao & Bai, 2014). The customers' ViU from such online interactions with the company could also influence customer behavioural intentions (Jeon et al., 2017). The manifestation of interactivity and communication between customers and business providers can vary in forms, such as questions, feedback, comments, and responses (Fang, 2012). Customer positive perceived usefulness on experiencing the online platforms, which possibly indicates the ViU, can increase customer usage continuance intentions, such as social commerce usage continuance (Gao & Bai, 2014).

In this research context, the success of agri-food e-commerce channel usage may require further confirmation concerning consumer intentions to continue using this new channel or use other alternatives. Behavioural intentions have been discovered to be good predictors of actual behaviour, such as purchase intentions in the e-commerce platforms (Mavlanova et al., 2016) and social network site continuance intentions (Chiu et al., 2013; Gao & Bai, 2014). This actual behaviour includes understanding factors that influence consumer continuance intentions (Gao & Bai, 2014). Developing future user behaviour such as loyalty and retention aims to maintain e-commerce (including social commerce) success since the

business providers have invested resources and effort to run the business (Gao & Bai, 2014). In this research, customer continuance intentions to use this new agri-food e-commerce are essential to identify customer ViU based on channel usage intentions in the future. Based on the discussion mentioned above, the following hypothesis proposes that:

Hypothesis 13c: *Online experience has a positive effect on continuance intentions to use the agri-food e-commerce*

Hypothesis 14c: *Relationship development has a positive effect on continuance intentions to use the agri-food e-commerce*

7.2.5 Customer Behavioural Intentions as VCC Consequences

Customer attitude towards the products, brand, or services develops based on the previous product purchased or service experienced. Producing such attitudes could undergo a cognitive decision-making process related to customer decisions to stay and continue or stop using the products or services (Colgate & Lang, 2001). The attitude refers to behavioural intentions, which can be defined as an affirmed likelihood to be involved in a specific behaviour (Oliver, 2010). Based on expectation-confirmation theory (Oliver, 2010), which has been adapted from the consumer behaviour literature by focusing on continuance intention behaviour, perceived usefulness, and satisfaction can determine user continuance intentions. Previous studies have tried to examine continuance behavioural intentions by integrating the expectation-confirmation theory and usage of the information system (IS) to theorise the usage continuance (Bhattacharjee, 2001; Gao & Bai, 2014; M. M. Wang & Wang, 2019). Bhattacharjee (2001) proposed the expectation-confirmation model applied in the IS to clarify user satisfaction based on confirmation and perceived usefulness on usage continuity. Identifying continuance behaviour from the individual user's perspective can be a survival source of B2C relationships (Bhattacharjee, 2001). Therefore, this theory aims to explain two main factors regarding satisfaction: the post-purchase indicator and continuance to represent the repurchase decision-making process. By borrowing the expectation-confirmation perspective, this research examines behavioural intentions (continuance intentions, WoM intentions) by integrating this theory with customer experiential assessment and customer psychological responses over co-creation activities. Hence, this research measures customer behavioural intentions based on customer ViU and positive feelings (positive affectivity) by using e-commerce for food product purchases.

7.2.5.1 Customer VCC Behaviour and Behavioural Intentions

In VCC activities, customer participation determines actual customer behaviour and their behaviour in the future. The customer co-creation behaviours interacting with the business provider might entail customer-to-customer (C2C) WoM. The WoM presents a result of C2C sharing and interaction (Healy & McDonagh, 2013) and is essential to measure performance (W. G. Kim et al., 2001). Customer interaction with the company, which involves utilising the company's resources (e.g., people, technology, processes) in creating and delivering the company's offerings can directly influence customer behavioural outcomes, such as WoM (Bolton & Saxena-Iyer, 2009). In the online interactions, customer WoM can be the source of C2C helping behaviour (T. Chen et al., 2018) by sharing the information with other customers or producing customer-generated content via various online platforms (Yi & Gong, 2013). Customer interaction with the company regarding people, technology, and processes in creating services and delivery reflects customer participation, which influences customer behavioural outcomes such as repeat purchase and WoM (Bolton & Saxena-Iyer, 2009). In-role behaviours (participation behaviours) and extra-role behaviours (citizenship behaviours) can represent contributory customer behaviours in co-creation activities to mediate interaction and engagement with the business provider (Nambisan & Baron, 2009; Yi & Gong, 2013). In co-creation activities, customer participation is interpreted as appreciating resource integration for its role in increasing the business provider's ability to facilitate customer VCC for themselves (Vargo & Lusch, 2008b).

The conception of behavioural intention also requires greater clarification of the relationships between continuance intention and WoM intention. It is essential to involve WoM intentions to predict future customer behavioural intentions (Ryu et al., 2008, 2010). Behavioural intentions are a significant indicator of customer future buying behaviours, including those affected by the existing customer WoM (Jani & Han, 2011). WoM is defined as informal interpersonal communication between those who consume and those interested in the company's offer of products or services (Jalilvand et al., 2017). WoM can be involved in the communication about the products or services and information about the company itself amongst the customers (Shi et al., 2016). WoM is also a valuable predictor of consumer purchase decision making of products or services (S. Ng et al., 2011). Positive WoM indicates customer loyalty and increases the customer opportunity to buy what the company is offering (Yi & Gong, 2013). Studies of WoM in marketing subjects suggest a general understanding that customers who feel comfortable with the relationships with the companies or business

providers are likely to participate in the WoM activity (Shin et al., 2014). Some argued that engaging customers through WoM related to customer interaction in the co-creation activities has been favourable (Balaji & Roy, 2017; Shin et al., 2014). Thus, based on the discussion mentioned above, this research proposes:

Hypothesis 11a: *Participation behaviour in using agri-food e-commerce has a positive effect on word-of-mouth intentions*

Hypothesis 12a: *Citizenship behaviour in using agri-food e-commerce has a positive effect on word-of-mouth intentions*

Hypothesis 15: *Continuance intentions to use agri-food e-commerce have a positive effect on word-of-mouth intentions*

7.2.5.2 Behavioural Responses and Behavioural Intentions

The process of VCC involves the integration of a creative, proactive, and social collaboration between the company and the customer (Martínez-Cañas et al., 2016). The process involves engagement in discussions about consumer feelings, emotions, and expectations, which can generate an intense and constructive exchange of resources, ideas, and services (Piller et al., 2010). As noted earlier, the customer may create emotions, feelings, and psychological responses over co-creation collaborative activity (Xu et al., 2018). Almost always, every human action is accompanied by specific emotions or moods. Even in an extreme situation, intense emotional experiences can influence the experience of conscious control someone has over his behaviour (Rigoni et al., 2015). The conception of positive feelings or emotion known as positive affectivity describes the reflection of a personal characteristic related to someone's positive emotional experiences (sensations, sentiments) as the consequences of interaction with their environment (Ashby et al., 1999). Positive affect can be used as an indication of a more positive assessment of the situation, which stimulates proactive behaviour (Andrade, 2005).

Previous studies show that positive affectivity positively impacts customer satisfaction and significantly enhances behavioural intentions (Park et al., 2019; Prayag et al., 2017; Rigoni et al., 2015). The emotional state can be used as a predictor for a remarkable effect on behavioural intention awareness (Rigoni et al., 2015). Emotional experiences that lead to behavioural intentions can express emotional responses (Prayag et al., 2017). The term intentions refers to the main element of voluntary movements identified as the feeling that we

are intending or planning to do (Haggard, 2005). When it comes to co-creation activities between the customer and the company, collaboration increases mutual understanding and promotes positive emotional responses to the offered products or services (Xu et al., 2018). In this research, the new food retail of e-commerce may cause different emotional experiences amongst customers, distinct from the conventional retail, which uses physical stores. Some have argued that using the Internet and communication technology for the retail industry could change the way customers experience shopping (Balaji & Roy, 2017). Following the chosen research context, examining the business continuity of agri-food e-commerce in the Indonesian marketplace has become relevant. This research tries to link this by examining customer continuance intentions to use this retail channel, which may be influenced by customer positive emotions from such memorable and satisfying food purchase consumption experiences. Hence:

Hypothesis 16: *Consumer positive affectivity when using the agri-food e-commerce has a positive effect on channel usage continuance intentions*

7.2.6 The Role of Length of Engagement in VCC Processes and Customer Age in VCC

Previous research on customer VCC emphasised several aspects as key variables moderating the links between VCC and its consequences on various factors. This research proposed examining customer characteristics concerning the length of engagement in VCC processes and customer age to moderate the relationship between customer VCC and outcomes.

7.2.6.1 The Length of Engagement in VCC Processes

The co-created value resulted in interactions between the company and customer in a collaborative action that mutually benefits each party. The manifestation of VCC in ViU (Ranjan & Read, 2016) can be occurred by engagement and involvement, including the integration of consumer resources (e.g., knowledge) (Prayag et al., 2020). Customer ViU, such as the co-created experiences, provides the way customers engage physically, emotionally, and socially can influence the consumption experience of products and services (Carù & Cova, 2003). However, consumption experiences have become a challenge in online purchase experience and retail shopping related to the task risk and complexity that are relatively high in this context (as demonstrated by (Mathwick & Rigdon, 2004; L. C. Wang & Hsiao, 2012)). Here, understanding customer engagement as an essential part of the VCC process to represent customer interaction, co-creative experiences, and relationships should be considered.

The customer engages in the co-creation activities in different ways, varying on activity type (Roberts et al., 2014). In the context of food-related experiences (e.g., culinary consumption), engaging customers in VCC activities can be influenced by customer prior knowledge and motives that will shape customer evaluation of the products and services (Prayag et al., 2020). The motives to engage in such activities are attributed to many factors, such as consumption motives, and personal orientation, and determined by economic, social, altruistic, and/or hedonic motives (Etgar, 2008). Digital consumer engagement can occur in various approaches and practices (e.g., learning, fun, feedback) (Eigenraam et al., 2018). Various drivers of customer engagement support the concept of customer engagement constructs as a psychological state that is conceptualised as multidimensional (emotional, cognitive, behavioural) dimensions (Brodie et al., 2011). The online environment provides numerous venues for customer engagement with a brand or a company (e.g., customer reviews, experiences). The company can benefit from this by creating personalised and interactive marketing (Kumar et al., 2010). This shows that engagement length can influence customer involvement and make a contribution to the VCC process during consumption experiences.

Previous research has examined customers' engagement in the virtual brand community characterised by the frequency or length of the user visits to the online community (Brodie et al., 2013). One note from this study is that the length of engagement with customers is influenced by how many times they have used the product or service. Product or services usage frequency is one prominent customer behavioural characteristic (Sousa et al., 2008). The triggers of specific customer engagement can cause customer engagement sub-processes, such as identifying customer purchase or consumption decision making (Brodie et al., 2013). The success of online purchase depends on increasing use and consumers' initial decision to use the channel for purchasing (C. Liu & Forsythe, 2011). This implies that a customer who tries the product or service for the first time may have different consumption experiences and involvement in the VCC process from those who have used it several times. Customers who try the product or service for the first time, referred to as novice or inexperienced customers, have little knowledge and cannot yet presenting the consumption experience (Clarkson et al., 2013). Customers who regularly use the product or service, i.e., experienced or returning customers, have experienced the product or service and know the basic consumption experiences. Previous research has also examined the significant relationship between the frequency of use of products and services and customer experience. Sousa et al. (2008) studied the relationship between customer experience and frequency of use in relation to the online

channel quality dimensions. This study emphasised service quality on websites and employs frequency of use as the indicator for customer experience pattern. Thus, the customer role in the co-creation process regarding their interactions and participation could be different between new customers and returning customers.

Previous research also investigated customer engagement based on the duration or length of the consumption experience. For example, a micro-cultural analysis examined the consumer role between novice and expert customers related to their interactions and behaviour in the food consumption context (Sirsi et al., 1996). Previous research showed that these two types of customer groups have different online purchase behaviour regarding the use of information systems determined by usage frequency and the nature of search (King & Xia, 1997). Rodgers et al. (2005) revealed the relationship between online satisfaction and online loyalty, which is stronger for high-experience consumers than for low-experience consumers. Consumers familiar with the product or service can go straight to being actively involved in experiencing the product or service consumption, whilst new consumers may have distant feelings to being immersed in the experience (Carù & Cova, 2006).

However, few studies have empirically investigated differences in the length of customer engagement in VCC processes between regular (returning) customers and new (first-time) customers subject to customer consumption experiences using e-commerce. Mainly, limited research has been conducted concerning customer VCC resources, motivations, behaviour, and actual behavioural outcomes moderated by the length of customer engagement in VCC processes. The S-D logic suggests that the co-creation process involves customer resource investment of skills, knowledge, psychological inputs, and time (Chathoth et al., 2013). According to the S-D logic, every consumer is a value-creator and a resource-integrator (Vargo & Lusch, 2008b). Companies can motivate consumers to participate in the co-creation activities (J. Williams & Aitken, 2011). Customers evaluated the obtained values (ViU) through experience and relationship development (Ranjan & Read, 2016) and compared what they invested and received within the exchange-based relationships (Adams, 1963; Zeithaml, 1988). Businesses need to behave in accordance with the value that motivates the targeted consumers, which vary based on consumer concerns, such as product ethics, freedom of choice, and curiosity (Martínez-Cañas et al., 2016). In the co-creation process, the interactions and exchange between the company and customer aim for mutual benefits. During the process, co-creation activities develop mutual understanding among parties and prompt positive emotional responses to the company's service (Haumann et al., 2015). The length (or duration metrics) of

engagement will increase customer behavioural intentions, such as WoM intentions (Dagogo-Jack et al., 2020). Therefore, although online purchases have become more prevalent in this digital era, the length of customer engagement in VCC processes through online purchases, specifically in the food consumption context among developing economy consumers, can differ between first-timers and regular customers. Therefore:

Hypothesis 17: *the length of engagement in VCC processes (i.e., first-time customers, regular customers) moderates the relationships in hypotheses 1-16.*

7.2.6.2 Customer Age

Demographic information is commonly used to determine consumer segments and targets (McCarty & Shrum, 1993). Individual demographic profiles primarily tend to show different internet shopping (or purchase) behaviours, and e-business providers have used this information for consumer segmentation and improved their performance (C. Kim et al., 2012). A closer assessment of users' demographic profile's moderating effects presents interesting patterns (Sharma et al., 2012). Consumer socio-economic characteristics (e.g., age, gender, income, education) have shown moderation effects on consumer perception, attitudes, behavioural intentions, including actual shopping behaviour (Ganesan-Lim et al., 2008; C. Kim et al., 2012; Mittal & Kamakura, 2001; Papagiannidis et al., 2017). Specifically, previous literature suggested the factor of age had a moderation effect on customer experience, purchase motives, and various co-creation behavioural outcomes (e.g., behaviour, customer perceived value) (Herrando et al., 2019; Memery et al., 2015; Sharma et al., 2012; Shulga et al., 2018).

In the current digital era, the emergence of e-commerce using social commerce and the application of this channel for online or mobile shopping (m-shopping) among consumers also affects different ages groups. Previous studies have used customer characteristics related to age to examine different consumer behaviour related to online or mobile shopping. For example, a study examined age differences (i.e., young adults below 25 years old and adults above 25 years old) in subjective norms, consumer satisfaction, and WoM in mobile shopping (San-Martín et al., 2015). Another study examined mobile phone adoption among young people (teen users aged 13 to 20) related to their motivations and behaviour to use a mobile phone, which contributes to strategy development for mobile phone designs based on users' expectations and needs (Ansari et al., 2012). Sharma et al. (2012) investigated age as the moderator of the retail service evaluation process concerning customer sacrifice, perceived value, and satisfaction. Bilgihan (2016) analysed the effect of a specific age group of

Millennials (people born between 1981 and 1990) on channel features (utilitarian, hedonic) and experience, trust, loyalty in online shopping (e-loyalty). Although this research does not explicitly use age as a moderator, differentiating customers based on their generation cohorts can be assumed to represent customer categories based on their age.

The moderating effect of the different age groups of end-users or consumers on using digital technology such as for Internet or mobile or online shopping may present different results. Different consumer age groups have a different time horizon perspectives, and different goals to pursue that can influence different consumer perceptions on the meaning of value (Memery et al., 2015). Different customer segments characterised by their age indicate different consumers' attitudes, interest, and shopping behaviours (Herrando et al., 2019; Parment, 2013; San-Martín et al., 2015). Adult customers tend to appreciate friendly and thoughtful service, leading to a higher requirement for quality interactions in services (Ganesan-Lim et al., 2008). The adults' own experience from online shopping can increase their satisfaction and intention to share this experience with others, such as through WoM (San-Martín et al., 2015). They are also likely to consider health, which can reflect health provision, such as how they value health and food products (Angell et al., 2012). Therefore, adults may want to try this way of food shopping to fulfil their needs. Some argue that the older generation tends to use online channels less intensely and still use different types of shopping channels, such as traditional channels, to fulfil their needs (Sousa et al., 2008).

Younger consumers (e.g., students) play an essential role in online (or Internet/mobile) shopping. Younger customers tend to have a deeper involvement in Internet use for daily life. They live as a technology-savvy group (Bilgihan, 2016) and are more familiar and experienced with the Internet (San-Martín et al., 2015). Younger consumers also tend to use digital technology such as mobile phones as an effective way of shopping due to consumption experience, purchase experience (e.g., search, evaluation, possession), and post-purchase experience (e.g., convenience) (Mahapatra, 2017). However, in product purchasing, these consumers tend to be less experienced and are categorised as low-income consumers, unlike older consumers (C. Kim et al., 2012).

However, little empirical evidence has supported the moderation effect of customer age on VCC determinants related to motivations and resources on co-creation behaviour and its behavioural outcomes. Limited research also has been conducted on examining different age cohorts contrasting the older and younger customers related to the causes and effects of customer VCC facilitated by digital technology, as investigated in this research framework.

Previous studies rarely investigated the direct contrast between older and younger consumers, such as the motivation to buy food and health products (Memery et al., 2015), relevant to this research context. Previous research examined different age groups and they tended to have different characteristics and had different perceptions on customer VCC circumstances (e.g., perception, involvement, behaviour, and outcomes) (Herrando et al., 2019; Sharma et al., 2012; Shulga et al., 2018). A contemporary study indicates that consumer involvement in VCC initiatives can increase their participation behaviour (Jiao et al., 2015). Also, consumer purchase experience through the new generation of e-commerce, such as using social media and Web 2.0 or social commerce, shows different online shopping behaviour compared to traditional e-commerce. Social commerce applications for online shopping propose user participation, interaction, and involvement to generate content and information sharing with other users to achieve greater value (Z. Huang & Benyoucef, 2013). Previous research has indicated that users' adoption of technology is not merely to use the technology but to obtain the benefits of technology appropriately to the user needs and lifestyle (Ansari et al., 2012). As discovered in the qualitative research, social network sites (e.g., social media, instant messenger) plays an essential role in promoting agri-food e-commerce and selling its products in Indonesia. These studies provide insights on the importance of age on appropriation and motivational factors in relation to technology products to fulfil consumer individual needs and lifestyles. Hence, controlling for moderating variables will give a more comprehensive insight.

The first qualitative study (see Chapter 6) indicated that customer characteristics such as age were used by e-commerce as the criteria to determine the targeted market. For example, the e-commerce entrepreneurs stated that working women in big cities with hectic daily activities might prefer to use online shopping to fulfil their needs (e.g., daily food and grocery purchases). They have less time to do in-store shopping, such as going to the market (e.g., traditional markets, supermarkets). This may assume that different age ranges of consumers may be influenced differently towards food product online purchases. Previous studies focused on emerging market consumers (e.g., India, Malaysia) involved the moderation effect of consumer age on using digital technology for online or mobile shopping (Mahapatra, 2017; Mansori et al., 2012). The results showed different effects on each consumer age segment. This shows that different consumer ages in emerging markets also have different characteristics and behaviours towards Internet (or online or mobile) shopping. In this research context, Indonesian urban consumers, as the case selection, represented emerging market consumers, where agri-food e-commerce mostly operated. This research assumes that the older generation

has begun adopting new shopping channels using e-commerce. In contrast, members of the younger generation tend to adopt such e-commerce from an earlier age and use the Internet more fully as a habit. As noted earlier, the qualitative research information also provides another justification for examining consumer age cohorts concerning the hypotheses built in this research. Therefore:

Hypothesis 18: *Age (i.e., adults and young adults) moderates the relationships in hypotheses 1-16.*

7.3 Quantitative Research Methodology

This second study employed a quantitative methodology as part of the final research design used in the thesis. The research is designed as causal research to determine causality (cause-and-effect) relationships by testing theories through specific hypotheses by collecting data to support or reject the hypotheses (Malhotra, 2010). The research methodology used for this quantitative research is discussed in the following subsections.

7.3.1 Surveys

Quantitative research applies surveys as data gathering techniques. Surveys are widely known within social science research with a positivist approach. Surveys were selected to address the research objectives on testing the hypotheses on the observed variables based on the theories adopted in this research context. Survey design provides numeric or quantitative data by analysing a sample of the population (Creswell, 2014). As a data collection technique, surveys require a large number of participants (respondents) concerning their characteristics, opinions/attitudes/beliefs, experience, expectations, knowledge and present or past behaviour (Neuman, 2014). Surveys usually acquire primary data gathered from the answered questionnaire to answer the research questions (Mohapatra & Sreejesh, 2014). Most researchers use surveys as a data collection technique following the process by asking the same questions to the respondents (Neuman, 2014). Survey design may ask many questions at once to measure a series of variables. Thus, it allows us to gather a range of descriptive information and examine multiple hypotheses (Neuman, 2014). Based on the sample's data analysis results, the researcher can make claims or generalise to the population (Creswell, 2014). Survey methods have advantages and drawbacks. The benefits are (1) the questionnaire used for surveys offers a simple data collection to administer; (2) more reliable data can be obtained due to limited alternative stated responses in the questionnaire; and (3) a relatively simple data coding,

analysis, and interpretation (Malhotra, 2010). Yet surveys also introduce some disadvantages related to (1) the possibility of ensuring the respondents willingly provide accurate information, (2) providing fixed-response alternatives and structured questions for specific types of data regarding beliefs or feelings may incur a loss of validity (Malhotra, 2010). However, surveys are considered to be a more efficient, accurate and quick technique than other data collection techniques to assess the targeted population (Zikmund & Babin, 2010).

Surveys are also widely used in consumer behaviour towards foods. As far as this research context concerned, some related studies also pay attention to the impact of food in general or, more specifically, on fresh produce consumption and buying behaviour to provide insights into contemporary marketing theory (Ali et al., 2010; Farruggia et al., 2016; Koutsimanis et al., 2012; Liang & Lim, 2011; Sangkumchaliang & Huang, 2012). The survey technique is appropriate to study self-reported behaviour and beliefs (Neuman, 2014). Surveys are also the most common approach used in marketing subjects for primary data collection (Malhotra, 2010). For these reasons, the survey is appropriate for this research.

There are various types of survey as research methods. They can be classified based on the degree of structure, the amount of disguise present in questionnaire design, and communication mode (Mohapatra & Sreejesh, 2014). Based on the degree of structure and disguise in questionnaire design, surveys are categorised into structured, unstructured, disguised, and undisguised surveys (Mohapatra & Sreejesh, 2014). Based on the communication mode, they can be classified into personal (face-to-face), telephone, self-administered and mail surveys (Mohapatra & Sreejesh, 2014). With the emergence of today's advanced ICT for conducting research, internet-based and online surveys offer another option commonly used to collect consumer data (Szolnoki & Hoffmann, 2014). The choice of applying a specific survey sampling method depends on the research goal, topic, budget, or survey resources (Szolnoki & Hoffmann, 2014).

This research employs a mixed-mode survey design by combining personal (face-to-face) and online surveys to approach the respondents with online self-administered questionnaires. The questions are designed and structured as a formal questionnaire. The questions are prepared in a prearranged order (D. R. Anderson et al., 2017). This means the process of collecting data is direct (undisguised). The face-to-face approach was conducted via malls-, schools- and street-intercept. The internet or online Web surveys are applied by recruiting respondents and announcing the invitation through online platforms. The targeted

participants were recruited by sending an invitation to a mailing list group, social media, and online chat/messenger.

Both face-to-face and online surveys have key strengths and weaknesses. Face-to-face surveys are based on individual interaction, and it opens to control the survey environment (Szolnoki & Hoffmann, 2014). These types of surveys are flexible, structured, and adaptable (Szolnoki & Hoffmann, 2014). However, there are some drawbacks of using face-to-face surveys, such as them being more costly than telephone, mail, and internet surveys (Szolnoki & Hoffmann, 2014; Zikmund & Babin, 2010). The online surveys have higher speed, lower cost, flexibility, and do not require the surveyor to be present (Szolnoki & Hoffmann, 2014). However, relying on such modes may require willingness and initiative from target respondents to participate in the survey and self-selection bias (Malhotra, 2010).

In the context of food consumer research, in this case, online food shoppers in Indonesia, both traditional face-to-face and online surveys are considered appropriate for the research. There are several reasons for selecting both face-to-face and online surveys. First, based on the interviews from study 1, the information indicated that agri-food e-commerce is a new type of food retailing operated amongst urban communities in Indonesia in the last three years. This led to the assumption that not many people had tried to experience agri-food e-commerce channels to buy fresh produce. Second, the questionnaire distribution's effectiveness to the target population by entirely relying only on face-to-face surveys may have incurred extra cost compared to the online surveys.

The combination of two-mode communication of surveys is another way of facilitating the search for the targeted respondents. The surveys cannot entirely depend on online surveys due to limited access to the target population's online source with specific criteria. The two types of survey approaches may enhance the non-coverage of the population members that could not be reached by online strategy or vice versa. Moreover, using these two approaches may enhance the probabilities of all units in the targeted population being chosen as a participant. Due to the constraints regarding non-response and non-coverage, the mixed-mode system for contacting respondents offers better opportunities to compensate for the weakness of individual mode (De Leeuw, 2005). Thus, both face-to-face and online surveys can reduce the bias of disadvantages by only using a single survey approach. These two modes of survey techniques may adapt to the research situation and context by increasing the representation population of online consumers who purchase vegetables in Indonesia's urban communities.

7.3.2 Sampling Design Process

Sampling is a vital research process to mapping the target population sampling units and to provide the amount of information or data on the chosen topics of interest. Five steps that can be followed as the process for sampling design are as follows (Malhotra, 2010):

1. Defining the target population (*specifying the elements or objects to be observed*)
2. Sampling frame (*the set of directions or sources to identify the respondents*)
3. Sampling technique (*the methods to approach the targeted respondents to participate in the study*)
4. Sample size (*numbers of the required respondents*)
5. Data collection execution (*the process of data collection*)

Discussion of each data sampling process is presented in the following subsections. A further explanation also addresses each stage's obstacles and the relevant constraints to obtain the best quality data.

7.3.2.1 Target Population

Defining and specifying the target population is the first step for sampling design. Revisiting the research context (vegetables sold online) and Indonesia's survey location, specific criteria were developed to meet the required respondent demographics and behavioural profiles. After selecting the survey location, the requirements for selected respondents are as follow:

1. Older than 18. It was assumed that people over 18 years old were either beginning their life at work or as college students. They are categorised as being economically active and possibly have individual decision making for daily needs such as food.
2. The participants should be citizens of Indonesia and live either in the city of Bandung or Jakarta Special Capital Region. The justification for selecting these two cities for the survey coverage area is explained later.
3. People who were self-identified as individual food shoppers responsible for purchasing food such as vegetables for either individual or household needs.
4. People who had recently bought vegetables from agri-food e-commerce (e.g., via social media, instant messenger, websites, mobile apps). The word “recently” was defined as the most recent experience in the past month for the person of buying vegetables online where participants could recall the detail of buying experience.

The survey was conducted in two major cities in Indonesia, namely Bandung and Jakarta Special Capital Region. The following process to specify the target population was used to decide the survey coverage area. These two cities are metropolitan cities with heterogeneous consumer characteristics. Bandung is the capital city of West Java Province and Jakarta is the country's capital. The two cities are part of the growing urban population in Java Island, the most populous island in Indonesia. These cities are the centre of economic activities and urbanisation targets in the country. About 73% of the West Java Island's population lives in the urban area, while the whole Jakarta area is designated as an urban area (Deloitte, 2015). Consequently, the two cities represent Indonesia's urban population and are the centre of government and economic activities (e.g., commercial and trading). Primarily, these two cities provide the criteria for research based on:

- a. The interviewees, who were the vegetable producers and intermediaries, in the first qualitative study guided the mapping of the targeted selling and marketing of their vegetable products to these two cities.
- b. The data gathered from study 1 reveals information about the two cities receiving vegetable supplies from various vegetable production centres in Indonesia. Also, urban farming has begun to be prevalent in these areas, and some of the urban farmers are suppliers for agri-food e-commerce.
- c. After locating the agri-food e-commerce operation area, especially for those selling vegetables, using keywords from the internet (e.g., social media, websites, and mobile app stores search), this e-commerce type mainly operated in big cities, specifically Bandung and Jakarta Special Capital Region. There was a more significant likelihood that more people in these areas had used e-commerce to purchase vegetables compared to other cities in Indonesia.
- d. Both cities provide a variety of retail outlets. There were traditional retail (e.g., wet markets, small stalls (*warung*), street hawkers) and modern conventional retail (e.g. minimarkets, brand stores, hypermarkets, supermarkets), and digital retail (e.g. electronic chain stores, non-chain individual electric chain) (Ho & Song, 2017).
- e. Bandung and Jakarta are two out of the four greater metropolitan areas besides Surabaya and Semarang (McKinsey & Company, 2018). As the centre of economic and government activities, the two cities have now grown in terms of the food service business opportunities, such as hotels, restaurants, cafés, catering, and agri-food e-commerce.

- f. Indonesia has the highest number of social media users globally. The two cities of Bandung and Jakarta were two of the top six twitter-using cities worldwide in 2017 (McKinsey & Company, 2018). This shows that the internet-use awareness in the two cities is higher than in any other region in the country, which is relevant for this study on agri-food e-commerce.

7.3.2.2 Sampling Frame

The second requirement in data sampling is designing the sampling frame of the study. A sampling frame is a list or specific specification of the sampling unit selected for a population sample (Lohr, 2010). Ideally, a researcher has a list of the elements or all the population members that recorded the sample. However, this is not always the case in a real-life research situation. It was challenging to develop a sampling frame for this particular study. For this research, the number of people who can purchase vegetables from e-commerce and live in the two selected cities of Bandung and Jakarta was challenging to define. The agri-food e-commerce that sold vegetables is a new type of modern food retail channel in Indonesia, including in urban communities. There were no data sources available on the list of consumers who use agri-food e-commerce to purchase vegetables online in the two selected cities of the survey coverage area. No source of data regarding the list of agri-food e-commerce names who sold vegetables online was available. Hence, it was challenging to compile a list of consumers as the sampling unit readily used for the sampling frame.

7.3.2.3 Sampling Methods

Given that nothing was known about the Indonesian urban consumers' population who buy vegetables from e-commerce (as a new food retail channel), a random sampling approach based on a finite population is not suitable for this research. It was impossible to contact each consumer who buys vegetables from this channel or has experience of doing so. For these reasons, this quantitative survey employed homogenous convenience sampling. Unlike conventional convenience sampling, which is not intentionally constrained by the sampling frame based on social-demographic background, homogenous convenience sampling is purposefully limited to the sampling frame for social-demographic features (Jager et al., 2017). Therefore, the target population is narrowed to a specific socio-demographic sub-group. The qualifying sample is homogenous for the following criteria (see subsection 7.3.2.1):

- Age (i.e., older than 18)
- Location (i.e., Bandung, Jakarta Special Capital Region)
- Type of shopper (i.e., individual food shopper); and
- The online shopping experience for food (i.e., people who had recently bought vegetables via e-commerce).

The advantages of using homogenous convenience sampling are its clearer generalisability than a conventional convenience sample, and a more homogeneous sampling frame may reduce the chance of bias in sampling (Jager et al., 2017). This study's convenience sampling application was selected for its advantages of being least expensive, easy to measure, more accessible to the sampling unit and being a more suitable sampling method (Malhotra, 2010). Nevertheless, there are disadvantages of taking convenience sampling related to bias because the sample selection presumably represents the total population or non-responding units (Lohr, 2010). Another limitation is projecting the results beyond the specific sample for generalisation purposes (D. R. Anderson et al., 2017; Zikmund & Babin, 2010).

However, testing theoretical relationships from a relatively homogenous group of people (e.g., consumer studies) has essential advantages for validation and theory testing (Calder et al., 1981). Given that the research's objective was for theory testing to examine the significance and magnitude of the hypothesised relationships amongst the observed constructs in the proposed model, generalising the results to an overall population may not be needed. Thus, a convenience sample may be adequate to achieve this research's aim (Filieri & McLeay, 2013; He & Li, 2010; A. C. C. Lu et al., 2014). The use of convenience sampling for marketing studies that apply for the SEM approach has been frequently used in practice (R. Ballantyne et al., 2011; Gallarza et al., 2016; A. C. C. Lu et al., 2014; Ramkissoon et al., 2013). Based on these arguments, the collected data was appropriate to test the proposed model and relationships.

The respondents were conveniently recruited using (1) networking and broadcast on social media, (2) members in the instant messenger groups and mailing lists, (3) mall-intercept, (4) street-intercept. The first and second technique are electronic methods. This research used a list of social media networks, namely Instagram, Facebook, LinkedIn, and Twitter, for recruiting the potential respondents for the online survey. The online questionnaire's link address was shared and distributed via these social media platforms by adding an announcement to participate in the survey. The social media broadcast specified people who

can join the study and descriptions of the target respondents' criteria. People connected in the same network were also asked to voluntarily forward or re-share the message to their networks. This aimed to broaden the opportunities for other respondents that fit the criteria to participate. The same strategy similarly applied for contacting target respondents via instant messaging apps (e.g., WhatsApp, Line) and mailing lists.

The mall- and street- intercept were categorised as face-to-face surveys. In the mall-intercept personal interviews, respondents were intercepted while shopping in the malls or waiting in the prayer room area. Most Indonesian people are Muslim, and they pray five times a day, including two times in the afternoon and the evening. Hence, there was an opportunity to approach the target respondents while they finished praying at the shopping malls' praying room. The street intercept was conducted office and school areas (where parents are usually waiting for their children). The surveyor intercepted people who were passing by in the streets near the office spaces. These locations were strategic places to locate the targeted customers of e-commerce, based on the information from the qualitative data about the e-commerce customers' profile. Some respondents were willing to participate but some of them requested to do the survey at home at a convenient time. For that, the target participants were asked for their contact details (via email or phone number) to follow up on their participation and share the link to the online questionnaire. To increase the response rate, a prize draw was offered for the participants. However, due to budget limitations, only 100 e-money vouchers were provided for the participants who won the prize draw.

By reviewing the context and the condition of the target population, this study can be considered to have an infinite population. This makes it impossible to develop a sampling frame to draw up a list of its number and elements. The infinite population in this research means the target population's elements are being generated by an ongoing process that operates over time (D. R. Anderson et al., 2017). In this population, statisticians recommend selecting a sample with two conditions (D. R. Anderson et al., 2017). First, each sample chosen comes from the same population. Second, each sample is selected independently. The first condition assumes that the customer buying process is ongoing. The sample selection requires samples from people who fit the research criteria to ensure they come from the same population. As long as the surveyor selects the sample from the people who make vegetable purchases through e-commerce, it means the first condition is satisfied (D. R. Anderson et al., 2017).

The purpose of the second condition is to avoid sample selection bias. The sample selection bias can be prevented by ensuring that the selection of respondents does not affect

the selection of any other targeted respondents that would be likely to exhibit similar characteristics (D. R. Anderson et al., 2017). For this study, the sampling unit was people who have ever purchased vegetables from the e-commerce (which operates either via social media, instant messenger, websites, or mobile apps). The respondent was also self-identified as an individual food shopper who lives in one of the selected cities as the survey coverage area. Based on these criteria, the first condition made it possible to select the sample from the same population. However, it was challenging to satisfy the second condition of selecting the sample independently because of the mixed-mode survey application. It was difficult to avoid bias using a mixed-mode survey (face-to-face and online survey), such as participants are free to behave arbitrarily. The use of convenience sampling has the consequence that only participants willing to complete the questionnaires can be involved in the research. Hence, the interpretation of the results is representative only of the particular context of the research.

7.3.2.4 Sample Size

The study applies the SEM technique for data analysis. The implication using the SEM is that the number of adequate sample sizes can impact how large enough the sample can influence the models. For a general multivariate analysis with an infinite population, it has been recommended that a minimum sample size of 384 is acceptable (Saunders et al., 2007). However, there are several requirements to be considered in deciding the sample size for SEM. The factors that affect the required sample size are related to model complexity, the analysis of the outcome variables, reliability score, and the type of particular SEM models applied (Kline, 2016). The sample size calculation for using SEM with the maximum likelihood (ML) method commonly used suggests a ratio of 20:1, which means 20 samples per parameter for the ideal number (Jackson, 2003). Kline (2016) recommends a sample of 200 sample as the typical number for SEM, although this is not absolute when analysing a complex model. SEM analysis with a sample size less than 200 is not suggested unless the hypotheses draw from a small total of the population (Barrett, 2007). Based on all of these conditions to calculate sample size in SEM, nothing simple can be used as the rule of thumb to calculate the suitable size of a sample that works across all studies (Kline, 2016). Given the limited budget and the requirements discussed above, this research decided to acquire the maximum possible sample size that could be obtained. As a result, I was able to collect a total of 441 valid responses ($n=441$). Thus, the collected responses achieved an adequate sample size by referring to the above arguments.

7.3.2.5 Questionnaire Design

The next step for data collection is preparing the questionnaire. The type of questionnaire design selected can provide the necessary kind of information obtained from the respondents. While the survey employed a structured questionnaire design, there were standard features that apply. For example, the use of common vocabulary for all respondents and the format of questions has the same meaning for all, to avoid bias (Mohapatra & Sreejesh, 2014). The questionnaire was provided in a non-English language because the survey was conducted in Indonesia. The questionnaire was written in the national language of *Bahasa Indonesia*. The questionnaire was initially developed in English, then the questionnaire was translated into Indonesia's national language, which is *Bahasa Indonesia* (and back-translated for validity check of the translation). There were four parts to the questionnaire. First, it began with the screening questions. The second part consisted of the respondent's general buying profile in regard to online vegetable purchases. The third part consisted of general demographic information about the respondents (including the city they live in, age, gender, employment status, education level and monthly income). The last part of the questionnaire included questions related to the observed constructs, aiming to investigate the main topic of the hypotheses on the customer VCC model using agri-food e-commerce.

The items used to measure each observed factor were developed by referring to the previous studies investigating similar constructs and then adapting them to this research context. The constructs included in the questionnaire, scale wordings (the original scales and the modified scales used in the survey), and references used to develop the measurement scales for the variables in this research are provided in Table 7.1. All the measures were adopted based on the original scales. Before the actual survey, the questionnaires were distributed for pre-testing or a pilot test with 20 customers of e-commerce who sold vegetables. Minor corrections were made to improve the validity and statement clarity of the measurement items based on the pre-test participants' feedback. All the measures adopted a seven-point Likert-type scale—the questionnaire used in the actual survey is provided in the Appendix D.

All respondents participated via an online questionnaire facilitated by professional online survey software. The survey utilises Qualtrics provided by Newcastle University Business School (<https://newcastlebusiness.eu.qualtrics.com>). The software offers a management platform that allows the users to design, gather and analyse the collected data. The respondents were asked to fill out a self-administrated computer survey. They were

requested to complete the questionnaire online and the online link to the questionnaire can be accessed from all electronic devices such as computers, tablets, computers, and smartphones.

7.3.2.6 Data Collection Execution

The data collection required one month and 22 days, from 13.08.2019 until 03.10.2019. Two survey modes of face-to-face and online respondents' recruitment were employed and conducted in the same period. However, all respondents filled out the online questionnaire, and the results were stored in the Qualtrics database. The face-to-face mode was facilitated by three surveyors. The surveyors received short training in order to understand the questionnaires' content and how to conduct the personal interviews. They were also asked to learn and understand the questions provided in the questionnaire. After three meeting preparations for the fieldwork, the surveyors were distributed to different locations, as planned. They worked in two different cities consecutively, which became the survey coverage areas for twenty days. First, the surveyors worked in Jakarta and then they continued in Bandung. Respondents were recruited via online platforms simultaneously by sharing and broadcasting the survey on various online platforms (i.e., social media, mailing list, online chat/messenger). However, the respondent recruitment via online survey requires more time to gain more participating respondents.

Given the critical importance of obtaining good quality data, monitoring, and screening were applied periodically during the data collection process. Several iterations were performed to reach this objective. The process of screening and evaluating the collected data had to be done manually. Qualtrics sites will automatically remove the responses within two days after the survey completion. This means that a respondent has two days to complete the online questionnaire. Qualtrics stores the incomplete questionnaire in the menu of responses in progress for two days. It will automatically save and move it to the menu of recorded responses after two days. Thus, further data cleaning was necessary. Based on this monitoring, screening and evaluation, a result of 441 valid responses met the required data quality. The data collection process followed the subsequent checking and screenings steps:

- ❖ The initial checking was performed during the pilot survey after completing the first 30 responses. Only 20 responses were used for further data evaluation. About ten responses were excluded due to incomplete responses and could not pass the respondents' criteria for screening questions. The respondents who could not pass the screening questions were not individual food shoppers or had never tried agri-food e-

commerce to buy vegetables. The incomplete responses were removed because they decided to end their participation at a particular part of the questionnaire.

- ❖ The screening and checking were completed during the main survey stage following the piloting. At this stage, it ensured that responses fitted the target population's criteria and checked the responses based on the IP addresses. The used samples only come from Indonesia and two different cities, namely Bandung and Jakarta Special Capital Region IP addresses. The IP addresses from outside Indonesia and other locations outside the two cities were also removed from the dataset.
- ❖ The aim of checking the IP addresses was to ensure duplicity avoidance. Because the IP address has a unique name in the dataset, multiple responses from the same IP address were also removed.
- ❖ Detecting for the inattentive respondents was also done by checking for participants who have provided the same response to all items (e.g., strongly agree to all). Responses indicating inattentive responses were deleted and removed from the sample.
- ❖ The time that respondents have spent completing the survey was also checked. Extreme low response times can be identified as low-effort responses or having little motivation to follow the instructions or correctly interpret the item content (Buchanan & Scofield, 2018; J. L. Huang et al., 2012). The average survey completion time was 24 minutes. Given the questionnaire's length, the responses that took only 6 – 7 minutes to complete the questionnaire were discarded. This was an indication of haphazard or careless work.

Of the 812 participants entering the online questionnaire survey, a total of 371 people were removed. Thirty responses failed to pass the first screening question and were identified as non-individual food shoppers responsible for buying food for themselves or the household. About 195 responses were deleted for not qualifying the second screening question and were identified as people who were not experienced in purchasing vegetables from e-commerce. Two responses were removed for duplication, and two others for completing the survey in less than 6 to 7 minutes. About 142 responses were discarded for not completing the questionnaire to the end of the provided questions. The total number of respondents who passed the screening questions and qualified as targeted respondents was 587. This number shows that the initial response rate was 72.3%. Of those, 146 responses were discarded as significantly incomplete, or removed for duplication or being low-effort responses. The final sample of 441 had a good quality of data (n=441) and were used for further data analysis. This gave a 75.1% final response rate.

Table 7.1 Scale wording and sources

Construct	Dimension	References	The original item measurement	Item measurement used in the questionnaire	Code
Social expertise		Barrutia et al. (2016)	Overall, other customers' recommendations are an important source of information for me	Overall, other customers' recommendations are an important source of information for me when I buy vegetables online	SEP4
			I find that interacting with other users enhances my knowledge	I find that interacting with other internet users on social media enhances my knowledge about food such as vegetables	SEP5
Openness		Yoo and Gretzel (2011); Busser and Shulga (2018)	I get excited by new ideas	I get excited by new ideas	OPN1
			I enjoy thinking about things	I enjoy thinking about new ways of doing things	OPN2
			I enjoy hearing new ideas	I enjoy hearing new ideas	OPN3
			I enjoy looking for a deeper meaning in things	I enjoy looking for a deeper meaning in things	OPN4
Customer co-creation motivation	Intrinsic motives	Füller (2010); Fernandes and Remelhe (2016)	I enjoy keeping up with new ideas and innovations	I enjoy keeping up with new ideas and innovations of food shopping, such as online vegetable purchases	ITM2
			I like experiencing new and different products	I enjoy experiencing new and different vegetable products	ITM3
			I enjoy experiencing new software/apps/games	I enjoy experiencing new food shopping styles, such as buying vegetables online	ITM4
	Skill development (knowledge) motives	Füller (2010); Fernandes and Remelhe (2016)	To improve my skills in software development	I buy vegetables online to improve my skills in online food shopping	KLM1
			To test my capabilities that I use or will use in the future	I buy vegetables online to test my skills in online food shopping that I use or will use in the future	KLM2
Customer participation behaviour	Information seeking	Yi and Gong (2013)	I have asked others for information on what this service offers	I ask others for information on what this online food retailer offers	ISK1
			I have searched for information on where this service is located	I search for information on which kind of online platforms (e.g. social media, websites, or mobile apps) the online food retailer uses to make their products available	ISK2
			I have paid attention to how others behave to use this service well	I pay attention to how others behave to use this online food retailer well	ISK3
	Information sharing	Yi and Gong (2013)	I gave the employee proper information	I provide to the online food retailer proper information about my shopping list and other related personal details (e.g. shipping address, payment proof) to complete my order	ISR2
			I provided the necessary information so that the employee could perform his or her duties	I provide the necessary information so that the online food retailer can perform their duties	ISR3
			I answered all the employee's service-related questions	I answer all the online food retailer's service-related questions	ISR4

Table 7.1 *Cont.* Scale wording and sources

Construct	Dimension	References	The original item measurement	Item measurement used in the questionnaire	Code
Customer citizenship behaviour	Responsible behaviour	Yi and Gong (2013)	I adequately completed all the expected behaviours	When I buy vegetable online, I adequately complete all the expected behaviours (e.g. I follow the step-by-step instructions provided by the retailers to complete the process)	RPB2
			I fulfilled responsibilities to the business	When I buy vegetable online, I fulfil my responsibilities to the online food retailer (e.g. being cooperative, agreeing on the shopping regulations, fulfil the obligation to pay etc.)	RPB3
			I followed the employee's directives or orders	I follow the online food retailer's directives or orders	RPB4
	Personal interaction	Yi and Gong (2013)	I was kind to the employee	I am kind to the online food retailer	PLI2
			I was polite to the employee	I am polite to the online food retailer	PLI3
			I did not act rudely to the employee	I am respectful of the online food retailer	PLI4
	Feedback	Yi and Gong (2013)	If I have a useful idea on how to improve service, I let the employee know	If I have a useful idea on how to improve product and service, I let the online food retailer know	FDB1
			When I receive good service from the employee, I comment about it	When I receive an excellent service from an online food retailer, I will provide an online review	FDB2
			When I experience a problem, I let the employee know about it	When I experience a problem, I let the online food retailer know about it	FDB3
	Advocacy	Yi and Gong (2013)	I said positive things about XYZ and the employee to others	I say positive things about buying vegetables from the online food retailer to others	ADV1
			I recommended XYZ and the employee to others	I recommend the online food retailer from which I buy vegetables to others	ADV2
			I encouraged friends and relatives to use XYZ	I encourage friends and relatives to use online channels to buy vegetables	ADV3
	Helping	Yi and Gong (2013)	I assist other customers if they need my help	I assist other customers if they need my help to buy vegetables online	HLP1
			I help other customers if they seem to have problems	I help other customers if they seem to have problems when interacting with online food retailer to buy vegetables	HLP2
			I teach other customers to use the service correctly	I teach other customers to use the online channels correctly when they buy vegetables	HLP3
	Tolerance	Yi and Gong (2013)	If service is not delivered as expected, I would be willing to put up with it	If a product or a service is not delivered as expected, I put up with it	TRL1
			If the employee makes a mistake during service delivery, I would be willing to be patient	If the online retailer makes a mistake during the purchasing process or service delivery, I am patient	TRL2
			If I must wait longer than I normally expected to receive the service, I would be willing to adapt	If I had to wait longer than usual to receive the service, I would be willing to accept the delays	TRL3
Relationship development		Ranjan and Read (2016)	The firm's extended facilitation is necessary for consumers to fully enjoy the product or services	The online food retailer's extended facilitation is necessary for consumers to fully enjoy the product and services (i.e.	RSD1

Table 7.1 *Cont.* Scale wording and sources

Construct	Dimension	References	The original item measurement	Item measurement used in the questionnaire	Code
Online customer experience				delivery services, customer complaint handling, customer services)	
			The firm service the consumer with excellent hospitality and attitude	The online food retailer gives service to the consumer with excellent hospitality and attitude	RSD2
			The firm was renowned because its consumers usually spread the positive word about it in their social networks	Choosing the online food retailer because it was renowned for its consumers usually spread the positive word about it in their social networks	RSD5
		Ranjan and Read (2016)	It was a memorable experience for me (i.e. the memory of the process lasted for quite a while)	Buying vegetable online is a memorable experience for me (i.e. the memory of the process lasted for quite a while)	EXP1
			It was possible for a consumer to improve the process by trying and experimenting with something new	When I buy vegetable online, I can try or experiment with something new	EXP3
		Novak et al. (2000)	The firm provided an overall pleasant experience, beyond the “functional” benefit	The online food retailer provides an overall pleasant experience, beyond the functional utilities (e.g. to complete vegetable needs, practicality)	EXP4
			<u>Thinking about your most recent Internet shopping experience respond to the following:</u> When Internet shopping I have an enjoyable experience and feel immersed in it When Internet shopping I have never felt an enjoyable experience and feel immersed in it	When I buy vegetable online, I have an enjoyable experience, and I feel immersed in it	EXP5
Willingness to engage in co-creation		Lazarus et al. (2014)	I will collaborate with a firm for enhancing my overall experience	I will collaborate with the online food retailer for enhancing my overall experience	WLE1
			I will collaborate with a firm for enjoyment and entertainment	I will collaborate with the online food retailer for enjoyment and entertainment	WLE2
			I will collaborate with a firm to develop myself	I will collaborate with the online food retailer to develop myself	WLE3
Positive affectivity		Havlena & Holbrook (1986)	<u>Using the rating scale below (1–7 scale), indicate the feelings you had following your most recent online shopping experience:</u> Feelings 1: Unhappy – Happy Feelings 2: Melancholic – Contented Feelings 3: Annoyed – Pleased Feelings 4: Sluggish – Frenzied Feelings 5: Relaxed - Stimulated	<u>Using the rating scale below (1–7 scale), please circle the response that best represents the extent to which you experienced various feelings and the magnitude of those feelings regarding your most recent online vegetable purchases:</u> Feelings 1: Unhappy – Happy Feelings 2: Melancholic – Contented Feelings 3: Annoyed – Pleased Feelings 4: Sluggish – Frenzied Feelings 5: Relaxed - Stimulated	
					OXE1
					OXE2
					OXE3
					OXE4
					OXE6

Table 7.1 *Cont.* Scale wording and sources

Construct	Dimension	References	The original item measurement	Item measurement used in the questionnaire	Code
Continuance intentions		Bhattacharjee (2001); Gao and Bai (2014)	Given a chance, I intend to continue using it rather than discontinue its use in the future	Given a chance, how likely is it that you intend to continue using the online food retailer to purchase vegetable in the future	CNI1
			I intend to continue using it use it rather than use any other alternative means	I intend to continue using the online food retailer to purchase vegetable rather than use any other alternative means	CNI2
			If I could, I would like to continue using it in the future	I intend to continue using the online food retailer in the future	CNI3
Word-of-mouth intentions		Kim et al. (2001); Chiu et al. (2013)	I would like to introduce this product/services to others	How likely is it that you will introduce the online food retailer for vegetable purchase to others	WOM1
			I will speak favourably about this product/services to others	How likely is it that you will speak favourably about the food online retailer to others	WOM2
			I am willing to recommend this product/services to other people	How likely is it that you will recommend the online food retailer to other people	WOM3
			I am willing to encourage other people to use this product/services	How likely is it that you will encourage other people to use the online food retailer for vegetable purchase	WOM4

7.3.3 Data Analysis

For empirically testing the hypotheses, the SEM was established. The SEM is a statistics analytical technique that is extensively employed to study relationships between manifest (observed) variables and latent (unobserved) variables, specifically in the behavioural and social sciences (Foss et al., 2011), including amongst marketing scholars (Hair Jr. et al., 2014). It assesses the structure of interrelationships amongst constructs (the independent and dependent variables) demonstrated in a series of equations (Hair Jr. et al., 2014; Kline, 2016). As an extension of multivariate analysis, the SEM was chosen based on its ability as a comprehensive technique to address testing concepts and theories that consider all potential information (Hair Jr. et al., 2014). As a causal inference method, the SEM focuses on examining a theory specified by a model as the theory's representative predictors (Kline, 2016). Thus, the quality of the SEM outputs depends on whether the researcher validates the ideas. The SEM has been demonstrated to be the most efficient and appropriate estimation technique to simultaneously estimate a sequence of individual multiple regression equations (Hair Jr. et al., 2014).

As advanced statistical analysis, there are three main characteristics that consider as the advantages of using SEM compared to other statistical models (Hair Jr. et al., 2014):

1. *Estimation of interrelated and multiple dependence relationships*

Compared to other multivariate analysis, the SEM enables estimating a series of separate but independent, simultaneous multiple regression equations by identifying the structural model. A set of structural equations is the translation of the proposed relationships addressed for each dependent variable. The SEM also supports analysing multiple dependent variables, but it only allows an individual relationship between independent and dependent variables.

2. *Potential to recognise unobserved concepts in these relationships and calculated these unobserved concepts as measurement error in the assessment process*

The SEM enables incorporating latent constructs (variables), which refers to an unobserved or hypothesised concept represented by measurable or observable variables. A latent construct is measured indirectly by testing consistency amongst multiple measured variables (manifest variables) or indicators. The benefits of using latent constructs are (1) to have a better representation of the theoretical concepts

through multiple measures that can minimise the measurement error of that specific concept; and (2) to increase the statistical estimation of the relationships amongst concepts by including calculations for the measurement error in the concept.

3. Identifying and defining a model to clarify the whole series of relationships

The SEM aims to test a theory (Kline, 2016); the model demonstrates a theory. The theory describes a systematic series of relationships delivering a comprehensive and consistent interpretation of the phenomenon. Based on this, a theory can come from practices and experience that gain from observation of real-world behaviour. The SEM enables analysing both the measured variables that represent the construct (i.e., measurement model) and demonstrating how they are linked to another (i.e., structural model).

The SEM technique has two fundamental components: (1) the measurement model and (2) the structural model (Hair Jr. et al., 2014). The measurement model lies in factor analysis, while the structural model lies in multiple regression analysis. The measurement model aims to identify variables or factors that account for the variation and covariation amongst a group of indicators (Brown, 2015). Confirmatory factor analysis (CFA) can facilitate the analysis to assess the measurement model. The researcher may use several indicators for a single dependent or independent variable. The scales are integrated to estimate the relationships between independent and dependent variables in the structural model. The structural model illustrates a path model that shows the relationships between the independent and dependent variables (Hair Jr. et al., 2014). CFA is used for measurement model analysis and is then followed by the structural model analysis based on the SEM technique components.

In the data analysis application, the data was examined for the construct measurement and testing the hypothesis for each structural model path. Before the data was analysed, data cleaning was performed and screened in Microsoft Excel, SPSS 25, and IBM Amos 26. Microsoft Excel was used to remove the missing values. SPSS 25 is used to (1) test multivariate assumptions that cover multicollinearity tests, checking and removing outliers and influential factors in the model, (2) examine the measurement scale for reliability analysis with Cronbach Alpha. Further data analysis for measurement scale assessment and analysis for the structural measurement were assisted by IBM Amos 26. The IBM Amos software supports the data analysis because of its ease of use by using the available menu (e.g., point-and-click), mainly to begin with its graphic (e.g., drawing) user interface (Harrington, 2009). Although Amos has

the two core parts of Amos syntax and Amos Graphics, using Amos Graphics does not require expertise or knowledge of Amos syntax, which makes this software easy to operate (Kline, 2016). These two software packages also allow more than one option, which offers flexibility of use (Harrington, 2009).

7.3.3.1 Examining Data Suitability for the SEM

Knowing the observed data is crucial in dealing with the multivariate technique, which means, examining complex relationships that are complicated to represent simply. A rigorous examination is required to avoid substantial effects created by the data influenced by outliers, missing data, and violations of assumptions, which are compounded across several variables (Hair Jr. et al., 2014). Hence, this research uses data screening and multivariate assumption tests (tested after examining the measurement model) to obtain good data and better understand the data and the fundamental relationships. The tests for data screening are univariate and multivariate. Univariate is testing for missing data, outliers, and multivariate normality, whereas multivariate tests for multicollinearity.

A. Univariate

1. Missing data is a condition in research data caused by either error, the absence of answers by respondents or data collection or the process of data entry (Hair Jr. et al., 2014). SPSS assisted the evaluation when checking missing data in the dataset by running a descriptive statistical analysis to check the observed data's accuracy.
2. Multivariate normality and outlier assessment were employed by checking outliers and influential factors in the model using Cook's distance analysis. An outlier shows an observation that is different or unusual compared to the other data in a data set; influential observations refer to factors of the independent variable for which the value may have a powerful effect on the regression results (D. R. Anderson et al., 2017). Cook's distance measure is used to determine whether the observation is influential, and this measure uses both the leverage of observation and the residual for observation. By employing this measurement, influential factors can be detected if the value of Cook's distance measure is large because the leveraged residual is substantial (D. R. Anderson et al., 2017).

B. Multivariate

Data screening for multivariate was conducted by a multicollinearity test representing the degree to which any variable's effect can be explained or predicted by the other variables in the analysis (Hair Jr. et al., 2014). This occurs when any individual independent variable shows a high correlation with a set of other independent variables. Thus, including variables that are marginal or irrelevant can only increase the degree of multicollinearity and lead to several potentially harmful effects (Hair Jr. et al., 2014).

A Multicollinearity test refers to vertical collinearity, which is usually assessed by calculating the variance inflation factor (ViF). Collinearity is defined as a predictor phenomenon used in multiple regression models (Kock, 2015). The multicollinearity test compares the ViF scores for each predictor's latent variables with a threshold (Hair Jr. et al., 2014; Kline, 2016). A ViF score of 5 is the threshold for the covariance-based SEM (CB-SEM) (Kline, 2016). The indication of a high degree of multicollinearity can be showed by the tolerance value of ViF amongst the independent variables (Hair Jr. et al., 2014).

7.3.3.2 Confirmatory Factor Analysis (CFA) for the Measurement Model

CFA is one type of measurement model in the SEM technique. CFA allows the examination of each scale item's contribution, which means that a single dependent or independent variable is well incorporated to measure the concept (Hair Jr. et al., 2014). CFA-based procedures are useful to calculate the internal estimation based on the results of scale refinement for scale reliability through composite reliability (Brown, 2015). Factor analysis was employed at this stage to achieve these objectives through CFA.

A. Model Fit

As the initial step, CFA adopted a type of SEM, which mainly assesses the measurement models between the observed measures or indicators and latent variables or factors (Brown, 2015). In the CFA, it is first essential to determine the number of factors that exist for a set of variables and which factors each variable will load before the results can be computed (Hair Jr. et al., 2014). CFA is employed to validate the number of underlying dimensions of the factors and observe the pattern of the 'factor loading' or the item-factor relationships, including assisting the determination of scoring the test (Brown, 2015). In CFA procedures, a variable is appointed to only a single construct (factor). CFA tests the theoretical pattern of factor loadings of prespecified constructs representing the actual data (Hair Jr. et al.,

2014). According to Hair et al. (2014), five components were specified in CFA: (1) the latent construct, (2) the measured variables, (3) the item loadings on specific constructs, (4) the relationships amongst constructs, and (5) the error terms for every indicator. Based on the results from the CFA, without getting into the mathematical computation, the fit indices that are suggested for this analysis is used by referring to the cut-off criteria for the fit indicators as general guidelines as recommended by Hair et al. (2014) as listed below:

1. The model Chi-square (χ^2) statistic is the principal value in the SEM to quantify the discrepancy between the sampled and the estimated covariance matrices (Hair Jr. et al., 2014). In Amos, Chi-square is usually presented as CMIN. The test for χ^2 examines the statistical probability between the observed sample and the estimated covariance metrics in the SEM that are identical in the given population. When contrasting the two metrics, the χ^2 value increases as discrepancies or residuals are discovered (Hair Jr. et al., 2014).
2. The model relative Chi-square (χ^2/df) represents the minimum discrepancy by dividing the Chi-square value by its degrees of freedom (df). The sample size is sensitive in influencing the Chi-square test; hence, the χ^2 value increases as more data is added to the model (Hair Jr. et al., 2014). The appropriate ratio for relative Chi-square is suggested approximately five or less (Wheaton et al., 1977). Although another recommendation suggests the rules of thumb for a relative Chi-square ratio of more than 2 signifies a poor fit (Byrne, 2013).
3. The comparative fit index (CFI) refers to an incremental fit index to assess the fit's proportionate improvement by examining how well the estimated model fits relative to a more nested, restricted baseline model (Hu & Bentler, 1999). CFI has a 0 to 1 range, but a higher value indicates a better fit. The CFI values that are greater than 0.90 are considered to have a good model fit.
4. Goodness-of-fit index (GFI) measures a fit statistic as a guideline to fit with no statistical test associated with it (Hair Jr. et al., 2014). GFI values ranging from 0 to 1, and the values above 0.90 are typically considered acceptable (Marsh & Hau, 1996).
5. Root mean square error of approximation-RMSEA shows how well a model fits a population measured not only based on a sample used for estimation. The RMSEA assessment aims to fix the tendency of the Chi-square model as a goodness-of-fit test to reject models with a large sample number of observed variables or large sample (Hair

Jr. et al., 2014). RMSEA includes both model complexity and sample size in the computation to achieve its objectives. Hence, a lower value of RMSEA signifies a better fit (Hair Jr. et al., 2014). The cut-off value for RMSEA should be no larger than 0,80 (Hair Jr. et al., 2014; MacCallum et al., 1996).

B. Validity and reliability

According to Brown (2015), the measurement scale assessment can check the observed data's validity and reliability using convergent validity, discriminant validity, and composite reliability. Each of the assessments for validity and reliability in CFA reports the goodness-of-fit of the model. The validity and reliability of the model is supported by internal validity checks and reliability measurements through Cronbach's alpha.

1. Convergent validity indicates that distinct indicators of overlapping constructs or theoretically similar ones are considered highly interrelated (Brown, 2015). Suppose the results show the pattern of relationships between latent variables in the construct (depending on the theory that examined the relationship expected), in that case, it represents evidence of convergent validity (Harrington, 2009).
2. Discriminant validity indicates that indicators of theoretically different constructs are not strongly intercorrelated (Brown, 2015). If the measurement shows that different constructs or concepts have been demonstrated to be different based on the concepts' low correlations, discriminant validity is achieved (Bagozzi & Yi, 1988). A score of 0.85 or above for correlations between constructs indicates poor discriminant validity (Brown, 2015).
3. Composite reliability refers to the overall sum score reliability or unweighted reliability (Raykov et al., 2016). The CFA-based procedures demonstrate a more dependable method to calculate interval and point estimates of scale reliability, such as measuring composite reliability, as the output of scale refinement to signify scale reliability across groups (Brown, 2015).
4. Internal validity evaluates the standardised coefficient derived from CFA results. The scores to assess internal validity are calculated from the item loadings of each item in the construct.

5. Cronbach's alpha value represents internal consistency to examine the reliability of the entire scale. Cronbach's alpha is a diagnostic measure most widely employed to evaluate the degree of consistency amongst multiple measurements of a factor or a variable (Hair Jr. et al., 2014).

7.3.3.3 Common Method Bias (CMB)

The CMB or common method variance refers to a potential issue in behavioural research that can occur as one of the primary measurement errors. The CBM test is employed to reach a full collinearity evaluation, although when discriminant validity is considered satisfactory (Kock & Lynn, 2012). The concept of common method variance, traditionally defined as systematic error variance, is presented as a function of the similar approach and/or source and distributed amongst the variables measured (Richardson et al., 2009). Podsakoff et al. (2003) suggest that dealing with CMB is by employing procedural and statistical approaches. The presence of measurement error may threaten the validity of the conclusions regarding the relationships between measures (Podsakoff et al., 2003).

Previous studies in marketing showed that various procedural conditions might increase methods bias, which can influence items' validities, reliabilities, and covariation between latent constructs (Mackenzie & Podsakoff, 2012). Factors that cause method bias are for example: (1) lack of cognitive sophistication or verbal ability and education; (2) lack of experience thinking about the particular topic; (3) abstract or complex questions; (4) item ambiguity; and (5) double-barrelled questions (Mackenzie & Podsakoff, 2012). Based on considerable empirical evidence on the effect of method bias (Krosnick, 1991), there are potential remedies to avoid CMB's effect from those conditions (Mackenzie & Podsakoff, 2012).

Referring to Richardson et al. (2009), there are three statistical techniques to detect CMB: 1) the correlational marker technique, 2) the CFA marker technique, and 3) the ULMC technique. If CMB exists, the three approaches are constructed on assumed instruments through which CMB can effect measured variables (Richardson et al., 2009). The correlational marker technique is presented as the control for CMB by removing the shared variance in bivariate correlations related to a specific covariate (Lindell & Whitney, 2001). This technique uses a chosen marker variable that is theoretically unrelated to at least one substantive variable but is suspected of having the same cause of CMB. The correlational marker technique estimates CMB in a data set by showing the smallest observed positive correlation between the marker variable and the substantive variable (Lindell & Whitney, 2001). The second approach of the

CFA marker proposed by Williams et al. (2003) is the adaptation model from Lindell & Whitney (2001) by identifying CMB using the latent marker construct. CMB is represented through shared variance between the marker and the other substantive constructs that are supposed to represent CMB (L. J. Williams et al., 2003). The last technique of ULMC refers to the use of unmeasured latent method construct (ULMC) in CFA as a means to detect and remove out variance shared among substantive indicators that are due to either random error or to their substantive construct (Podsakoff et al., 2003; Richardson et al., 2009).

This research employed both procedural and statistical approaches to test for CMB. According to MacKenzie and Podsakoff (2012), the remedies of a procedural approach to responding for CMB are as follows: (1) pilot-test, (2) selecting respondents who have prior experience about the research topic, (3) avoiding vague concepts in the questionnaires, and (4) the use of concise and clear language to avoid complicated terms or ambiguous ones (see subsection 7.5.4.1).

For the statistical approach, because the dataset used for independent variables and dependent variables was collected from a single instrument, namely a survey, the CMB test was employed to determine if the measurement model was affected by a method bias. The CMB test was run by employing the ULMC approach by using the ‘unmeasured latent factor method’ to extract the common variance. The ULMC approach test compares the standardized regression weight (β) between the model with the common latent factor and without the common latent factor (Podsakoff et al., 2003). To proceed with this technique, during CFA analysis, an unmeasured latent factor was added to the measurement model (see subsection 7.5.4.2).

The CFA results were used to evaluate the model fit, validity and reliability of the measurement model and check for bias that potentially occurs in the model. The CFA could assess the model fit by re-specified the model if required (Harrington, 2009). The scores from validity and reliability in CFA is used as the consideration of whether the tests are capable of achieving specific objectives to proceed with the analysis (Kline, 2016). The CMB test may help to prevent or minimise the damaging effects of non-substantive responding on observed responses through a series of procedural remedies (Mackenzie & Podsakoff, 2012). Hence, CFA allows the researcher to examine how well the factor's theoretical specification matches reality, which means representing the actual data (Hair Jr. et al., 2014). Following CFA, the hypotheses were tested by employing the SEM procedure.

7.3.3.4 Testing for the Structural Model in SEM

This study followed the SEM procedures recommended by Hair et al. (2014) by first reporting the fit indices' results as the guideline for analysis interpretation. After finishing the procedures of the SEM assessment in CFA, the test for the structural model requires two additional stages: (1) specifying the structural model and (2) assessing the structural model's validity (Hair Jr. et al., 2014).

1. Specifying the structural model

The model specification refers to a model formulation, including specifying the primary latent constructs and how they relate to each other (Bollen & Noble, 2011). The assessment to determine the structural model in SEM entails defining the appropriate unit of analysis, specifying the model using a path diagram, and transforming it into a structural model (Hair Jr. et al., 2014). Before progressing to structural model validity assessment, all these conditions should be identified and satisfied the structural model: (1) meet the sample size adequacy, (2) have a satisfactory CFA and (3) develop the structural model. For this research, the first condition of a sufficient sample size was fulfilled (see subsection 7.2.2.4). The second condition of a satisfactory CFA was also achieved (see subsection 7.5.3). The last requirement regarding designing the structural model was by referring to the CFA results. A structural model is nested within a CFA model; thus, after completed the CFA model's identification, the structural model should be identified (Hair Jr. et al., 2014).

This research employed a recursive model for the structural model's design by establishing the path between constructs. All paths proceed only from the predictor constructs or exogenous variables to the dependent constructs or endogenous variables (Hair Jr. et al., 2014). This means the developed structural model does not encompass any feedback loops between the constructs. With the recursive model, the structural model should be identified from the identified CFA because it includes fewer estimated paths with a similar number of factors (constructs) and items (Hair Jr. et al., 2014).

For this research, the structural model specification to express the hypotheses represents the graphical conceptual models in a visual graphic representation to describe theoretical variables and the expected relations. The visual diagram was specified using a path diagram, and the paths indicate relationships between the constructs (see Figure 7.1). Determining the structural model relationships was by replacing the correlational relationships discovered in the CFA model. The exogenous constructs in this model are (1) social expertise (SE), (2) openness

(OP) as the parts or customer operant resources; and (3) intrinsic motivation (IM), (4) skill development motivation (SDM) as the elements of customer VCC motivation. The endogenous constructs in this model are (1) participation behaviour (PB) and (2) citizenship behaviour (CB) as the components of customer VCC behaviour; (3) relationship development (RD) and (4) customer online experience (OE) as the parts of value-in-use; (5) willingness-to-engage (WE); (6) positive affectivity; and (7) continuance intentions (CI) and (8) word-of-mouth intentions (WOMI) as the components of behavioural intentions.

2. *Structural model validity assessment*

The structural model's final decision process evaluates the model validation based on the structural model fit and model diagnostics assessment. The structural model testing is the second stage in SEM after examining the measurement model validated in a CFA analysis. This structural model analysis in SEM tests for structural relationships. According to Hair et al. (2014), two issues need to be satisfied to test for structural relationships: (1) a decision to accept the proposed model by evaluating the overall and relative model fit as the acceptance measurement; and (2) structural parameter estimates represented by one-headed arrows on the SEM path diagram.

According to Hair *et al.* (2010), there are measures to assess the validity of the structural model:

a. *Assessment for overall structural model Goodness-of-Fit (GOF)*

Determining the structural model's validity follows similar guidelines to those outlined for the CFA, which validated the measurement model. However, the difference with validating the measurement model is that the structural model calculates structural relationships by estimating the computed estimated covariance matrix. The ideal results of the global fit for GOF that relies on χ^2 in the structural model should be higher than χ^2 in the measurement model. GOF is also validated through the overall fit indexes, which are examined using the same criteria as validating the CFA model for the measurement model. Besides χ^2 , at least one absolute index and one incremental index can measure the assessment for the model fit of the structural model (Hair Jr. et al., 2014). Absolute fit indices refer to the primary assessment to examine the specified model or proposed theory that explains the data (Kline, 2016). Absolute indices are evaluated independently of other possible models. The indexes that are categorised as absolute are the χ^2 statistic, the Goodness-of-Fit-Index (GFI), the Root Mean Square

Error of Approximation (RMSEA), and the Root Mean Square Residual (RMR) or Standardised Root Mean Square Residual (SRMR). Incremental (comparative, relative) fit indices assess the excellence of the model fit compared to a certain alternative baseline model (Kline, 2016). Some incremental fit measures that are widely used are the Normed Fit Index (NFI), Tucker Lewis Index (TLI), Comparative Fit Index (CFI), and Relative Non-centrality Index (RNI). Like the CFA model fit validation, the structural model fit thresholds followed the same examination process (see subsection 7.5.5). Hence, using more than one fit index to validate the structural model is recommended to improve the model's evaluation (Hair Jr. et al., 2014).

b. Comparing the results of the CFA model fit and structural model fit

Another validation technique to evaluate the structural model is using the CFA fit as a baseline comparison to assess the structural model fit. For a recursive structural model such as this research, the structural model fit cannot have a lower χ^2 than the overall CFA. If so, one can assume the structural model reflects relatively poor fit statistics, which means a lack of validity (Hair Jr. et al., 2014).

c. Testing for the hypothesised dependence or structural relationships

After examining the general model fit produced by the structural model, recalling the CFA model examination, to support the proposed structural theory requires the assessment for each path (individual structural parameter estimates) developed in the model compared to the corresponding hypotheses (Hair Jr. et al., 2014). Thus, hypothesis testing is employed as the final procedure. A structural model testing results are considered valid to the extent the parameter estimates are: (1) the predicted direction is statistically significant, and (2) evaluation of the nontrivial estimates (Hair Jr. et al., 2014). A positive statistics significance of a path (in the predicted direction) means that it is greater than zero, while for a negative relationship, it is less than zero. Nontrivial refers to a characteristic to present a hypothesis significance by using the standardised loading estimates, and it is evaluated through the same guideline as in other multivariate analysis. Therefore, assessment of the structural relationships is acceptable only when it validates satisfactory model fit and the path estimates representing each hypothesis (in the predicted direction) is significant (see subsection 7.5.51). *Testing for the variance explained estimates (R^2)*

Besides the above measurements, variance explained estimates (R^2) that assess all the endogenous constructs are used to assess the structural model. The R^2 coefficient

represents the total variance in the endogenous constructs defined by the exogenous constructs related to it (see subsection 7.5.5). The examination of the R^2 is corresponded to perform R^2 analysis in multiple regression. Although a higher R^2 indicates a better fit (Hair Jr. et al., 2014), the score for R^2 can be varied based on the complexity of the model and the research discipline.

d. Additional diagnostic information with post-hoc analysis

Post-hoc analysis is a common practice following the theory test's structural model analysis (Hair Jr. et al., 2014). This research employed the post-hoc statistical power for multiple regression to detect the power of the significant effects that might exist in the structural model analysis (see subsection 7.5.6). Post-hoc analyses for structural model analysis are beneficial to specify potential model improvement to cross-validate the model (Hair Jr. et al., 2014).

7.3.3.5 Advanced Analysis: Moderation Analysis

Moderation analysis is the test to examine the effects (i.e., buffering effect, exacerbating effect) of an individual variable (mediator variable), which is also known as the statistical interaction effect within a multiple regression format (Jose, 2013). A moderating effect follows once a third construct or variable changes the relationship between two related constructs or variables (Hair Jr. et al., 2010). Interaction or moderator effects focus on the moderator variable (the second independent variable) affecting the independent-dependent variable's relationships. Inserting an additional independent variable in the relationships between variables may indicate changes in the form of the relationships, known as an interaction effect. However, the relationship's degree of change varies based on the moderator variable (Hair Jr. et al., 2010). This research also employed moderation analysis to examine the hypothesised effects of the independent variables as moderator variables in the structural model.

This research employed the ex-post or post-hoc analysis probing the moderator effects that influenced the relationships examined in hypotheses 1-16 (see subsection 7.2.1). The analysis aims to identify the length of engagement in VCC processes and customer age as the potential factors by probing multi-group differences in the structural model. The SPSS Amos26 software facilitated the testing for moderation effects. Testing the interaction effects using this technique has been employed in previous research (see, for examples, Choi & Lotz, 2018; Dennis et al., 2016; Dewalska-Opitek & Mitreęga, 2019; Holmbeck, 2002; Papagiannidis et al.,

2017; Liu & Forsythe, 2011). The length of engagement in VCC processes and age are the categorical independent variables. The moderation analysis tested the interaction effects of the length of engagement in VCC processes between first-timers and regular customers and whether the two categories affect the relationships of the hypotheses tested in this research differently. Similarly, the same test was applied to the customer age difference between young adults and adults and whether it is different for the two groups – further explained in Subsection 7.5.7.

However, before proceeding with moderation through multi-group analysis, the initial step was developing the compared groups to classify and divide the data into the expected groups. Before this step, understanding the type of moderator variables is essential. Moderators can be classified into two different categories: nonmetric moderators and metric moderators. Nonmetric moderators are categorical variables based on classifying variables of some type that are hypothesised to be moderators (Hair Jr. et al., 2010). The most common examples of nonmetric moderators are respondent characteristics, such as age, gender, employment status or other qualification. Other typical examples for non-metric moderators are the country-of-origin, used in cross-cultural studies, and customer segmentation, categorised as current customers and non-customers. Another type of moderator is metric moderators, which refer to the continuous variable categorised based on the way of classifying that makes sense, such as from logic or theory (Hair Jr. et al., 2010). Grouping the selected construct as a moderating variable followed the same procedures used for nonmetric moderators. For example, a nonmetric moderator divides the respondent frequency distribution to classify job satisfaction into two groups: a moderately satisfied and a highly satisfied group. Hence, several alternatives facilitate grouping or classifying a variable into the segments used in moderation analysis. Creating two groups can be done randomly, separating a large sample to meet the minimum sample size for multi-group analysis to accomplish the size requirements (Hair Jr. et al., 2010).

Following Hair et al. (2010), this research employed the frequency distribution (cumulative percentage) approach to divide the sample into two groups. By using this approach, the grouping followed an intuitive way to demonstrate and test moderation. Segmenting the predicted moderator using this technique is the simplest technique because it uses frequency distribution to divide the groups (Hair Jr. et al., 2010). The selected dataset of the moderator was split into two groups based on the response or sample frequency. This is ideal to obtain an even distribution frequency for sample categorisation.

Having decided the selected moderators and created groups for each moderator, multi-group SEM analysis was employed to test moderation. The analysis then continued with designing metric invariance between the groups. There are two main steps to examine multiple group analysis on testing moderation effects (Hair Jr. et al., 2010). The two steps of testing groups' invariance for both measurement and structural parameters are strongly recommended approaches to test moderation in the Amos program (Byrne, 2004). The first stage is examining the measurement model by employing multi-sample confirmatory factor analysis (MCFA). The second stage is comparing the observed multi-groups based on the structural model and hypothesis testing.

1. Multi-sample confirmatory factor analysis (MCFA)

The first step to assess group comparisons was to compare each observed group's measurement model, known as Multi-Sample Confirmation Factor analysis (MCFA). Testing for group invariance of a measurement model is also suggested in the Jöreskog traditions to measure the multi-group invariance (Byrne, 2004). Cross-validation is one method to compare the observed groups' measurement model to reproduce the results using a different sample discovered in one sample (Hair Jr. et al., 2010). The cross-validation employs two different samples from the same population, but the characteristics of each group sampling unit are equivalent. Before examining the structural model, the measurement theory's basic procedure provided a second confirmation that passed the initial confirmation testing. According to Hair et al. (2010), the MCFA follows four tests of cross-validation assessment: (1) loose cross-validation; (2) factor structure equivalence; (3) factor loading equivalence; and (4) inter-factor covariance equivalence.

2. Structural model comparison

Once the measurement invariance is established, testing the structural model estimate is employed for moderation analysis. The process follows the same procedures for invariance testing to compare the multi-groups analysis for structural model parameters. It is built upon the measurement model and performs a similar assessment as measurement model comparisons to examine the structural model's differences (Hair Jr. et al., 2010). Four tests of cross-validation assessment were applied: (1) loose cross-validation; (2) factor structure equivalence; (3) factor loading equivalence; and (4) inter-factor covariance equivalence.

3. Hypothesis testing in moderation analysis

The first step is to establish a separate group for each model and calculate path estimates by following the invariance testing procedures. The model and hypotheses to be examined will define the examination for equivalences across groups, including determining the sets of parameters tested in an increasingly restrictive approach or logically ordered (Byrne, 2004). The first group model is identical to the totally free (TF) model. The second step is to create the group models that are estimated through the path estimate of interest, and these groups are constrained to be treated the same between groups. In this stage, the model fit is validated by comparing the differences of χ^2 between models with a chi-square difference test ($\Delta\chi^2$). An increase in χ^2 indicates a significant decrease in model fit. The moderation effect does exist when there is evidence shown by a statistically significant difference between models, which means the path estimates were different. A non-statistically significant result between the compared groups is indicating no support for moderation. The essential objective is to test any significant difference between groups (two models) when testing moderation. Thus, hypothesis testing is applied in the final step of the analysis by estimating the difference path estimates. Testing the path estimates based on the developed hypotheses aims to assess if both groups are statistically significant or not and how the results are theoretically consistent (Hair Jr. et al., 2010).

7.4 Conceptual Framework

Figure 7.1 represents the conceptual framework of this research. The squares in the structural model construct are used as latent variables (unobservable). The arrows stand for the relationships between the variables. To examine the construct, hypotheses were formulated to test the confirmation or rejection of the relationships amongst the variables. The SEM was applied to investigate the relationships. The SEM can simultaneously investigate and explain a series of dependence relationships among constructs (Hair Jr. et al., 2010). Constructs (latent factors or unobservable) show both the dependent and independent variables involved in the analysis shown by multiple variables (Hair Jr. et al., 2010).

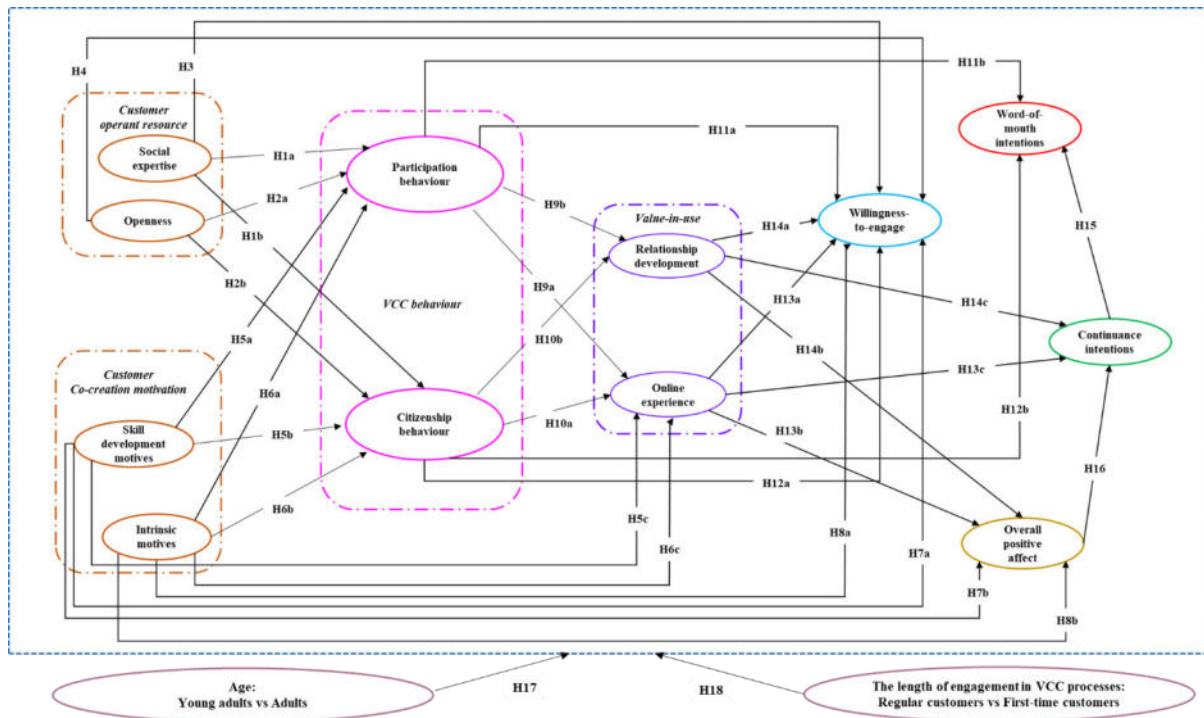


Figure 7.1 Conceptual framework of customer VCC through the agri-food e-commerce

Given that the focus of this quantitative research was customer perceptions on their experience of using the agri-food e-commerce representing customer VCC, the exploration and measurement of all concepts in the quantitative model were subjective for this research context. The constructs (latent variables and manifest variables) present in the proposed model was defined to particularly correspond to the research context of customer VCC facilities by agri-food e-commerce. Table 7.2 describes the variable's name, dimension, and interpretation of the appointed construct in the study.

Table 7.2 Construct name, development, definition, and interpretation in the study

Construct & dimensions	Construct development (Synthesis from the qualitative research)	Construct definition		Construct interpretation in the study
Social expertise	The resource sharing (skill and knowledge) through networking (social resource)	The knowledge available that shapes customer social context	(Barrutia & Gilsanz, 2012)	Customer knowledge related to food (vegetables) purchase and consumption experience via e-commerce related to information on food-related issues gain from their social life or networking
		The knowledge that and can be gained from family, friends and colleague references and other customer recommendation	(Barrutia et al., 2016)	
Openness	Customer personality-related open to new ways of food purchase and express interactive communication with e-commerce	Customer personality traits to assist the process of reciprocal and mutual experiences in interacting with new products	(Busser & Shulga, 2018; Domegan et al., 2013)	The degree of customer willingness to recognise, consider and integrate new things and create new ideas in utilising e-commerce for food (vegetables) purchase
Customer co-creation motivation: (1) Intrinsic motives (2) Skill development motives	Customer awareness and knowledge about the needs for food provenance and food preparation opportunities supported online purchases that motivate engagement between e-commerce and customers	Customers' motivation to engage in co-creation activities; relates to their resources, goals, and expectation of value outcomes	(Fernandes & Remelhe, 2016; Vivek et al., 2012)	Customer motivational nature to be involved in the co-creation that show by their enthusiast response for conducting food (vegetables) grocery shopping using e-commerce
VCC behaviour - Customer participation behaviour: (1) Information seeking (2) Information sharing (3) Responsible behaviour (4) Personal interaction	Activating customer role as co-creator of value by enhancing active customer participation in the VCC process	The requirements of consumer in-role behaviour to achieve successful VCC	(Yi & Gong, 2013)	Active customer participation behaviour during the food consumption experience process leads to co-create values by using e-commerce for food (vegetables) purchase
VCC behaviour - Customer citizenship behaviour: (1) Feedback (2) Advocacy (3) Helping (4) Tolerance	Activating customer role as co-creator of value by delivering supported co-creation behaviour fostered by e-commerce	The requirements of consumer extra-role behaviour to achieve successful VCC	(Yi & Gong, 2013)	<ul style="list-style-type: none"> Customer empowerment to engage with agri-food e-commerce and other online customers. This can be by sharing information with other customers and giving reviews to the sellers to gain more beneficial information to improve customer knowledge to make customers more convenient using e-commerce. Customer access to have accessible communication on delivering ideas and insights on various food issues, and the e-commerce reciprocally sharing meaningful information as feedback to the customers.

Table 7.2 *Cont.* Construct name, development, definition, and interpretation in the study

Construct & dimensions	Construct development (Synthesis from the qualitative (stage 1) results)	Construct definition		Construct interpretation in the study
ViU – Relationship development	E-commerce facilitates interactive communication, enables symbiotic customer relationship, and develops the personal connection that supported and manifested as customer ViU	Developing active communication and engagement between company and consumer through a collective, reciprocal, and iterative process	(Ranjan & Read, 2016)	Personal connection development to gain customer trust by providing services, customer complaint handling, hospitality, and good attitude to complete customer needs
ViU – Online customer experience	E-commerce increases customer experience in food purchases via the online food retail channel that manifested as customer ViU	Online customers interpretation towards the incoming sensory data and interaction during navigation from a cognitive and affective view in the online interaction	(Novak et al., 2000; Rose et al., 2012)	Customer online experience by using e-commerce for food (vegetables) purchase
Customer willingness to engage	E-commerce enables engagement and customer participation in the co-creation of value	The willingness of customers to invest their resources (e.g., time) voluntarily that aims to achieve their goals and expectation	(Fernandes & Remelhe, 2016)	Customer voluntarily to be involved in the co-creation activities and willingly spent their resources (e.g., time and money) through active interaction and managing good relations with the agri-food e-commerce
Positive affectivity	E-commerce offers customer happiness and satisfaction that benefit customer consumption experience by using the online food retail channel for food purchases	A reflection of individual characteristics towards positive emotional experiences (emotions, sensations, sentiments) as the consequences of interaction with their surroundings	(Ashby et al., 1999)	Customer sensation and emotions after experiencing the purchase of vegetables via the agri-food e-commerce
Continuance intentions	Customer responses after experiencing good quality products and services from e-commerce that support continued customer engagement and increase the likelihood to channel usage continuance in the future for food purchases	Customer's behavioural responses with regards to customer intention to use the products or services in the future	(Balaji & Roy, 2017; Mencarelli & Rivi�re, 2015)	Customer intention to continue using e-commerce for food grocery shopping (e.g., vegetables)
Word-of-mouth intentions	Customer responses after using the e-commerce and increase the likelihood to reference the online food retail channel to others via word-of-mouth	Customer referring or recommending information, news or entertainment to other people	(Cruz & Fill, 2008)	Customer expression intention for sharing the purchase experiences, giving reviews (satisfaction/dissatisfaction) and comments on the e-commerce products and services through direct communication (conventional WoM) or electronically (eWoM)

7.5 Results

7.5.1 Data Screening Results

7.5.1.1 Univariate Data Screening

a. Missing data

The statistics descriptive that assisted by SPSS was employed to check for the accuracy and missing data in the dataset. No missing value was found in the dataset. Also, because the research was implemented in a survey with a self-administered method for data collection and distributed through Qualtrics, this platform creates a setting for every important question in the online questionnaire with ‘force response’ mode. By applying this option, respondents have to answer the question before proceeding to the following questions or page. A message alert will let the respondent know that they must answer the question before progressing to the next one. The ‘force response’ option was employed in every important question in the questionnaire, except for questions related to the valid phone number or email for the purposes of the prizes offered for the participating respondents. By selecting this option provided by Qualtrics in the online questionnaire, the possibility of missing data from each completed questionnaire can be prevented.

b. Outliers and influential factors

Another data screening process as one procedure of univariate assumption tests for checking outliers and observing influential factors on the model is applying the Cook’s distance analysis. The threshold suggests that if the Cook’s distance score is greater than one, it is leveraging, or it is an influential record. This leads to a justification to remove the record because it shows the record has many differences from the rest of the responses. The results found four records that exhibit abnormal Cook distances. The records accounted for three times the rest of the data that scores below 0.5. The outliers dilute the regression by pulling the regression line away from the true optimal line. Thus, the four records were up for removal. The following analysis's remaining responses after deleting four records from the initial 441 responses based on the Cook distance analysis were 437. The aim of excluding the outliers was to strengthen the regression observed in the subsequent SEM series analysis.

7.5.1.2 Multivariate Assumptions Test

After conducting a multicollinearity statistics test based on the Variable Inflation Factor (VIF), which simultaneously tested all the exogenous variables, the threshold suggests the score for VIF is ideally less than five for SEM and the tolerance score threshold is preferably greater than 0.1. If there is a high VIF score amongst the variables (>1), they overlap in the portion of the variance in explaining the dependent variable. It also shows the redundancy of either one of or some of the independent variables. In that case, the solution is by considering dropping one of the variables or turning it into a second-order factor and make those overlapping variables the second-order factor indicators. Based on the analysis, all the constructs have passed the threshold ($VIF < 5$), with the highest VIF score of 3.315 and the lowest tolerance score of 0.298, indicating that all the exogenous variables were distinct (see Table 7.3).

Table 7.3 Multicollinearity test results

Independent variable	Dependent variable					
	Willingness-to-engage		Continuance intentions		Word-of-mouth intentions	
	Collinearity statistics		Collinearity statistics		Collinearity statistics	
	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF
Social expertise	.735	1.360	.735	1.360	.734	1.363
Openness	.707	1.414	.707	1.414	.705	1.418
Intrinsic motives	.398	2.513	.398	2.513	.395	2.533
Skill development motives	.603	1.658	.603	1.658	.602	1.661
Participation behaviour	.340	2.938	.317	3.156	.316	3.160
Citizenship behaviour	.300	3.329	.300	3.329	.298	3.315
Online experience	.384	2.607	.384	2.607	.363	2.757
Relationship development	.594	1.683	.594	1.683	.577	1.734
Overall positive affectivity	.809	1.236	.809	1.236	.778	1.286
Continuance intentions	-	-	-	-	.651	1.536

7.5.2 Descriptive Analysis

The socio-demographic profile of the respondents to the survey is presented in Table 7.4. Female participants dominated the sample (84.4%). This profile although skewed in favour of women is representative of Indonesia's food provisioning culture. In Indonesia, including in urban areas, women are responsible for managing food-related activities (Hadiningrat, 2020) such as shopping. Going to traditional markets or supermarkets to buy groceries is a daily activity for Indonesian women, and they are the primary food shoppers (Deliana, 2012; Hadiningrat, 2020). Consequently, although food retail has evolved by offering online channels such as e-commerce, women are still primarily responsible for buying food. Therefore, the

sample used in this research raises no concern regarding representativeness and generalisability for this context.

Because the research was conducted in two different metropolitan cities in Indonesia, the respondents were almost evenly derived from these two locations. The research participants were predominantly between the age of 18 and 34 (77%). Nearly 70% of the participants were full-time employees and students, while self-employed and homemakers accounted for the rest of the respondents (27%). Most of the survey participants had a university degree, bachelor and higher (72%), but the bachelor's degree was the majority. About 75% of the respondents had a monthly income of less than £500. Half of the participants (52%) only had one experience of shopping with the agri-food e-commerce, whereas 42% usually buy products from these digital retailers either once a fortnight or once per week.

Table 7.4 Socio-demographic information

Sample (n=441)	Category	Valid	Frequency (%)
Gender	Female	372	84,4
	Male	69	15,6
Location	Bandung	211	47,8
	Jakarta	230	52,2
Age	Under 18 years old	0	0,0
	18 – 24 years old	196	44,4
	25 – 34 years old	143	32,4
	35 – 44 years old	72	16,3
	45 – 55 years old	23	5,2
	56 years or older	7	1,6
Employment status	Employed full time	196	44,4
	Self-employed	54	12,2
	Unemployed	9	2,0
	Student	113	25,6
	A homemaker	66	15,0
	Retired	1	0,2
	Other	2	0,5
Education	Nursery school to 9th grade	1	0,2
	High school/vocational school	88	20,0
	Diploma's degree	36	8,2
	Bachelor's degree	249	56,5
	Master's degree	64	14,5
	PhD	3	0,7
The income per month (£)	Less than 500	330	74,8
	500 - 1,099	80	18,1
	1,100 - 1,699	12	2,7
	1,700 - 2,299	8	1,8
	2,300 - 3,000	5	1,1
	Over 3,000	6	1,4
Purchase frequency	Only once	229	51,9
	Once a fortnight	103	23,4
	Once per week	84	19,0
	1 – 3 times per week	19	4,3
	4 – 6 times per week	6	1,4
	Daily	0	0,0

7.5.3 Confirmatory Factor Analysis (CFA) Results

The CFA was initially tested for the first-order CFA model design for two customer VCC behaviour dimensions: participation behaviour and citizenship behaviour. Each of the dimensions has four factors. Participation behaviour consists of information seeking, information sharing, responsible behaviour, and personal interaction, while citizenship behaviour comprises advocacy, helping, feedback and tolerance. However, the first-order construct's CFA results revealed that the two dimensions of participation and citizenship were correlated. This means that some dimensions refer to the similar overall concept of customer VCC. The second-order model explains for relationships amongst the lower-order factor (F. F. Chen et al., 2005). Hence, the CFA for the second-order construct was conducted and showed a more acceptable model fit (see Table 7.5).

7.5.3.1 CFA Model Fit Results

The next step of the CFA calculated the model's remaining factors: social expertise, openness, skill development motives, financial motive, intrinsic motives, online experience, relationship development, personalisation, positive affectivity, willingness-to-engage, continuance intentions and WoM intentions. The results of the first run on the model indicated need for adjustments to achieve acceptable convergent validity and reliability. Table 7.5 shows the goodness of fit for the model measurement, indicating the model was sufficient.

Table 7.5 Confirmatory Factor Analysis (CFA) model Fit

Metric	Observed value	Threshold	Source
Chi-square (χ^2)	2749,116	-	-
Degree of freedom (df)	1465	-	-
CMIN/df	1.877	Between 1 and 5	Wheaton et al. (1977)
CFI	0.919	>0.900	Hu and Bentler (1999)
GFI	0.811	>0.900	Marsh and Hau (1996)
RMSEA	0.045	<0.080	MacCallum et al (1996)
PCLOSE	1.000	>0.050	Hu and Bentler (1999)
RMR	0.097	<0.080	Hu and Bentler (1999)

Table 7.6 Confirmatory Factor Analysis (CFA) validity and reliability check

Construct	CR	AVE	1	2	3	4	5	6	7	8	9	10	11	12
1. Skill development motives	0,885	0,794	0,891											
2. Openness	0,875	0,637	0,151	0,798										
3. Positive affectivity	0,940	0,760	0,076	0,133	0,872									
4. WoM intentions	0,926	0,758	0,218	0,232	0,375	0,871								
5. Continuance intentions	0,897	0,744	0,219	0,166	0,351	0,696	0,862							
6. Intrinsic motives	0,846	0,648	0,404	0,423	0,344	0,480	0,399	0,805						
7. Online experience	0,848	0,584	0,536	0,295	0,279	0,488	0,450	0,584	0,764					
8. Willingness-to-engage	0,887	0,724	0,429	0,259	0,072	0,281	0,191	0,252	0,516	0,851				
9. Citizenship behaviour	0,813	0,540	0,294	0,374	0,278	0,640	0,371	0,550	0,514	0,390	0,735			
10. Participation behaviour	0,795	0,515	0,130	0,394	0,262	0,433	0,283	0,471	0,290	0,213	0,667	0,718		
11. Social expertise	0,710	0,555	0,117	0,236	0,152	0,290	0,171	0,311	0,236	0,193	0,385	0,364	0,745	
12. Relationship development	0,747	0,509	0,064	0,195	0,259	0,466	0,324	0,319	0,270	0,109	0,407	0,514	0,310	0,713

Based on the analysis, two factors, namely financial motives and personalisation, were removed for the subsequent analysis due to a low score on convergent validity and reliability. The remaining variables for customer co-creation motivation were skill development motives and intrinsic motives, while the remaining variables for customer ViU were online experience and relationship development. The following indicators were also removed due to poor loading: three indicators from social expertise (SEP1, SEP2, SEP3); one indicator from openness (OPN5); two indicators from skill development motives (KLM3, KLM4); two indicators from intrinsic motives (ITM1, ITM5); one indicator from information sharing (ISR1); one indicator from responsible behaviour (RPB1), two indicators from personal interaction (PLI1, PLI5); one indicator from helping (HLP4); one indicator from willingness-to-engage (WLE4); two indicators from relationship development (RSD2, RSD4), one indicator from online experience (EXP2) and three indicators from overall positive affectivity (OXE5, OXE7, OXE8). The analysis is also examined for the opportunity to improve the model by referring to modification indices. Finally, the remaining 58 items were used to measure the relationship between twelve main constructs.

7.5.3.2 CFA Validity and Reliability Results

The CFA validity and reliability results were measured for convergent validity, discriminant validity, and composite reliability, as shown in Table 7.6. The test for convergent validity was assessed through the AVE. The AVE scores for all factors were above 0.5. The square root from the AVE shown by the diagonal in the matrix validates discriminant validity for all inter-factor correlations. The analysis revealed that all factors exhibited satisfactory discriminant validity based on the diagonal values being higher than any inter-factor correlation in the metrics. Composite reliability was computed through the CR scores with minimum thresholds of 0.70. The analysis shows that the model is reliable for all factors shown by the CR all above 0.70.

Each item's item loadings also supported the evaluation for internal validity in every construct derived from the CFA results. The coefficient with Cronbach's alpha was used to assess reliability. According to Hair *et al.* (2014), the lower limit for Cronbach's alpha is 0.7. As shown in Table 7.7, the factor loadings ranged from 0.5 to 0.9, and the Cronbach's alpha coefficients were all above 0.7. Based on the calculation results, the factor loading for the items that measured each factor or construct and the Cronbach's alpha coefficient was acceptable.

Table 7.7 Items, loadings, and Cronbach's alpha coefficient

Construct	Code	Loading	Cronbach's alpha
Social expertise	SEP4	.647	0.772
	SEP5	.831	
Openness	OPN1	.741	0.891
	OPN2	.833	
	OPN3	.826	
	OPN4	.789	
Intrinsic motivation	ITM2	.839	0.869
	ITM3	.735	
	ITM4	.837	
Skill development motivation	KLM1	.886	0.817
	KLM2	.896	
Information seeking	ISK1	.537	0.745
	ISK2	.580	
	ISK3	.790	
Information sharing	ISR2	.815	0.804
	ISR3	.969	
	ISR4	.674	
Responsible behaviour	RPB2	.780	0.903
	RPB3	.878	
	RPB4	.826	
Personal interaction	PLI2	.896	0.960
	PLI3	.914	
	PLI4	.884	
Feedback	FDB1	.558	0.705
	FDB2	.691	
	FDB3	.575	
Advocacy	ADV1	.755	0.884
	ADV2	.821	
	ADV3	.745	
Helping	HLP1	.836	0.856
	HLP2	.906	
	HLP3	.792	
Tolerance	TRL1	.714	0.824
	TRL2	.867	
	TRL3	.708	
Relationship development	RSD1	.803	0.786
	RSD2	.809	
	RSD5	.476	
Online experience	EXP1	.808	0.880
	EXP3	.767	
	EXP4	.805	
	EXP5	.668	
Overall positive affectivity	OXE1	.835	0.905
	OXE2	.929	
	OXE3	.943	
	OXE4	.847	
	OXE6	.797	
Willingness-to-engage	WLE1	.826	0.890
	WLE2	.901	
	WLE3	.824	
Continuation intentions	CNI1	.810	0.914
	CNI2	.880	
	CNI3	.895	
Word-of-mouth intentions	WOM1	.839	0.965
	WOM2	.887	
	WOM3	.923	
	WOM4	.831	

Based on the CFA results, two of the framework constructs were excluded in the subsequent analysis for hypothesis testing due to poor CFA results of the validity and reliability, namely financial motivation and personalisation. The constructs (latent variables and manifest variables) present in the proposed model were defined to correspond to the customer VCC facilities' research context by agri-food e-commerce channels (see Figure 7.1).

7.5.4 Common Methods Bias (CMB) Results

7.5.4.1 Procedural Approach to CMB

Because this research adopted a quantitative survey via online questionnaires, there is a likelihood that CMB will be present in the sample (Krosnick, 1999; Podsakoff et al., 2003). Several procedural approaches were carefully employed for this research to decrease method bias (see Table 7.8).

Table 7.8 The indicated factors that increase method bias and potential remedies to respond accurately

The indicated factors that affect method bias	Mechanism	The remedies in research
Lack of cognitive complexity or verbal ability and education (Krosnick, 1999)	May raise the difficulty of the task comprehension concerning regaining information, the meaning of the questions, and making judgments (Krosnick, 1991)	Carefully pre-testing the questionnaire amongst 20 customers of an agri-food e-commerce store and asking for their feedback to ensure that they can comprehend the questions
Lack of experience reasoning about the specific theme or topic (Krosnick & Alwin, 1987)	May interrupt the ability of a respondent to answer the questions because it is making information retrieval more difficult; hinders understanding of the essential terms to specific concepts; and makes it challenging to integrate information that is retrieved and to describe interpretations required to fill in gaps (Mackenzie & Podsakoff, 2012)	Selecting the respondents who had the required experience and purchasing vegetables from e-commerce to confirm that the sample is familiar with the topic
Abstract or complex questions (Krosnick, 1991)	May increase the difficulty of understanding the meaning of the given questions, making the judgment, and regaining related information (Mackenzie & Podsakoff, 2012)	<ul style="list-style-type: none"> ▪ All the measures used in the questionnaire were adapted based on the original scales and adjusted to the research topic ▪ Verifying for wording, phrases, and questions during the questionnaire development was guided and checked by the supervisory team to avoid vague concepts, producing clear examples, and simplifying the compound or complex questions ▪ The use of simple language, vocabulary to fit the reading capability of the respondents

Table 7.8 *Cont.* The indicated factors that increase method bias and potential remedies to respond accurately

The indicated factors that affect method bias	Mechanism	The remedies in research
Item ambiguity (Podsakoff et al., 2003)	May raise sensitivity to provide answers due to context consequences and increase the difficulty of understanding the meaning of the given questions, making the judgment, and regaining related information (Mackenzie & Podsakoff, 2012)	The use of concise and clear language to avoid unfamiliar or ambiguous or complicated terms

7.5.4.2 The Statistical Approach to CMB

The first CMB test with the ULMC technique was employed. The results showed that none of the regression weights is intensely affected by the common latent factor. The difference between each path's regression weights in the model with the common latent factor and without the common latent factor is small (less than 0.2 as the threshold). The results represented small differences between the effects (see table 7.9), and the CMB was not an issue.

Table 7.9 Common methods bias test

No	Covariance	β (with CLF)	β (without CLF)	Δ
1	Social expertise4 ↔ Social expertise	0,634	0,674	0,040
2	Social expertise5 ↔ Social expertise	0,800	0,804	0,004
3	Openness1 ↔ Openness	0,691	0,741	0,050
4	Openness2 ↔ Openness	0,783	0,831	0,048
5	Openness3 ↔ Openness	0,772	0,826	0,054
6	Openness4 ↔ Openness	0,737	0,790	0,053
7	Intrinsic motivation 2 ↔ Intrinsic motivation	0,801	0,840	0,039
8	Intrinsic motivation 3 ↔ Intrinsic motivation	0,676	0,732	0,056
9	Intrinsic motivation4 ↔ Intrinsic motivation	0,807	0,837	0,030
10	Skill development motivation1 ↔ Skill development motivation	0,862	0,873	0,011
11	Skill development motivation2 ↔ Skill development motivation	0,886	0,900	0,014
12	Skill development motivation3 ↔ Skill development motivation	0,539	0,572	0,033
13	Information seeking 1 ↔ Information seeking	0,545	0,557	0,012
14	Information seeking 2 ↔ Information seeking	0,497	0,561	0,064
15	Information seeking3 ↔ Information seeking	0,746	0,773	0,027
16	Information sharing2 ↔ Information sharing	0,762	0,815	0,053
17	Information sharing3 ↔ Information sharing	1,020	0,967	-0,053
18	Information sharing4 ↔ Information sharing	0,604	0,649	0,045
19	Responsible behaviour2 ↔ Responsible behaviour	0,741	0,784	0,043
20	Responsible behaviour3 ↔ Responsible behaviour	0,849	0,885	0,036
21	Responsible behaviour4 ↔ Responsible behaviour	0,753	0,816	0,063
22	Personal interaction2 ↔ Personal interaction	0,830	0,892	0,062
23	Personal interaction3 ↔ Personal interaction	0,856	0,913	0,057
24	Personal interaction4 ↔ Personal interaction	0,824	0,888	0,064
25	Advocacy1 ↔ Advocacy	0,682	0,743	0,061
26	Advocacy2 ↔ Advocacy	0,872	0,819	-0,053
27	Advocacy3 ↔ Advocacy	0,682	0,731	0,049
28	Helping1 ↔ Helping	0,797	0,830	0,033
29	Helping2 ↔ Helping	0,885	0,902	0,017
30	Helping3 ↔ Helping	0,764	0,792	0,028

Table 7.9. *Cont.* Common methods bias test

No	Covariance	β (with CLF)	β (without CLF)	Δ
31	Feedback 1 ↔ Feedback	0,491	0,548	0,057
32	Feedback2 ↔ Feedback	0,606	0,661	0,055
33	Feedback3 ↔ Feedback	0,570	0,620	0,050
34	Tolerance1 ↔ Tolerance	0,721	0,732	0,011
35	Tolerance2 ↔ Tolerance	0,822	0,844	0,022
36	Tolerance3 ↔ Tolerance	0,699	0,717	0,018
37	Customer experience1 ↔ Customer experience	0,793	0,814	0,021
38	Customer experience3 ↔ Customer experience	0,724	0,763	0,039
39	Customer experience4 ↔ Customer experience	0,793	0,807	0,014
40	Customer experience5 ↔ Customer experience	0,614	0,660	0,046
41	Relationship development1 ↔ Relationship development	0,781	0,815	0,034
42	Relationship development2 ↔ Relationship development	0,770	0,797	0,027
43	Relationship development5 ↔ Relationship development	0,409	0,476	0,067
44	Positive affectivity1 ↔ Positive affectivity	0,817	0,835	0,018
45	Positive affectivity2 ↔ Positive affectivity	0,916	0,929	0,013
46	Positive affectivity3 ↔ Positive affectivity	0,930	0,943	0,013
47	Positive affectivity4 ↔ Positive affectivity	0,833	0,849	0,016
48	Positive affectivity6 ↔ Positive affectivity	0,780	0,797	0,017
49	Willingness-to-engage1 ↔ Willingness-to-engage	0,816	0,831	0,015
50	Willingness-to-engage 2 ↔ Willingness-to-engage	0,882	0,895	0,013
51	Willingness-to-engage 3 ↔ Willingness-to-engage	0,808	0,828	0,020
52	Continuance intentions1 ↔ Continuance intentions	0,784	0,810	0,026
53	Continuance intentions2 ↔ Continuance intentions	0,853	0,875	0,022
54	Continuance intentions3 ↔ Continuance intentions	0,881	0,898	0,017
55	Word-of-mouth intentions1 ↔ Word-of-mouth intentions	0,810	0,835	0,025
56	Word-of-mouth intentions 2 ↔ Word-of-mouth intentions	0,859	0,885	0,026
57	Word-of-mouth intentions 3 ↔ Word-of-mouth intentions	0,892	0,918	0,026
58	Word-of-mouth intentions 4 ↔ Word-of-mouth intentions	0,795	0,826	0,031

7.5.4 Structural Model Results

The SEM examined the association between the concepts contributing to customer VCC determinants and their consequences using agri-food e-commerce. The determinants of customer VCC are customer-related operant resources (social expertise, openness) and customer co-creation motivation (skill development motives, intrinsic motives) contributing to VCC behaviour (participation behaviour, citizenship behaviour). Then, it examined the effect that these factors have on value-in-use (online experience, relationship development), willingness-to-engage, positive affectivity, and behavioural intentions (continuance intentions, WoM intentions). The SEM fit results demonstrated a good fit, except for the GFI score, which showed less than 0.900 and RMR score above the threshold of 0.080 (see Table 7.10).

Table 7.10 Structural Equation Model Fit

Metric	Observed value	Threshold	Source
Chi-square (χ^2)	2857,409	-	-
Degree of freedom (df)	1493	-	-
CMIN/df	1.914	Between 1 and 5	Wheaton et al. (1977)
CFI	0.913	>0.900	Hu and Bentler (1999)
GFI	0.807	>0.900	Marsh and Hau (1996)
RMSEA	0.046	<0.080	MacCallum et al (1996)
PCLOSE	0.997	>0.050	Hu and Bentler (1999)
RMR	0.103	<0.080	Hu and Bentler (1999)

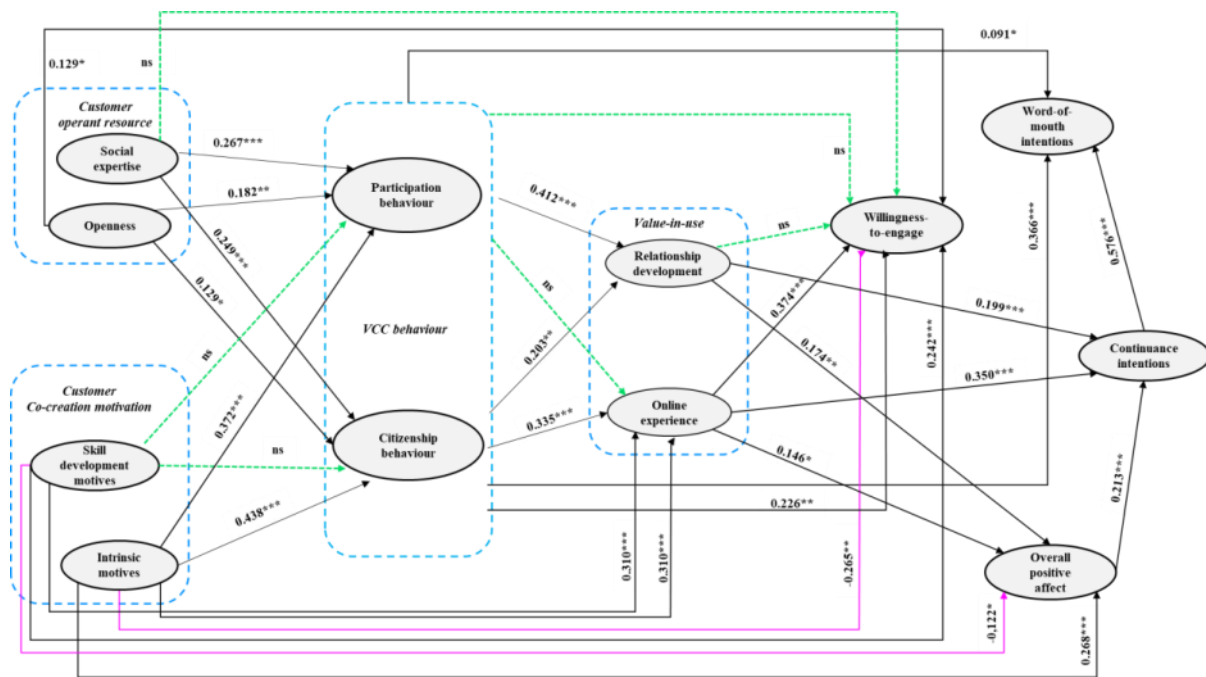
The R-square is considered as the indicator for model fit in structural equations. It can be measured by the data proximity to the fitted regression line. For this research (see Table 7.11), the scores from the R-square statistics provided further evidence indicating moderate model fit, shown by the lowest R-square of 0.16 (overall positive affectivity) and the highest R-square of 0.66 (WoM intentions).

Table 7.11 R-square statistics for the structural model

Latent factor	R-square score
Participation behaviour	0.357
Citizenship behaviour	0.451
Online experience	0.522
Relationship development	0.275
Overall positive affectivity	0.161
Willingness-to-engage	0.363
Continuance intentions	0.299
Word-of-mouth intentions	0.663

7.5.5.1 Testing for Direct Effects

This research adopted the concept of VCC to explore customer VCC behaviour and its impacts from the end-user perspective. In line with the related theories, previous studies, the principle linked to VCC, and the integration with the explored VCC processes was analysed in the qualitative research. This research hypothesised the effects of sixteen constructs (H1-H16) on customer VCC through agri-food e-commerce usage in the Indonesian marketplace. Figure 7.2 presents the full SEM results for the hypothesis testing of the structural model.



Notes: ns = not significant $p > 0.1$; # $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Figure 7.2 The SEM results of the structural model

The hypothesis testing showed that the central premises of customer VCC examined in this research were confirmed. However, six hypotheses (H3a, H5a, H5b, H9a, H11a, H14a) indicated insignificant results, which disconfirmed their power to explain customer VCC practices. Table 7.12 tabulates the results of the hypotheses tests. The following explanation elaborates the results of the hypothesis testing.

Customer-related resources in VCC

As shown in Table 7.12, social expertise had a significant positive impact on both VCC behaviour related to participation behaviour ($\beta = 0.267$; t-value 4.158 and $p < 0.001$) and citizenship behaviour ($\beta = 0.249$; t-value 3.569 and $p < 0.001$). These results confirmed hypotheses 1a and 2a. Another customer VCC operant resource related to openness also had positive impacts on customer co-creation participation behaviour (t-value 2.228 and $p < 0.01$) and citizenship behaviour (t-value 2.270 and $p < 0.01$). The result confirmed hypotheses 2a and 2b. However, compared with the impacts on participation behaviour, the linear relationship between openness and citizenship behaviour is weaker ($\beta = 0.129$). The statistical results also signified a positive relationship between openness and willingness-to-engage ($\beta = 0.129$; t-value 2.347 and $p < 0.05$), which confirmed hypothesis 4. However, the statistics showed an

insignificant result for the relationship between social expertise and willingness-to-engage as assumed in hypothesis 3.

Table 7.12 The results of hypotheses testing

Path	Hypothesis	Evidence			Conclusion (sig.)
		Coef. (t-test)	Estimate (β)	p	
Social expertise \rightarrow participation behaviour	H1a	4.158	0.267	***	Significant
Social expertise \rightarrow citizenship behaviour	H1b	3.569	0.249	***	Significant
Openness \rightarrow participation behaviour	H2a	2.228	0.182	0.001	Significant
Openness \rightarrow citizenship behaviour	H2b	2.270	0.129	0.023	Significant
Social expertise \rightarrow willingness-to-engage	H3	0.609	0.039	0.542	Not significant
Openness \rightarrow willingness-to-engage	H4	2.347	0.129	0.019	Significant
Skill development motives \rightarrow participation behaviour	H5a	-1.644	-0.089	0.100	Not significant
Skill development motives \rightarrow citizenship behaviour	H5b	1.642	0.089	0.101	Not significant
Skill development motives \rightarrow online experience	H5c	6.163	0.310	***	Significant
Intrinsic motives \rightarrow participation behaviour	H6a	5.463	0.372	***	Significant
Intrinsic motives \rightarrow citizenship behaviour	H6b	4.965	0.438	***	Significant
Intrinsic motives \rightarrow online experience	H6c	4.361	0.310	***	Significant
Skill development motives \rightarrow willingness-to-engage	H7a	4.142	0.242	***	Significant
Skill development motives \rightarrow positive affectivity	H7b	-2.017	-0.122	0.044	Significant
Intrinsic motives \rightarrow willingness-to-engage	H8a	-3.247	-0.265	0.001	Significant
Intrinsic motives \rightarrow positive affectivity	H8b	3.796	0.268	***	Significant
Participation behaviour \rightarrow online experience	H9a	-1.815	-0.098	0.070	Not significant
Participation behaviour \rightarrow relationship development	H9b	6.437	0.412	***	Significant
Citizenship behaviour \rightarrow online experience	H10a	4.326	0.335	***	Significant
Citizenship behaviour \rightarrow relationship development	H10b	3.083	0.203	0.002	Significant
Participation behaviour \rightarrow willingness-to-engage	H11a	0.753	0.053	0.452	Not significant
Participation behaviour \rightarrow word-of-mouth intentions	H11b	2.240	0.091	0.025	Significant
Citizenship behaviour \rightarrow willingness-to-engage	H12a	2.627	0.226	0.009	Significant
Citizenship behaviour \rightarrow word-of-mouth intentions	H12b	5.498	0.366	***	Significant
Online experience \rightarrow willingness-to-engage	H13a	4.799	0.374	***	Significant
Online experience \rightarrow positive affectivity	H13b	2.005	0.146	0.045	Significant
Online experience \rightarrow continuance intentions	H13c	6.666	0.350	***	Significant
Relationship development \rightarrow willingness-to-engage	H14a	-1.329	-0.080	0.184	Not significant
Relationship development \rightarrow positive affectivity	H14b	2.634	0.174	0.008	Significant
Relationship development \rightarrow continuance intentions	H14c	3.773	0.199	***	Significant
Customer continuance intentions \rightarrow word-of-mouth intentions	H15	12.514	0.576	***	Significant
Positive affectivity \rightarrow continuance intentions	H16	4.341	0.213	***	Significant

Notes : ns $p > 0.1$; # $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Customer VCC motivation and willingness-to-engage

The hypothesis testing concerning customer motives to co-create value produced different results between skill development motives and intrinsic motives on different constructs as assumed in the hypotheses. According to the results shown in Table 7.12, only intrinsic motives had significant positive impacts on both participant behaviour (t-value 5.463 and $p < 0.001$) and citizenship behaviour (t-value 4.965 and $p < 0.001$). These results signified hypotheses 6c and 6d, although the impact was higher on citizenship behaviour ($\beta = 0.438$) than on participation behaviour ($\beta = 0.372$). However, the hypothesis testing for skill development

motives on both participation behaviour and citizenship behaviour had insignificant impacts. These results disconfirmed hypothesis 5a and 5b.

The analysis indicated a significant positive effect between skill development motives on online experience ($\beta=0,310$; t-value 6,163 and $p<0.001$). The same result also verified a moderately high effect between intrinsic motives on online experience ($\beta=0,310$). The findings confirmed hypotheses 5c and 6c. Both skill development motives and intrinsic motives to co-create value significantly impact positive affectivity and willingness-to-engage. However, the correlation between these variables appeared to be different. Skill development motives had a positive significant impact on willingness-to-engage ($\beta=0,242$; t-value 4,142 and $p<0.001$), but they showed a negative significant impact on positive affectivity ($\beta=-0,122$; t-value -2,017 and $p<0.05$). In contrast, intrinsic motives had a positive significant effect on positive affectivity ($\beta=0,242$; t-value 4,142 and $p<0.001$), but they had a negative impact on willingness-to-engage ($\beta=-0,265$; t-value -3,247 and $p<0.01$).

Customer VCC behaviour and VCC consequences

The verification results presented in Table 7.12 indicated that participation behaviour and citizenship behaviour positively affect ViU regarding relationship development. Participation behaviour had a moderately high impact on relationship development ($\beta=0,412$; t-value 6,437 and $p<0.001$), while citizenship behaviour showed a weaker impact at a different level of significance ($\beta=0,203$; t-value 3,083 and $p<0.01$). These results confirmed hypotheses 9b and 10b. Citizenship behaviour also significantly impacted another dimension of ViU about the online experience ($\beta=3,083$; t-value 0,203 and $p<0.01$), which confirmed hypothesis 10a. However, the impact of participation behaviour on online experience indicated a negative impact, which disconfirms hypothesis 9a.

Also, hypotheses 11a and 12a regarding customer VCC behaviour and willingness-to-engage in co-creation activities assumed that both participation and citizenship behaviour positively impact willingness-to-engage. However, the results indicated that only citizenship behaviour had a significant positive impact ($\beta=0,226$; t-value 2,627 and $p<0.01$), whereas participation behaviour had a significant negative effect on willingness-to-engage. Concerning WoM intentions, both participation behaviour and citizenship behaviour have positive impacts on WoM intentions. However, citizenship behaviour had a higher effect on WoM intentions ($\beta=0,366$; t-value 5,498 and $p<0.001$) compared to the effect of participation behaviour

($\beta=0,091$; t-value 2,240 and $p<0.05$) in a different level of significance. The results verified hypotheses 11b and 12b.

Customer ViU and behavioural responses

The hypothesis testing on customer ViU (i.e., online experience, relationship development) on customer co-creation consequences regarding positive affectivity, willingness-to-engage, and channel usage continuance intentions, as shown in Table 7.12, indicated different results. Both online experience ($\beta=0,146$; t-value 2,005 and $p<0.05$) and relationship development ($\beta=0,174$; t-value 2,634 and $p<0.01$) had a positive effect on positive affectivity, which confirmed hypotheses 13b and 14b. Online experience (t-value 6,666 and $p<0.001$) and relationship development (t-value 3.773 and $p<0.001$) also had significant positive impacts on continuance intentions and confirmed hypotheses 13c and 14c. However, the linear relationship between the online experience and continuance intentions was higher ($\beta=0,350$) than the impact of relationship development and continuance intentions ($\beta=0,199$). Nevertheless, the online customer experience was the only factor that significantly impacted customer willingness-to-engage ($\beta=0,374$; t-value 4,799 and $p<0.001$), while relationship development showed an insignificant effect: the analysis confirmed hypothesis 13a but disconfirmed hypothesis 14a.

Positive affectivity and behavioural intentions

The analysis verified the effects of customer VCC's consequences on emotions reflected through positive affectivity and the effect on behavioural intentions. The results in Table 7.12 indicate that positive affectivity had a significant positive impact on channel usage continuance intentions ($\beta=0,213$; t-value 4,341 and $p<0.001$). Lastly, customer continuance intentions also had a positive effect on WoM intentions (t-value 12,514 and $p<0.001$), and the effect was relatively high ($\beta=0,576$). These results verified hypotheses 15 and 16.

7.5.5 Post-hoc Statistical Power for Direct Effect

This research employed the post-hoc statistical power for multiple regression. This is facilitated by the post-hoc statistical power calculator (<https://www.danielsoper.com/statcalc/calculator.aspx?id=9>). The results revealed that there was adequate power to detect any significant effects that might have existed. Therefore, the calculation confirmed for the hypotheses results of the not supported effects that occurred because it was not significant and not because there was not enough power.

7.5.6 Moderation Analysis Results

This subsection presents the moderation analysis results as an advanced analysis after analysing the direct effect between two related constructs observed in the main model. Two groups were observed that were applied as moderators: (1) the length of engagement in VCC processes and (2) customer age. The length of engagement in VCC processes was compared between regular customers and first-time customers, while consumer age was compared between adults and young adults. Table 7.13 shows the grouping of the two moderators. Because this research employed the frequency distribution approach to group the moderators, it was expected that every group in each moderator would have an even number of members to compare. The results showed that each group was sufficient to be compared.

Table 7.13 Grouping the samples for moderation analysis

Name of profile	Grouping	Name of group	Categorisation	Valid	Frequency (%)
The length of engagement in VCC processes	1	Regular customers	The customer purchasing vegetables via e-tailing more than one time (returning customers)	210	48.1
	2	First-time customers	The customer purchasing vegetables via e-tailing only once	227	51.9
Age	1	Adults	Consumer age above 24 years old	242	55.4
	2	Young adults	Consumer age under 24 years old	195	44.6

7.5.7.1 Structural Model Comparison Results

Before testing the moderation hypothesis, the multi-groups analysis for the measurement model through multi-sample confirmatory factor analysis (MCFA) and structural model comparison was employed. This process aims to examine the structural model's differences (Hair Jr. et al., 2010). Four tests of cross-validation assessment were applied: (1) loose cross-validation; (2) factor structure equivalence; (3) factor loading equivalence; and (4) inter-factor covariance equivalence. The MCFA for both moderators showed satisfying results.

The multi-group analysis for the structural model comparison on the first moderator of the length of engagement in VCC processes presented satisfactory results (see Table 7.14). The loose cross-validation indicated a significant χ^2 test. Based on the CFI and RMSEA indices, both regular consumer and first-time consumer models indicated a good fit. These valid results demonstrated that the criteria for loose cross-validation were achieved. The second stage employed factor structure equivalence to test for invariances. Based on analysis using Totally Free (TF), there was consistency in both models of fixed and free parameters. It presented a satisfactory result for both groups. Both models have configural invariance and support for

factor structure equivalence. Then, the third metric invariance test was employed. The full metric invariance signified that the factor loadings of Measurement Weights were significantly different. As for partial metric invariance, 16 loadings were examined. The results showed metric invariance for both models. The test findings for inter-factor covariance equivalence in stage four indicated that the factor loadings and the inter-factor covariances were significantly different.

Table 7.14 Summary results on tests of Structural Invariance: regular customers versus first-time customers

Model tested	Model Fit Measures						Model Differences		
	χ^2	df	<i>P</i>	RMSEA	CFI	PNFI	$\Delta\chi^2$	Δ df	<i>P</i>
Individual groups:									
▪ Regular customers	2438.25	1493	0.000	0.055	0.87	0.68			
▪ First-time customers	2437.50	1493	0.000	0.053	0.89	0.72			
Totally Free – TF (unconstrained)									
Factor Structure Equivalence	4875.79	2986	0.000	0.038	0.88	0.70			
Full – Factor Loading Equivalence	4923.33	3025	0.000	1.628	0.88	0.71	47.54	39	0.164
Partial - Factor Loading Equivalence	4888.84	3000	0.000	0.038	0.88	0.70	13.05	14	0.523
Structural Covariance Equivalence	4999.34	3073	0.000	0.038	0.88	0.71	110.50	73	0.003

The multi-group analysis for the structural model for the second moderator or customer age also showed acceptable results. The results from structural invariance tests comparing the group of adults and young adults indicated a good fit for both group samples. The analysis demonstrated that the criteria of all four tests are achieved (see table 7.15). The first test of the loose-cross validation for the two groups for both adult and young adult samples showed a significant χ^2 , and the CFI and RMSEA indices signify a quite similar score. The criteria for this test were achieved by referring to the measurement model taken separately for both models. The second test of factor structure equivalence showed consistency in both models for adults and young adults of the fixed and free parameters. Both the adults and young adults' models had configural invariance and support for factor structure equivalence. The third test was for metric invariance. The test followed the analysis for full metric invariance and partial metric invariance. For the partial metric invariance, 16 loadings were analysed. The results indicated metric invariance for both partial and full metric models. The last test of inter-factor covariance equivalence also showed that both models were significantly different.

Table 7.15 Summary results on tests of Structural Invariance for adults versus young adults

Model tested	Model Fit Measures						Model Differences		
	χ^2	df	P	RMSEA	CFI	PNFI	$\Delta\chi^2$	Δdf	P
Individual groups:									
▪ Adults	2594.97	1493	0.000	0.055	0.88	0.71			
▪ Young adults	2381.41	1493	0.000	0.055	0.88	0.69			
Totally Free – TF (unconstrained)									
Factor Structure Equivalence	4976.55	2986	0.000	0.039	0.88	0.70			
Full – Factor Loading Equivalence	5025.32	3025	0.000	0.039	0.00	0.70	48.77	39	0.136
Partial - Factor Loading Equivalence	4995.09	3000	0.000	0.039	0.88	0.70	18.54	14	0.183
Structural Covariance Equivalence	5112.29	3073	0.000	0.039	0.88	0.71	117.20	73	0.001

The following subsection elaborates the findings from the hypothesis moderation testing of the structural model. Table 7.16 and 7.17 report structural weights for the two groups in the respective factors of length of engagement in VCC processes and customer age.

7.5.7.2 Testing for Moderation Effects for the Length of Engagement in VCC Processes

The moderation testing shows seven significant results for the length of engagement in VCC processes on customer VCC (see Table 7.16). The findings indicated that the length of engagement in VCC processes moderates the customer VCC and outcomes with different patterns. First, a significant positive effect was stronger for first-time customers in the relationship between intrinsic motivations and co-creation behaviours regarding participation and citizenship behaviour. However, the effect was stronger for citizenship behaviour than for participation behaviour for this customer category. Next, testing moderation indicates the effect of skill development motives on citizenship behaviour was also stronger for first-time customers, although this relationship was not significant for regular customers. The finding also showed a highly significant positive moderation effect between participation behaviour and customer ViU related to relationship development which was stronger for first-timers. However, the result showed an interesting finding related to the relationship between citizenship behaviour and relationship development that was stronger for regular customers. However, it was not significant for first-time customers. The relationship between relationship development and positive affectivity was stronger for regular customers, but there was no effect on first-time customers. Finally, as the previous relationship between citizenship behaviour and relationship development was stronger for regular customers. This type of customer also moderates the relationship between citizenship behaviour and WoM intentions.

In summary, the length of engagement in VCC processes revealed a moderation effect on customer VCC and outcomes. Specifically, the findings showed that the length of engagement in VCC processes moderated several relationships related to VCC motivation, customer co-creation behaviour, and behavioural outcomes (i.e., relationship development, positive affectivity, WoM intentions). The remaining relationships in the model were not moderated by the length of engagement in VCC processes (H17 partially supported).

Table 7.16 Testing moderation effects for the length of engagement in VCC processes

Path	$\Delta\chi^2$	Conclusion (Sig.)	Evidence			
			Regular customers (Coef.)	<i>T-test</i>	First-time customers (Coef.)	<i>T-test</i>
Social expertise → participation behaviour	1.167	0.280 (ns)	0,199	2,149 (*)	0,292	3,534 (***)
Social expertise → citizenship behaviour	0.120	0.729 (ns)	0,324	2,578 (*)	0,196	2,304 (*)
Openness → participation behaviour	0.589	0.443 (ns)	0,131	1,508 (ns)	0,189	2,547 (*)
Openness → citizenship behaviour	0.497	0.481 (ns)	0,214	2,147 (*)	0,086	1,141 (ns)
Intrinsic motivation → participation behaviour	5.200	0.023 (*)	0,277	2,775 (**)	0,464	5,033 (***)
Intrinsic motivation → citizenship behaviour	5.474	0.019 (*)	0,292	2,422 (*)	0,512	4,323 (***)
Skill development motivation → participation behaviour	2.671	0.102 (ns)	-0,014	2,775 (**)	-0,167	5,033 (***)
Skill development motivation → citizenship behaviour	5.474	0.019 (*)	-0,007	-0,086 (ns)	0,158	2,061 (*)
Citizenship behaviour → online experience	1.182	0.277 (ns)	0,337	2,870 (*)	0,279	2,558 (*)
Participation behaviour → online experience	0.379	0.438 (ns)	-0,101	-1,424 (ns)	-0,051	-0,623 (ns)
Skill development motivation → online experience	0.016	0.900 (ns)	0,306	4,330 (***)	0,349	4,736 (***)
Intrinsic motivation → online experience	0.607	0.436 (ns)	0,364	4,195 (***)	0,259	2,244 (*)
Participation behaviour → relationship development	6.426	0.011 (*)	0,146	1,841 (#)	0,621	6,713 (***)
Citizenship behaviour → relationship development	14.692	0.000 (***)	0,450	3,116 (*)	-0,022	-0,256 (ns)
Intrinsic motivation → positive affectivity	0.263	0.608 (ns)	0,210	2,167 (*)	0,305	3,015 (**)
Skill development motivation → positive affectivity	0.796	0.372 (ns)	-0,069	-0,816 (ns)	-0,177	-1,992 (*)
Online experience → positive affectivity	0.108	0.742 (ns)	0,114	1,058 (ns)	0,173	1,710 (#)
Relationship development → positive affectivity	2.769	0.096 (#)	0,216	2,748 (*)	0,054	0,684 (ns)
Social expertise → willingness-to-engage	0.029	0.866 (ns)	0,019	0,194 (ns)	0,049	0,571 (ns)
Openness → willingness-to-engage	0.053	0.818 (ns)	0,098	1,148 (ns)	0,156	2,155 (*)
Intrinsic motivation → willingness-to-engage	0.064	0.800 (ns)	-0,232	-2,111 (*)	-0,297	-2,391 (*)
Skill development motivation → willingness-to-engage	1.182	0.277 (ns)	0,314	3,601 (***)	0,171	2,133 (*)
Citizenship behaviour → willingness-to-engage	0.177	0.674 (ns)	0,223	1,702 (#)	0,243	2,033 (*)
Participation behaviour → willingness-to-engage	0.027	0.869 (ns)	0,054	0,637 (ns)	0,051	0,435 (ns)
Online experience → willingness-to-engage	1.057	0.304 (ns)	0,256	2,125 (*)	0,478	4,921 (***)
Relationship development → willingness-to-engage	0.277	0.599 (ns)	-0,103	-1,169 (ns)	-0,051	-0,579 (ns)
Online experience → continuance intentions	0.139	0.709 (ns)	0,330	4,228 (***)	0,345	4,874 (***)
Positive affectivity → continuance intentions	0.154	0.695 (ns)	0,194	2,670 (**)	0,190	2,828 (**)
Relationship development → continuance intentions	1.575	0.209 (ns)	0,135	1,717 (#)	0,247	3,405 (***)
Citizenship behaviour → word-of-mouth intentions	3.807	0.051 (#)	0,437	3,349 (***)	0,291	3,810 (***)
Participation behaviour → word-of-mouth intentions	2.623	0.105 (ns)	0,010	0,178 (ns)	0,177	2,918 (**)
Continuance intention → word-of-mouth intentions	0.149	0.700 (ns)	0,572	9,369 (***)	0,560	9,307 (***)

Notes: Consumer Buying Frequency segments: (1) metric invariance between two groups $\Delta df = 39$, $\Delta\chi^2 = 47.54$, $p > 0.05$; (2) All $\Delta df = 1$; (3) model fit across the two groups $\chi^2 (2986) = 4875.791^{***}$, CMIN/DF = 1.663, CFI = 0.88, RMSEA = 0.038

7.5.7.3 Testing Moderation Effects for Customer Age

Based on the hypothesis testing on the moderation variable for customer age, six hypotheses showed significant results (see Table 7.17). The empirical findings showed that age has different effects in terms of customer VCC. The relationship between intrinsic motives and participation behaviour, and between intrinsic motives and citizenship behaviours were stronger for young adults. The effect was slightly different in the relationship between intrinsic motives for young adults' participation and citizenship behaviour. The results showed that the relationship between skill development motivation and citizenship behaviour was stronger for young adult customers. However, the testing indicated that this relationship was not significant for adult customers. The relationship between citizenship behaviour on online experience was stronger for adults. The testing indicated a significant positive effect between citizenship behaviour and online experience stronger for adult customers. The significant results also showed the relationship between participation behaviour and willingness-to-engage and between citizenship behaviours and willingness-to-engage that were stronger for adults. Nevertheless, the effect was stronger for citizenship behaviour than participation behaviour for adults.

Overall, customer age moderated customer VCC, primarily related to customer VCC motivation, VCC behaviour, and ViU (i.e., experiences), and willingness-to-engage in virtual co-creation enabled by B2C interactions using e-commerce. However, the remaining relationships were not moderated by customer age (H18 partially supported).

Table 7.17 Testing moderation effects for customer age

Path	$\Delta\chi^2$	Conclusion (Sig.)	Evidence			
			Adults (Coef.)	T-test	Young adults (Coef.)	T-test
Social expertise → participation behaviour	2.658	0.103 (ns)	0,172	2,100 (*)	0,346	3,638 (***)
Social expertise → citizenship behaviour	0.009	0.927 (ns)	0,280	2,769 (**)	0,158	1,780 (#)
Openness → participation behaviour	0.070	0.791 (ns)	0,248	3,019 (**)	0,156	1,982 (*)
Openness → citizenship behaviour	0.726	0.394 (ns)	0,286	2,894 (**)	0,115	1,445 (ns)
Intrinsic motivation → participation behaviour	3.532	0.060 (#)	0,294	3,168 (**)	0,428	4,226 (***)
Intrinsic motivation → citizenship behaviour	3.429	0.064 (#)	0,306	2,804 (**)	0,470	3,959 (***)
Skill development motivation → participation behaviour	0.000	0.991 (ns)	-0,093	-1,262 (ns)	-0,036	-0,426 (ns)
Skill development motivation → citizenship behaviour	3.305	0.069 (#)	0,019	0,268 (ns)	0,207	2,316 (*)
Citizenship behaviour → online experience	3.292	0.070 (#)	0,375	3,336 (***)	0,251	2,289 (*)
Participation behaviour → online experience	0.009	0.924 (ns)	-0,084	-1,236 (ns)	-0,142	-1,598 (ns)
Skill development motivation → online experience	0.346	0.556 (ns)	0,348	5,550 (***)	0,280	3,358 (***)
Intrinsic motivation → online experience	0.164	0.686 (ns)	0,279	3,359 (***)	0,401	3,316 (***)
Participation behaviour → relationship development	0.015	0.904 (ns)	0,369	4,489 (***)	0,422	4,332 (***)
Citizenship behaviour → relationship development	2.624	0.105 (ns)	0,309	2,967 (**)	0,100	1,055 (ns)
Intrinsic motivation → positive affectivity	1.423	0.233 (ns)	0,338	3,858 (***)	0,182	1,596 (ns)
Skill development motivation → positive affectivity	0.016	0.900 (ns)	-0,113	-1,496 (ns)	-0,103	-1,012 (ns)
Online experience → positive affectivity	0.559	0.455 (ns)	0,213	2,302 (*)	0,079	0,676 (ns)
Relationship development → positive affectivity	0.096	0.756 (ns)	0,096	1,351 (ns)	0,175	2,024 (*)
Social expertise → willingness-to-engage	0.384	0.535 (ns)	0,065	0,861 (ns)	-0,025	-0,236 (ns)
Openness → willingness-to-engage	0.568	0.451 (ns)	0,160	2,122 (*)	0,085	1,024 (ns)
Intrinsic motivation → willingness-to-engage	0.199	0.656 (ns)	-0,290	-3,175 (**)	-0,243	-1,704 (#)
Skill development motivation → willingness-to-engage	1.489	0.224 (ns)	0,324	4,492 (***)	0,159	1,620 (ns)
Citizenship behaviour → willingness-to-engage	3.383	0.066 (#)	0,391	2,865 (**)	0,150	1,217 (ns)
Participation behaviour → willingness-to-engage	11.129	0.001 (**)	0,251	3,028 (**)	0,246	1,969 (*)
Online experience → willingness-to-engage	0.807	0.369 (ns)	0,273	2,784 (**)	0,397	3,416 (***)
Relationship development → willingness-to-engage	2.104	0.147 (ns)	0,041	0,532 (ns)	-0,143	-1,644 (ns)
Online experience → continuance intentions	0.666	0.414 (ns)	0,369	5,112 (***)	0,388	5,140 (***)
Positive affectivity → continuance intentions	0.009	0.924 (ns)	0,207	3,077 (**)	0,178	2,490 (*)
Relationship development → continuance intentions	0.033	0.856 (ns)	0,155	2,212 (*)	0,208	2,656 (**)
Citizenship behaviour → word-of-mouth intentions	1.798	0.180 (ns)	0,373	3,647 (***)	0,308	3,913 (***)
Participation behaviour → word-of-mouth intentions	1.367	0.242 (ns)	0,019	0,343 (ns)	0,163	2,593 (*)
Continuance intention → word-of-mouth intentions	0.036	0.849 (ns)	0,578	9,604 (***)	0,582	9,441 (***)

Notes: Consumer age segments: (1) metric invariance between two groups $\Delta df = 39$, $\Delta\chi^2 = 48.77$, $p > 0.05$; (2) All $\Delta df = 1$; (3) model fit across the two groups $\chi^2 (2986) = 4976.55^{***}$, CMIN/DF = 1.663, CFI = 0.88, RMSEA = 0.039

7.6 Chapter summary

This chapter has explained the key findings from the quantitative research. This chapter's structure was developed comprehensively to adjust to the Mixed Methods applied in this thesis. Hence, this chapter has provided the hypothesis development, methodology, and findings of the hypothesis testing. The quantitative research framework and hypothesis development were established based on the qualitative findings of customer VCC (see Chapter 6) and linked to the literature background. This research has examined the customer perspective concerning this topic using a quantitative approach. The methodology section justified the specific quantitative research methods for survey and testing for causality relationship using the SEM and advanced analysis for moderation. Then, this chapter reviewed the results from the hypothesis testing. Hereafter, Chapter 8 provides the discussion, implications, limitation, and future research of this thesis.

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CHAPTER 8 – DISCUSSION

8.1 Introduction

This chapter discusses the findings in response to the research objectives of this mixed-methods project. This thesis tries to contribute to the theoretical questions that are explicitly expressed through four research questions regarding (1) VCC manifestation by the local organisations at the BOP (the values underpin the exchange approach and the observed principles of interaction), (2) the role of e-commerce in VCC within local supply chains at the BOP, (3) the underlying dimensions of VCC and practices of engagement among e-commerce supply chain actors at the BOP, and (4) the causes and effects of customer VCC within the emerging agri-food e-commerce in a developing economy. Based on the qualitative and quantitative findings, this thesis sought to extend the VCC concept enabled by digital technology by bridging theory and practice, understanding VCC from the business actor and customer perspectives. Adopting the VCC concept and philosophy has revealed the significance of S-D logic as the primary paradigm for VCC. However, another paradigm discovered in this research concerned the social justice logic, contributing to the ethos of B2B co-creation at the BOP, orchestrated by the local e-commerce businesses. This new way of creating value-based exchange scenarios using digital food retailing influences relationships, interactions, and the engagement of producers and e-commerce practitioners with the end customers, enabling customer VCC. Customer VCC enabled by e-commerce amongst Indonesian urban consumers sheds light on VCC's theoretical issues (from the marketing literature) applied in the agri-food marketing and developing economy context. The e-commerce is reflected the retail transformation in agri-food systems facilitated by digital food commerce in B2B and B2C situations. After this section of the introduction, section 8.2 presents a discussion of the mixed-method research findings, and section 8.3 presents a summary of this chapter.

8.2 Research Findings Elaborations

Four specific contributions from the findings are summarised here and discussed in more detail below:

1. This mixed-method research refined the VCC concept applied to B2B and B2C contexts based on the sequential research results. The qualitative research led to an in-depth understanding of the VCC theoretical core by providing VCC insights initiated by the local retail companies (rather than MNCs) who collaborated with other BOP businesses involved in the agri-food e-commerce chain.
2. The qualitative research explored digital technologies as a strategic enabler of the emergence of e-commerce channels by organising and explaining the co-creation process in the scripted market by the e-commerce linked to the interaction process and the circumstances under which VCC occurs at the BOP. The research introduced the principle of social justice logic for VCC in the e-commerce chain.
3. The qualitative findings indicate the critical dimensions of the VCC process, practices, and impacts of engagement in B2B among supply chain actors at the BOP and B2C relationships in the e-commerce channel. The key components of co-creation have identified the distinction and uniqueness of a specific market setting of an emerging market and the BOP by following the new e-commerce business model and practices.
4. The qualitative research findings related to e-commerce interactions with customers were used to develop the customer VCC conceptual framework for the quantitative research stage. This second empirical study extends the understanding of the S-D logic for a general theory of VCC by investigating some of its unexplored proposals. The research confirmed the main elements of the customer VCC conceptual model grounded on the S-D logic linked to other theories, specifically the extended resource-based theory (ERBT), cognitive role theory, relationship marketing concept (i.e., engagement), and expectation confirmation theory. These theories facilitated the explanation of the causes and effects of customer VCC. The findings verified the relationships of customer motivation and consumer resources affecting customer VCC behaviour, indicating VCC manifestation through ViU. These relationships affected customer behavioural consequences related to willingness-to-engage in co-creation activities, positive affectivity, and behavioural intentions to use e-commerce for food product purchases. The quantitative research also highlights the moderating role of the

length of engagement in VCC processes and customer age on customer VCC enabled by digital retailing.

The following subsections discuss the research findings from the qualitative and quantitative research, including the implications for the current literature.

8.2.1 Transformational VCC Within the E-commerce Chain

The qualitative research represents a departure from previous research on VCC at the BOP, which MNC penetration strategies of such markets have dominated (see, for example, Dandonoli, 2013; Dey et al., 2019; Varman & Belk, 2012). This study followed a different approach by exploring VCC amongst local actors at the BOP and the potential role of digital technology in observed VCC activities. This approach extends the understanding of the VCC model (manifestation, process, mechanism) initiated by the local business actors in the downstream system (e.g., e-commerce) collaborating with the upstream local business actors at the BOP and explicitly involving the digital technology, which remains unexplored. Within this study locus of local Indonesian vegetable supply chains, VCC was identified within e-commerce channels, in which digital technologies were a crucial enabler. These e-commerce channels were transformational in their configuration around demand-pull rather than supply-push activities, with an inclusive, sustainable development ethos. The enablers and VCC processes supporting these e-commerce channels are now discussed.

The first contribution of this research regards the orchestration of VCC in e-commerce markets by social entrepreneurs, which provides an insight into the initiation of VCC at the BOP. The findings support previous research on the successful co-creation initiatives at the BOP by involving local communities (Letaifa & Reynoso, 2015; Nahi, 2016; Sinkovics & Archie-Acheampong, 2020). As argued in current literature, VCC in the agri-food sector depends on local stakeholder needs, and their involvement within the local networks is essential (Letaifa & Reynoso, 2015; Nahi, 2016; Santos & Laczniak, 2012; Sinkovics & Archie-Acheampong, 2020). This contribution echoes the ideological approach of VCC and the BOP from the perspective of social entrepreneurship marketing for empowerment, innovative social change, sustainable solutions in the marketplace (Facca-Miess & Santos, 2014; Santos, 2013), and BOP strategy-based development for inclusive business (Cañeque & Hart, 2017). The social entrepreneurs' tacit understanding of local markets and their personal value systems in developing social justice collaborations is exclusively in accordance with 'social entrepreneurship marketing. This idea extends previous research by Facca-Miess and Santos

(2014) about applying integrative justice to engage with the BOP marketplace. As catalysts for VCC, social entrepreneurs displayed Storbacka and Nenonen (2011) 'market scripting' characteristics. While this had not been anticipated during the study design, the entrepreneurial vision to see market opportunities through e-commerce and a lens of social justice enabled the social entrepreneurs to initiate and co-create a new market configuration. The role of social entrepreneurs as 'catalyst market scriptors', configuring innovative and transformative markets, is a key contribution to understanding the activation of VCC.

This research proposes a new market configuration premised upon a social justice ethos based on the qualitative findings. Based upon the co-creation of a fair, symbiotic, and sustainable business ecosystem at the BOP, this ethos represents an extension to the S-D logic associated with VCC (Vargo & Lusch, 2017). The S-D logic enables VCC by offering improved value propositions (Vargo & Lusch, 2017), whereas the social justice approach not only accommodates and facilitates problem-solving strategies stimulated by local actor networks (Vellema & Wijk, 2015) but also a fair marketplace (Khalid & Seuring, 2019; Santos et al., 2015). In contrast with the marketing approach based upon the S-D logic, this research supports previous research by Facca-Miess and Santos (2014) concerning the BOP market approach, described as 'marketing *with* the poor', by fostering equal partnerships and balanced relationships within B2B and B2C supply chains. The social justice logic extends this approach in what might be termed 'marketing *for* the poor'. The idea of a social justice ethos to support VCC manifestation that is encouraged by the local businesses aligns with previous literature (see Santos et al., (2009); London and Hart (2010)), where justice is rooted in the social nature of people and personal inter-connectedness between individuals. The 'social justice' ethos is proposed to extend the understanding of the fundamental issues in relationships and collaboration with the BOP. Thus, following Santos and Laczniak (2012), this research argues that the principle of social justice at the BOP is typified by and grounded upon ethical business strategies. It is also based upon the promotion of ethical responsibility as a fundamental condition for a socially inclusive business that intentionally redresses power and income inequalities within the e-commerce network.

Digital technologies have facilitated inclusive, collaborative social justice objectives and enabled market practices that have played a critical role in developing this social justice business ethos. VCC, under this ethos, decentres the G-D and S-D logic of competition in favour of an ecosystem where members co-create and learn from each other (a shared experience). The findings suggest that digital technology can create a symbiotic and organic

ecosystem that can improve the co-creation mechanism, which has been recommended by Dey et al. (2019). Therefore, this study also demonstrated that collaboration rather than cooperation provides an alternative approach to conducting business at the BOP, particularly where networks can develop around market configurations premised upon a social justice vision.

This qualitative research also provides an empirical example of how inclusive business strategy and sustainable development associated with BOP 3.0 (Cañeque & Hart, 2017) can be achieved. As recommended by previous research (Kjellberg & Helgesson, 2007; Storbacka & Nenonen, 2011), this research argues that VCC at the BOP requires 'market scriptors', who can identify the importance of the evidence, value propositions, and the benefits of VCC by developing mental models in the market ecosystem. Therefore, this research supports the literature about the long-term outcomes of the 'social justice' approach regarding the recommended creation of a fair marketplace (Santos et al., 2009) through poverty alleviation and sustainable development (Cañeque & Hart, 2017; Chmielewski et al., 2020).

8.2.2 The Role of E-commerce in the VCC process at the Local Network of the BOP

The second contribution from the qualitative research is related to the role of digital technology in the BOP co-creation process. This study suggests that the agri-food sector has benefited from the development, design, and application of e-commerce. Business models based on e-commerce have clear benefits for all partners within the network. Understanding the limited resources of agri-food providers involved in the supply chains was crucial for developing the business ecosystem. Digital technologies help address these constraints and enable creativity and innovation, which supports Rashid and Rahman's (2009) argument that the BOP population within a global market economy requires creativity to discover opportunities, efficacious business models, and products that satisfy market demand. As discussed in the qualitative analysis results, social entrepreneurs have adopted an innovative social justice business model enabled by digital technologies. It supports inclusive, sustainable, and fair business practices, and digital technologies have facilitated the development of an ecosystem based upon shared values and mutual benefits through transparent and trusted communications. As demonstrated, the digital technologies supported consumption communities' development by reinforcing shared ideals, frequent contact based upon new product availability, product usage recommendations (i.e., recipes) and order fulfilment. While these are congruent with Kozinets' (1999) observation of potential success factors in the digital sphere, this is an area for further research. This thesis also provides a holistic understanding of

the co-creation activation process, which moves beyond initiation to include implementation within VCC networks. This research aligns with previous research about fair trade practices that inspire new value propositions (Frow et al., 2016; Storbacka & Nenonen, 2015) that reveal the consequence of inclusive business approaches and collaboration. It also represents one step of change from conventional agricultural production and marketing, which often disadvantages producers, to embed sustainable practices (producers' knowledge, skill, and capability development). In this way, e-commerce networks are strategic rather than reactive.

Thus, e-commerce supports the business ecosystem reconfiguration by offering beneficial business relationships through processes that trigger members' attention, role understanding, joint activities, partnership, dynamic interactivity, and discovery. Each of these critical elements is enabled by the local e-commerce network, which may lead to VCC success at the BOP. This research proposes a VCC process (see Figure 8.1) that aligns with previous studies related to the experience-centric approach (Zátori, 2016) and the role of actors and resources in VCC (Agrawal & Rahman, 2015). It also aligns with the idea of co-creation as transformative services for wellbeing (Hepi et al., 2017) and co-creation through social enterprises, which involves multiple actors across the networks (De Silva et al., 2020). Thus, these results of VCC initiatives can be integrated with processes run by intermediaries, suppliers, and customers as co-creators (Agrawal & Rahman, 2015; Prahalad & Ramaswamy, 2004; Vargo & Lusch, 2008).

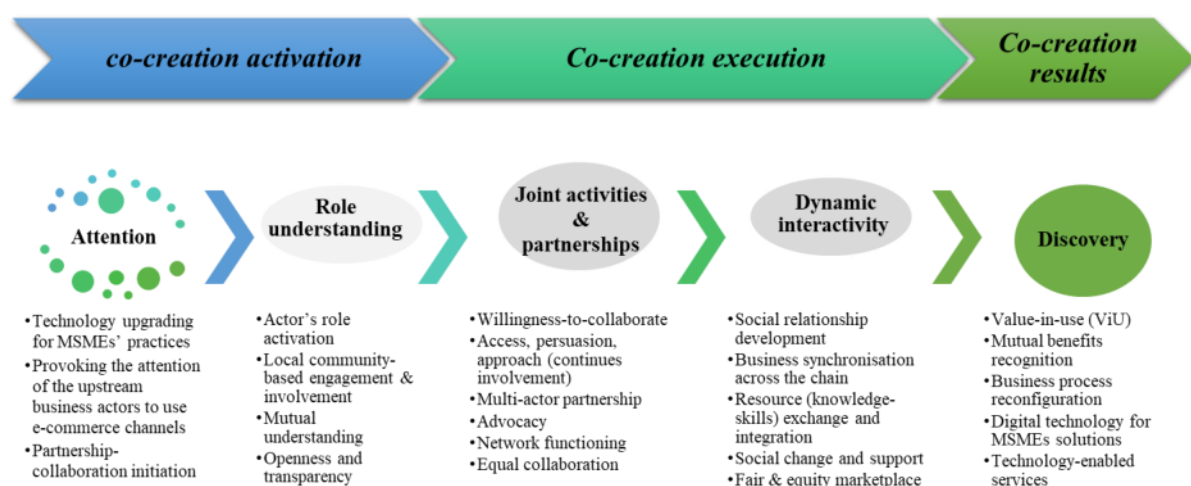


Figure 8.1 Co-creation facilitation by the local agri-food e-commerce at the BOP

As summarised in Figure 8.1, a series of stages contribute to VCC facilitation at the BOP. The qualitative research identified digital technologies as a key enabler for VCC, facilitating both the channel's development and the engagement and collaboration between members. The VCC benefits are experienced in the consumer, producer, social entrepreneur, and e-commerce marketing channel spheres. This result supports previous literature suggesting that technology innovation such as the Internet has enabled advanced services and promotes co-creation, and engages the customer in innovation practices (Mariussen & Ndlovu, 2012; Rayna & Striukova, 2016; Zhang et al., 2015). It also agrees with the suggestion that VCC can promote inclusive business model innovation at the BOP, which is linked to S-D logic (Gebauer & Reynoso, 2013). For consumers, the co-created value is experienced 'in-use' as per the S-D logic (Vargo & Lusch, 2017), whereas for farmers, VCC is experienced in farmer unions (communities, associations) as the value in 'resource advancement', as argued by Gebauer and Reynoso (2013). For social entrepreneurs, the exchange process is experienced as the value in 'development scripting'. This argument follows previous studies about a market actor (i.e., socio-entrepreneurs) driving the market and exercising new capabilities to influence other stakeholders (Storbacka & Nenonen, 2011, 2015). This co-creation model integrated with social justice, aligns with Hamby and Brinberg (2016) about a critical reflection on social justice proposing mutual benefits for both partner organisations and the customers. As a marketing orientation, VCC comprises relational, and exchange perceived as the social change to create value. Through these value exchange processes, e-commerce has transformed and expanded the agri-food chain opportunities and innovations.

8.2.3 The Underlying VCC Dimensions of Engagement Among Supply Chain Actors at the BOP

The third contribution of the qualitative research is addressing the knowledge gap regarding the underlying elements of VCC to develop engagement among multiple supply chain actors at the local level of the BOP. This study conceptualises the VCC process at the BOP by developing a model that includes the critical elements of a transformational VCC process enabled by e-commerce (see Figure 8.2). The model incorporates the VCC pre-conditions that influence the involved actors' exchange interactions and examines digital retailing implications in the agri-food sector. The model suggests a practical process-based VCC that consists of four primary elements required for successful co-creation: (1) social justice ethos, (2) technology and innovation, (3) collaboration and strategic partnerships, and

(4) inclusive business. The alignment and integration of these four main elements as the VCC inputs may expand the evolving S-D logic literature at the BOP.

The first dimension to engage the BOP actors in co-creation requires a social justice objective through an open, transparent, and inclusive process that can facilitate the required changes in the structure and trigger local actors' interest, as suggested in previous research (Khalid & Seuring, 2019; Lashitew & Van Tulder, 2020). For instance, e-commerce eliminates the power asymmetries witnessed in the traditional channels by supporting business capability, e.g., by knowledge sharing about how to restore land quality and improving skills such as giving advice on integrated farming methods. As proposed by Hamilton et al. (2014), such improvement of intangible resources such as knowledge and skills has been demonstrated to provide supplementary income via new entrepreneurial endeavours for BOP populations.

The short chains of e-commerce enable better partnerships, which accommodate fair-trade and faster payment for farmers (also demonstrated in, e.g., Bryła, 2018; D. Lee et al., 2015; and Prahalad & Hammond, 2002). Agri-food e-commerce can, therefore, be a new tool for economic growth (Pansera & Martinez, 2017; Santos et al., 2009). This new retail channel helps small-scale rural-based communities generate additional income and advance small businesses' competitiveness, supporting the suggestion that co-creation improves business opportunities and performance. This result aligns with Frow et al. (2015) about how co-creation offers the company and the networks of actors' access to new resources and creates opportunities for innovation. It also supports previous research about VCC is seen as the new competitive advantage source (Prahalad & Ramaswamy, 2004) and recognises economic development by integrating new resource exchange applied in new contexts (Moran & Ghoshal, 1999). Thus, this research supports the idea that VCC at the BOP aims to achieve market fairness (Hepi et al., 2017) and solution development for the market while also being sensitive to local customs and constraints (Weidner et al., 2010).

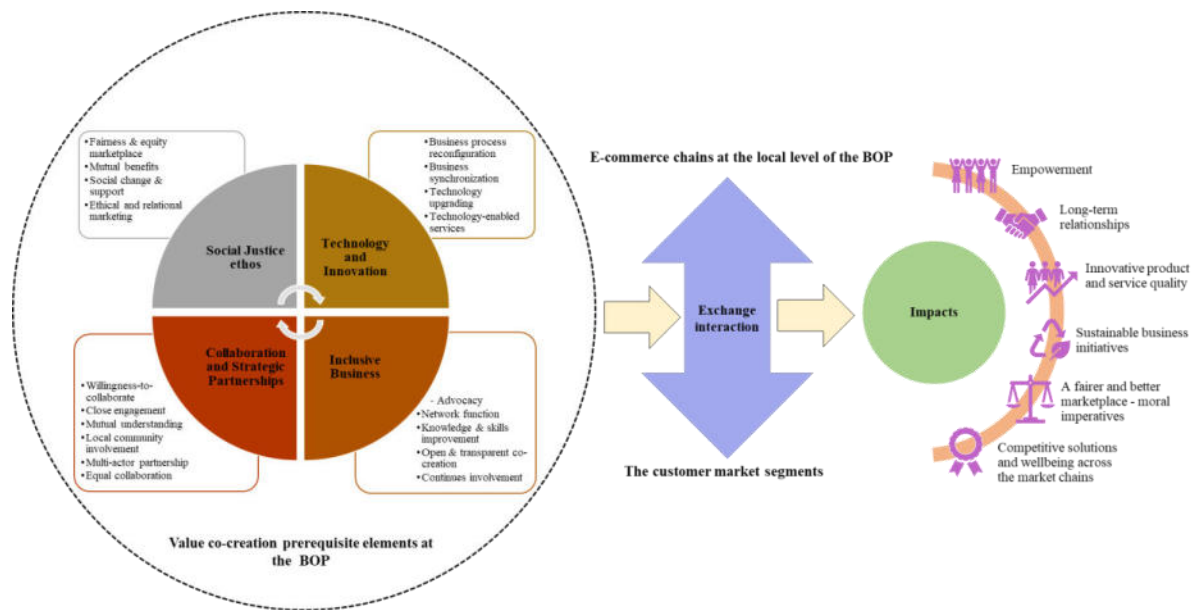


Figure 8.2. E-commerce for a transformative co-creation model at the local level of a BOP

The second and third dimensions are related to the inclusive business and collaborative partnerships, and so-called 'inclusive collaboration' have been identified in other co-creation studies (Dandonoli, 2013; Goyal & Sergi, 2015; Nayak et al., 2019). These two dimensions are dominant in this e-commerce model. Inclusive collaboration is a further characteristic of the social justice business orientation, in which inclusivity supports VCC through collaborative partnership, engagement, and channel partners' empowerment. Technology-enabled VCC in Indonesia's vegetable supply chain was premised upon a market opportunity identified by social entrepreneurs, who facilitated collaborative partnerships with small-scale community organisations to achieve mutual understanding and win-win benefits for all involved actors. This notion of the 'social entrepreneur' is consistent with Shaw and Carter's (2007) characterisation of people who recognise opportunities, identify benefits for the collective rather than individuals, embed business operations in networks, take personal risks, and are creative and innovative. In addition to these factors, the social entrepreneurs in this research also had a deep understanding of the culture, knowledge, literacy, and the stakeholders' needs and capabilities in the supply chain as VCC initiators, factors which Prahalad (2012) has identified as crucial to penetrating these mostly untapped markets.

Lastly, the idea of embedding technology in the VCC process at the BOP elaborates on the work of Dey et al. (2019) concerning the benefits from understanding the market complexity by upgrading the use of technology of the BOP. This finding aligns with previous literature about technology innovation to foster creative development and leverage local

innovativeness in the industry (Heikkurinen, 2018; Santos & Laczniak, 2012). The collaborative behaviour amongst the MSMEs in the agri-food sector with limited resources and capabilities has allowed them to support resource integration and identify new business solutions. This implies that VCC in the BOP context requires appropriate alignment of resources, skills, and competencies between actors, which can be leveraged.

Based on the transformational co-creation process shown in Figure 8.2, the qualitative research suggests synchronising the co-creation elements of social justice, innovation and technology, collaboration, and inclusive business. It may support the co-creation encounter phase, particularly when local constraints are acknowledged (Sinkovics & Archie-Acheampong, 2020). Therefore, based on the qualitative research results, it is argued that digital technology can positively impact VCC by optimising local-BOP networks. There is strong evidence that e-commerce enables openness and transparency in developing creative business opportunities and competitive solutions, which have long been considered challenges in food supply chains. This creative business opportunity with digital technology applications can lead to positive outcomes for the economy (i.e., sustainable business initiatives) as well as to a range of other impacts, such as social advantages (i.e., long-term relationships, a fair and better marketplace, wellbeing), innovation (i.e., innovative product-service quality), and human capital (i.e., empowerment) advantages. These findings extend prior co-creation outcomes for the BOP as suggested in previous research concerning (a) empowerment (Goyal & Sergi, 2015; Santos et al., 2009); (b) long-term relationships (Khalid & Seuring, 2019; Santos & Laczniak, 2012); (c) sustainable business initiatives (Heikkurinen, 2018; Santos & Laczniak, 2012); (d) a fair and sustainable marketplace (Facca-Miess & Santos, 2014; Santos et al., 2009); and (e) wellbeing (Alkire et al., 2020; Hepi et al., 2017).

8.2.4 Customer Involvement in VCC Through Digital Technology and Its Behavioural Consequences

Following the qualitative interviews, the second stage of quantitative research response calls for empirical evidence of understanding the VCC process and practices from the consumer perspective concerning their involvement primarily in the virtual environments (Dai et al., 2019; Gordon et al., 2018). The research has addressed the knowledge gaps identified by previous research concerning customer driving factors to participate and engage, and behavioural consequences in the VCC process and practices (Ferreira & Menezes, 2015; Prayag et al., 2020) applied in the agri-food industry on consumer e-commerce usage. From a

theoretical perspective, this quantitative research contributes to the customer VCC by focusing on customer-related resources, customer VCC motivations, customer VCC behaviour, ViU, behavioural responses, and future predictions about customer behavioural intentions. The current quantitative research elaborates the propositions about customer resources and motivations that manifest S-D logic to execute the VCC process (Vargo & Lusch, 2004, 2008), whereas ViU was argued to be the best-defined value (Grönroos, 2008; Vargo & Lusch, 2004). By taking the urban market segment's perspective in a developing economy, this quantitative research examines customers' perception of their interaction with agri-food e-commerce and consumption experiences using e-commerce for food purchases.

Figure 8.1 presents a synthesis of both the qualitative and quantitative research findings represented as a series of stages that contribute to VCC facilitation in a developing economy with the BOP. Implicit within this approach is the use of digital technology, which has enabled VCC facilitation in B2B and B2C relationships. This is shown in Figure 8.1's three main VCC stages: 1) activation, 2) execution and 3) results. Thus, these three phases derived from the results of qualitative research are reflected in the customer VCC examined in quantitative research, which is also supported by the literature.

First, the 'activating customer role' and 'co-creator of value' were examined by customer VCC drivers related to customer-related co-creation resources and co-creation motivation. As discussed in the qualitative findings and identified in the literature, these factors could provoke customer attention, which is facilitated by e-commerce-enabled advanced service provision which promotes co-creation (Mariussen & Ndlovu, 2012; Rayna & Striukova, 2016; Zhang et al., 2015). The second stage of , co-creation execution is manifested through VCC behaviour of participation and citizenship and the active customer role in the exchange interaction with companies (Filieri, 2013; Hoyer et al., 2010). In the context of online retail consumers and the VCC process, this construct of VCC behaviours was derived from the qualitative study and has been supported in the literature as critical for expressing customer empowerment to be more active, connected and informed (Chen et al., 2018; Fellesson & Salomonson, 2016; Grönroos & Voima, 2013). VCC behaviours could represent the active customer role as the value co-creator by developing interaction, communication, dialogue, and relationships with the company. In this research context, performing such behaviours could indicate the joint activities and dynamic interactivity between the customer and e-commerce and initiate customer engagement in the VCC process.

Third, the final stage related to co-creation results manifested in customer ViU is that value is co-created as the part of use and experienced 'in-use' as per the S-D logic (Lusch & Vargo, 2006; Vargo & Lusch, 2004, 2008, 2017). As identified in the qualitative study findings, ViU articulates customers' experiential assessment of value propositions which is supported in the literature (Edvardsson et al., 2011; Vargo & Lusch, 2008b). In this study, customers could discover the outcomes of using e-commerce by enabling customers as co-creator of value to experience online food grocery purchases and develop beneficial relationships with the online seller indicating customer engagement. In the context of digital-mediated platforms, this construct of ViU is the manifestation of VCC when customers use online applications or online channels (Fang, 2012; Gao & Bai, 2014; Jeon et al., 2017; Melis et al., 2015; Rose et al., 2012). Concerning the VCC process, ViU could be indicated as the VCC outcome in the result stage by encouraging customers to engage in such activities. ViU is revealed as a unique experience at the end of the process. After customers experience VCC results, ViU could be used to predict customer behavioural responses related to willingness-to-engage and positive affectivity, and also their behavioural intentions, based on their consumption experiences using e-commerce for food purchases that support continued customer engagement in the future.

This research explains the customer-related resources concerning customer personality and customer social context in the VCC process. It also elaborates the concept of understanding the actor's psychological mechanism concerning motivation as the driver for resource integration by clarifying the cognitive and intrinsic motives that influence customer behavioural activities. This research elaborates on the literature about resource integration (Grönroos, 2008; Grönroos & Voima, 2013), actor motivations (Findsrud et al., 2018; Payne et al., 2017) and customer engagement (Grönroos, 2011; Gummesson, 1997; Van Doorn et al., 2010) in the initiation of the co-creation process. This research clarifies the relationships between customer resources and VCC behaviour and between co-creation motives and VCC behaviour as the manifestation of the customer's active role in the virtual co-creation activities. It further extends previous research on customer VCC behaviour via technology-based facilitation (e.g., online services) to enhance customer engagement (Anaza, 2014; Dennis et al., 2017; Groth, 2005) and to elaborate the B2C interactions managed by MSMEs of local e-commerce in a developing country. To obtain a holistic understanding of the customer VCC process, this research assesses ViU to articulate customer experiential and value propositions of their involvement in co-creation activities. This quantitative research also illuminates the literature on activating customer-experience and relationship development during the

company's interaction process (Heinonen & Strandvik, 2009; Ranjan & Read, 2016) to provide better value propositions. These components of ViU regarding online experiences and reciprocal relationship in active communication in the online environment are identified as VCC manifestation.

This research clarifies VCC outcomes through customer responses concerning customer attitude and customer psychological emotions in connection with co-creation collaborative activities. It elaborates on previous research suggesting that customer willingness-to-engage in VCC is context-based (Neghina et al., 2017). Also, further explaining customer feelings about such activities that may be different based on the context (Xu et al., 2018). This research broadens the discussion on customer VCC outcomes through customer willingness-to-engage and positive affectivity in virtual co-creation using the context of VCC facilitated by e-commerce, which combines products and services. Finally, this research supports previous research by identifying customer engagement in virtual co-creation that can influence future behavioural intentions in the online world (such as e-commerce utilisation) (see, for example (Balaji & Roy, 2017; C. Chen et al., 2017)). It clarifies customer behavioural intentions as the predictors of customer VCC behavioural outcomes and customer future purchase decisions using this agri-food e-commerce. Based on the findings, this quantitative study proposes three main contributions related to (1) customer VCC drivers, behaviour, manifestation; (2) customer VCC behavioural consequences; (3) the moderating effects of length of engagement in VCC processes and customer age on the proposed customer VCC framework, which are now discussed.

8.2.4.1 Customer VCC Drivers, Behaviours, and Manifestation When Using the E-commerce

This research contributes to the main premises of S-D logic for a general theory of VCC. It also examines the interlink of S-D logic with other theories involving the ERBT, cognitive role theory, expectation-confirmation theory, and relationship marketing concept (see Chapter 7). The results suggest that the VCC process through resource integration, motivational drivers, the active customer role to co-create value (i.e., customer VCC behaviour), and customer ViU were confirmed. However, some relationships related to customer skill development motives and customer VCC behaviour, co-creation behaviour (i.e., participation behaviour) and online customer experience were insignificant, disconfirming

their power in explaining customer VCC. This research clarifies the relationships regarding the causes of customer VCC when using agri-food e-commerce.

First, by referring to the ERBT, the findings suggest viewing customers as a source of company competitive advantage and broadening the perspective on market-based resources to manage the competitive market dynamic (such as demonstrated in Kozlenkova et al., 2014; Mathews, 2003). In this research, the extended resources focused on customer-related resources as customer co-creator capabilities in the VCC process. This research elaborates the operationalisation of customer VCC through customer-related resources integration (personality-related resources, social-related resources) that encourage the customer to present VCC behaviour. The results extend previous research on understanding customer active role and capabilities (Baron & Warnaby, 2011; Barrutia et al., 2016; Yi & Gong, 2013) and personal compatibility (Busser & Shulga, 2018) presenting co-creation behaviour. The findings indicate that consumer social-related resource that is presented through social expertise directly affects customer VCC behaviour. By linking to the qualitative findings, social expertise is concerned because agri-food e-commerce was relatively new amongst Indonesian urban consumers. Customer knowledge about this digital channel is assumed to be limited. Consumers may use social networks, such as families, colleagues, and friendship communities, which can be an effective way to search and obtain information about e-commerce channels. The Indonesian cultural context is also considered a highly collectivist society (Goodwin & Giles, 2003), which supports the importance of the social context amongst consumers. Consumers engaged in a social community to develop new connections or maintain old ones, which increases the possibility of them being involved in the VCC process.

The findings also signify the positive relationship between customer personality-related openness and VCC behaviour. This finding shows customer personality as a potential role in co-creation appraisal by presenting active customer participation and voluntary behaviour in joining the co-creation activities. This result develops previous research on customer personality to activate VCC behaviour (Busser & Shulga, 2018; Yoo & Gretzel, 2011). The focus is on customer openness reflected by customer acceptance and willingness to try new experiences and accept a new idea of online food purchases that directly affect VCC behaviour. This also shows that consumer openness to participating in virtual environments indicated customer beliefs in participating and engaging in such activities and reflecting customer contribution in a reciprocal exchange with other online platform users (e.g., e-commerce) in the virtual world.

Second, this research confirms the relationships between customer motivation to engage in VCC activities and customer active VCC behaviour. The findings support the literature concerning customer propensity to contribute to VCC activities that require motivations (Füller, 2010) and support the S-D logic propositions on the needs for knowledge and skills to initiate customer involvement and engagement in VCC (Brodie et al., 2013; Lusch & Vargo, 2011). However, of the two customer motivation factors examined in this research concerning skills development motives and intrinsic motives, only intrinsic motives significantly affected VCC behaviour (both participation and citizenship behaviour). Given that skill development motives showed an insignificant effect on VCC behaviour, it is predictable that customers are not driven by cognitive motives – e.g., improving skills to involve in co-creation activities. In contrast, intrinsic enjoyment from engaging in creative endeavours such as co-create consumption experiences (e.g., developing collaboration, co-create value) via online food purchases was the indicator for customers performing such participation and citizenship behaviour. The finding suggests that intrinsic motives are a strong predictor of VCC behaviour. The finding also confirms that intrinsic customer motivation can stimulate co-creation behaviour and customer engagement in virtual creation activities. This result extends previous studies indicating that enjoyment, fun, or entertainment could initiate customer engagement (Füller, 2010; Vivek et al., 2012) and encourage them to participate in virtual VCC (Fernandes & Remelhe, 2016). Such intrinsic motives, such as the enjoyment of using e-commerce, have motivated customers to use this channel and motivated them to collaborate and co-create more value. It is the intrinsic motivation of human nature to search for novelty and explore new things (Ryan & Deci, 2000), such as the urban consumers in developing economies that began to use digital technology to shop.

Moreover, the findings indicate the relationship between customer VCC motivation related to skill development and intrinsic motives and online customer experience. The motives to gain new knowledge and skills by using the online platforms to purchase customer needs may offer new experiences from the interaction and engagement with the company – i.e., agri-food e-commerce or with other customers in the online consumption community (created by e-commerce). This result supports the foundation of S-D premises regarding interactive customer experience motivated through engagement (Vargo & Lusch, 2008), such as service provisions, and transforms it into behavioural manifestation. These results align with the qualitative findings that selling food products using e-commerce was about selling products and providing services as the crucial elements of satisfying customer needs. E-commerce incorporates

services with customer education and entertainment established through social network sites to enhance customer knowledge (e.g., providing product provenance, cooking advice on new ingredients). In the VCC process, the e-commerce services are actualised in ViU through online food shopping experiences. Accordingly, this research sheds light on customer experiences as the manifestation of the company products and services (Day et al., 2004) and ViU as the co-created value (Ranjan & Read, 2016). Such intrinsic (affective) and cognitive motives encourage customers to gain such online experiences reflected as co-creation manifestation. Specifically, although online purchases may not be entirely new for Indonesian consumers (e.g., online shopping for fashion, electronics, beauty products, and more), online food product purchases are a relatively new food retail channel. Consumer consumption experiences using this e-commerce channel are possibly offering more expected benefits than conventional food retail (e.g., wet markets, supermarkets), which primarily focus on transactional orientation.

Third, the findings show the relationship between customer VCC behaviour and customer ViU. The current research sheds light on the link between S-D logic as the VCC principle and relationship marketing concept as the foundation of customer engagement. The results support the relationships between customer participation (in-role) behaviour and relationship development, customer citizenship (extra-role) behaviour and online experience with relationship development. However, the relationship between participation behaviour online experience is insignificant. Previous research suggested that customer participation behaviour is the essence of customer involvement in co-creation activities (Payne et al., 2008; Revilla-Camacho et al., 2015), but such behaviour was not affecting the co-creation results (customer experience) in this research context. The results justify Rose et al. (2012), who suggested various sources can stimulate customer online shopping experience. The online experience resulting from collaborative co-creation activities with e-commerce does not always involve the required participation (in-role) behaviour.

The result supports the relationship between participation behaviour and customer ViU concerning relationship development. VCC behaviour regarding participation behaviour appears to be a strong predictor of ViU about relationship development. This result clarifies previous research on active customer participation in co-creation activities that can affect the relationship between the company and customer in ongoing experiences (Fellsson & Salomonson, 2016; Ranjan & Read, 2016; Sreejesh et al., 2019). ViU manifests relationship development through active communication and engagement between the company and the consumer through reciprocal and joint participation behaviour. By referring to the cognitive

role theory, this result contributes a further understanding of VCC to change the customer role from passive into active co-creator of value by conceptualising role-related stimuli of role activation in the context of online retail consumers. Online food shopping activities through e-commerce have enabled customers to present participation behaviour, facilitating a positive ViU regarding relationship development.

The findings also confirm the relationships between customer citizenship behaviour with ViU regarding online experience and relationship development. This is consistent with previous research on VCC behaviour in the online services to develop partnerships and engagement with customers (Anaza, 2014; Dennis et al., 2017; Groth, 2005) by elaborating the consequences of presenting such behaviour on the online experience over time and a beneficial mutual relationship between the company and customer. These results also extend previous research regarding citizenship behaviour as discretionary or voluntary behaviour that is not necessary for successful co-creation (Yi & Gong, 2013). Instead, in this research context of virtual VCC, customers may consider citizenship (extra-role) behaviour as an essential behaviour to enjoy e-commerce services. This voluntary behaviour (i.e., advocacy, feedback, helping, tolerance) supports the interaction and engagement between the customer and e-commerce and influences customer online experience and relationship development. Presenting such active citizenship behaviour signifies that in virtual VCC, citizenship behaviour is presented as customer responses to e-commerce services. This result relates to the qualitative results about customer voluntary behaviour in relation to e-commerce services. For example, e-commerce provides advocacy for customers by guiding them to get a good vegetable quality, faster feedback on customer services and complaints, helping customers provide a one-stop food shop, and food purchase practicality, which may not be provided by other retail channels. Thus, citizenship behaviour is likely to contribute to customers' online experience and strengthen relationship development with e-commerce.

8.2.4.2 Customer VCC Behavioural Consequences of Using E-commerce

To benefit theory development and contribute to this context-specific research, it is essential to understand retail consumers in developing economies using digital retailing and to understand consumer consumption experiences and behavioural factors. This is primarily related to customer VCC behavioural consequences using agri-food e-commerce primarily managed by local MSMEs. This research suggests VCC behavioural outcomes based on several indicators concerning customer willingness-to-engage, positive affectivity, and behavioural

intentions – i.e., channel usage continuance intentions and WoM intentions. The findings support some of the relationships between the driving factors to customer VCC (i.e., operant resources and co-creation motivations), customer VCC behaviour, co-creation actualisation of ViU, and customer behavioural outcomes. First, this research confirms the relationship between customer-personality resources, customer VCC motivations, VCC citizenship behaviour, online experiences, and customer willingness-to-engage. However, some relationships related to customer social expertise and willingness-to-engage, participation behaviour and willingness-to-engage, relationship development and willingness-to-engage were insignificant. These results disconfirm their power in explaining customer behavioural consequences based on customer involvement in VCC activities. Previous research argued that when customers purchase products over e-commerce they rely on the knowledge provided in their social context (Gummesson, 2008). This argument possibly explains that social expertise is an endogenous factor in the VCC process. Also, because this food e-commerce is relatively new in this specific marketplace, the established relationship between the company and customer is a relationship that has just emerged. Developing a B2C online relationship requires continuous interactions and collaborative support (Ahn et al., 2014). Thus, these results suggest that agri-food e-commerce should create suitable strategies to generate customer willingness-to-engage in VCC activities. The customer voluntarily collaborates with the company to accomplish their objectives and expectations.

Customer behavioural outcomes suggest that the customers confirmed several actual behaviours as the co-creation collaboration and involvement consequences, reflecting customer action and intentions, which extends understanding of the customer VCC process. The relationships between customer openness, co-creation motivations (i.e., skill development motives, intrinsic motives), citizenship behaviour, and online experience on willingness-to-engage were confirmed. The findings explain these factors as the predictors of customer willingness-to-engage in co-creation activities. The results shed light about customer openness stimulates customer willingness to be involved in the co-creation activities (Yoo & Gretzel, 2011), and customer motivations contribute to the know-how and idea-sharing, driving willingness to engage in virtual VCC (Füller, 2006, 2010). Customer-personality related to customer openness to try new products or services with digital technology-based directly affects customer willingness-to-engage with e-commerce sellers in co-creation activities. This customer personality trait of Indonesian urban consumers indicates their likelihood of being involved in virtual VCC activities when using e-commerce, which may offer them more

expected benefits than food shopping in physical stores. Also, as new food retail uses digital technology, customer motivations to gain extra benefits from shopping through this channel (e.g., enjoyment, entertainment, food – cooking skill and knowledge enhancement) also increase customer propensity to engage with this channel and acquire those benefits.

This research also signifies that developing a strategy to encourage customer willingness-to-engage in virtual VCC required customer motivations and resources. The finding extends the previous study about customer VCC motives which can be varied based on the context (Neghina et al., 2017) by explaining it through intrinsic motives relevant to the conception of customer operant resources integration to enhance customer engagement in the virtual VCC process. By referring to the cognitive role theory, an actor's cognitive effects associated with the individual role in an environment are likely to be driven any time; the behaviours such as customer willingness to cooperate with the company can be measured (Fitzsimons et al., 2008). The result also extends previous research about the importance of customer motivations in the co-creation process (Payne et al., 2017) to deliver their own skills in the virtual exchange interaction (Bettencourt et al., 2014; Füller, 2010; Shah, 2018). It also elaborates the literature concerning defining motivations based not only on the internal issues of enjoyment but also on the practice itself (Roig et al., 2014). In this research, the new knowledge and skill offered by e-commerce (e.g., marketing communication via social media about cooking recipes, cooking technique, healthy food preparation) has facilitated dialogue, conversation, and personalised experiences and encourages customer willingness-to-engage with the company. In this regard, customer skill development motives are revealed as a good predictor for customer willingness-to-engage. This result is also associated with the qualitative findings related to the VCC expected benefits in terms of customer skill development enhancement by using e-commerce beyond the utilitarian benefits (food purchases only to fulfil customer needs toward food). This motive can be considered a sensible reason for consumers to try new products and services via e-commerce.

However, the result indicates a negative relationship between intrinsic motives and willingness-to-engage. The argument from previous research about the customer motives to be involved in VCC activities may be more than just enjoyment or creative engagement for the pleasure of its own sake (Füller, 2010; Roig et al., 2014) may explain this result. The increased customer personal drives, such as the enjoyment of making food product purchases via e-commerce, are not likely to increase customer willingness-to-engage. Customers may consider the risks of using this e-commerce as new food retail, such as the hesitation when customers

use it for the first time. They may have multiple reasons and motivations to use this channel and participate in co-creation activities. The following result confirms the effect of online experiences and willingness-to-engage. The finding extends previous research suggesting that ViU related to online experiences is a good predictor of willingness-to-engage by attaching customers to experience the co-creation benefits (Kolomiets et al., 2018). Online experiences can increase the company and customer engagement to participate in virtual VCC voluntarily (Fernandes & Remelhe, 2016; Shamim et al., 2017). The effect of Internet use on the company and customer interaction increases customer active role behaviour in terms of willingness-to-engage with the company and enables co-creation. By acknowledging customer characteristics, needs, and wants, translating them into suitable digital food retail business strategies could offer unique and memorable food online shopping experiences. Such endeavours could enhance customer willingness-to-engage and propose more consumption experiences by using e-commerce. The literature suggests that online shopping may determine different customer experiences from physical store shopping based on technology-mediated interaction (Novak et al., 2000; Rose et al., 2012; Verhoef et al., 2009). Such compelling online experiences may enhance their willingness to participate in co-creation activities. Second, this part of the research confirms that customer motivations and ViU as the predictors of customer positive affectivity. The findings extend previous studies concerning motivation state can influence the affective condition and emotional stimuli (Canli et al., 2004; Gibson, 2006), affecting customer behaviour in the VCC process (Chathoth et al., 2016). This positive affectivity stimulates feelings of accomplishment in evaluating the products and services and customer participation in co-creation. Customer motivation related to intrinsic enjoyment and skill enhancement motives is also confirmed as the predictors of customer positive affectivity (the state of feelings, emotions, and psychology) about the overall online shopping experiences and interactions with e-commerce. Besides customer motivation, the findings suggested that customer ViU is a predictor of customer positive affectivity. The finding suggests that customer experience can explain customer psychological conditions through positive affectivity, which remained unclear in the previous research (Xu et al., 2018). This result shed light on predicting customer evaluations based on online customer experiences manifested as a psychological mechanism for using new services provided by e-commerce. The online experiences may reveal various emotions, feelings, and psychological effects that can influence customer evaluation of their online shopping.

ViU concerning relationship development is also identified as a predictor of positive affectivity, although it shows a negative effect, and it is against the literature (Park et al., 2019; Xu et al., 2018). This result indicates that it is not likely that increased relationship development between the customer and e-commerce increased customer positive affectivity. This could be because relationship development was manifested through online or virtual interaction rather than face-to-face communication or real-world interactions. Previous research concluded that online activities in connection with technology-based communication had a very small negative impact on positive emotions such as empathy to other unknown people (Carrier et al., 2015), which may be the reason. Online interaction and communication (e.g., online communities, friendship communities) and relationship development with familiar people (e.g., family, friends) can enhance positive feelings. This interpretation may explain the negative effect of ViU regarding relationship development towards personal feelings that shape customers' evaluation of this new food digital retailing, which is not yet familiar to the consumers. It probably, to some extent, triggers consumer scepticism, such as about e-commerce product and service performance, quality, or value for money.

Third, the analysis suggests the behavioural consequences of customer VCC related to their future behaviours. By referring to the expectation-confirmation theory, the findings explain customer ViU and positive affectivity as the user's expectation and user confirmation through customer behavioural intentions (channel usage continuance, WoM intentions). The findings confirm the relationships between customer ViU and positive affectivity toward e-commerce usage continuity intentions. ViU (i.e., online experience, relationship development) appears to be a predictor for channel usage continuance intentions. This result demonstrates that ViU and positive feelings and emotions can increase future customer intentions to continue using the channel. These findings extend previous research suggesting that communication and online interactivity with customers can influence customer behavioural intentions, such as social commerce usage continuance (Fang, 2012; Gao & Bai, 2014; Jeon et al., 2017). ViU components regarding online experiences and relationship development appear to be the output of VCC for customers enjoying the company products and/or services. The online interactivity, dialogue, and accessible communication in the virtual world between the customer and e-commerce can reveal these components of ViU. By obtaining such advantages, customers tend to continue using e-commerce based on their previous experience.

It is the same with customer positive affectivity while using e-commerce, which increases their propensity to use the same channel in the future. This result extends the

argument of previous studies by understanding the positive psychological responses (e.g., happiness, excitement, positive mood) and positive emotional experiences in online food shopping can enhance continuance intentions (Park et al., 2019; Prayag et al., 2020; Rigoni et al., 2015; Xu et al., 2018). The Indonesian urban consumers experiencing a digitally connected society of urban lifestyle and online food shopping idea may increase their positive feelings about such consumption experiences. This positive affectivity is confirmed to be a predictor for these urban consumers' future behaviour to continue using this e-commerce for food purchases.

The current results also confirm the influence of customer VCC behaviour - i.e., participation and citizenship behaviour towards channel usage continuance intentions, explained by WoM intentions. In virtual co-creation, VCC behaviour represents contributory customer behaviours to VCC activities, and this customer active-role behaviour can predict WoM intentions. This reflects actual customer behaviour in co-creation practices. This interaction with the company can increase customer behavioural outcomes, such as information sharing with other potential customers or information seeking about e-commerce services enabled by WoM (e.g., WoM via online consumption communities). The explanation of this can be linked to the qualitative analysis results. The existing agri-food e-commerce users tend to review their purchase and share their previous experiences, including any new knowledge they obtain by using e-commerce, with other interested online shoppers. Customer involvement in virtual co-creation by presenting such co-creation behaviours can increase such WoM intentions. These results elaborate on previous studies about WoM intentions as behavioural outcomes that influence customer and company interaction (Bolton & Saxena-Iyer, 2009; Kim et al., 2001). Because this digital food commerce is considered new amongst Indonesian urban consumers, potential customers may actively seek other customers' experiences or information. In the online world, WoM can be used as a source of helping behaviour amongst customers (T. Chen et al., 2018). The more involved the customer presenting the active role of co-creation behaviour, the higher the intentions to share information that helps other consumers with the products and services of this e-commerce. The existing customers could share such information via traditional WoM or electronic WoM (eWoM) regarding particular purchase and consumption situations. Different communication modes used by agri-food e-commerce through the online interaction and dialogue with their customer can present a distinct shopping environment in the virtual space reflected through WoM intentions. This customer engagement with online communication modes provides different experiences than the conventional face-

to-face communication that is usually found via physical retail channels (e.g., wet markets, supermarkets), which customers commonly experience.

The analysis also confirms the relationship between usage continuance intentions and WoM intentions. The result shows that continuance intentions are a strong predictor of WoM intentions. When customers are likely to continue using agri-food e-commerce in the future, they also tend to share shopping and consumption experiences with other customers. The findings extend previous studies on the positive effect of continuance intentions towards WoM intentions (see, for example, Gao & Bai (2014); Wang & Wang (2019)), primarily in the context of food online shopping via e-commerce. It also extends the idea that online interaction between the customer and e-commerce or digital retail services can influence customers' actual behavioural outcomes, such as intentions to use the channel, buy the company products, and WoM (Bolton & Saxena-Iyer, 2009; Mavlanova et al., 2016). This research supports previous studies about continuance intentions and WoM intentions as a manifestation of loyalty in the online world, such as in social network site use (Casaló et al., 2010; Chiu et al., 2013), which means these behavioural intentions are expected to be predictive of each other in virtual interactions. This result implies that behavioural intentions can encourage customers to continue purchase from e-commerce and choose this retail channel over others based on the positive references of this channel usage through positive WoM. Therefore, this research provides empirical evidence of customer participation and involvement in VCC practices through digital technology (e.g., e-commerce) toward loyalty manifested through behavioural intentions. These customer behavioural customers are related to customer continuance intentions to use agri-food e-commerce and the propensity for the existing customers to generate positive WoM to tell others about e-commerce services based on their positive consumption experiences.

8.2.4.3 The Moderating Effects of the Length of Engagement in VCC Processes and Customer Age on Customer VCC Facilitated by E-commerce

The last contribution of the quantitative findings is the moderating effect concerning the length of engagement in VCC processes (first-timers and regular customers) and customer demographic profile – i.e., age (young adults (below 24 years old) and adults (above 24 years old)) of the customers using the agri-food e-commerce. The moderating effects represent interesting results. First, the results extend the perspective on segmenting customers based on the length of engagement in VCC processes, which shape the evaluation of e-commerce

products and services. The analysis confirms that the effects of intrinsic motives on VCC behaviour (participation and citizenship behaviour) are greater for first-timers than regular customers. Skill development motives also increase citizenship behaviour for first-timers but are not significant for regular customers. This shows that first-time customers are inexperienced users who might be new to e-commerce services. Based on their experiences, the motivations to gain more benefits using e-commerce (e.g., enjoyment, fun, new food choice or food preparation skills) than using physical food retail may encourage this customer category to present VCC behaviour. These findings extend previous research about inexperienced customers who have yet to try the consumption experiences (e.g., using e-commerce) since they have little knowledge about the product or service (Clarkson et al., 2013; Sousa et al., 2008). The significant moderating effect of skill development motives and citizenship behaviour for first-timers explains customer motives to engage in co-creation activities, including the initial decision to accept and use e-commerce for food purchases. The experiences may require more cognitive effort for first-time users to adopt the new online food shopping scheme. Therefore, this segment is willing to optimally demonstrate VCC behaviour, both participation and citizenship behaviour, to experience and enjoy online shopping fully.

The finding also implies that participation behaviour enhances customer ViU related to relationship development for first-timers more than regular customers. First-timers, who possibly have higher curiosity about using e-commerce and presenting active-role behaviour, can reduce the perceived higher decision-making risk. Thus, customers who try e-commerce products and services for the first time may be actively presenting participation behaviour to enjoy the new experience entirely. As stated earlier, participation behaviour is the required behaviour for the VCC process (Yi & Gong, 2013), and presenting such behaviour will influence customers' ViU, such as having a stronger relationship with agri-food e-commerce.

The findings confirm that the moderating effects of VCC citizenship behaviour and ViU related to relationship development on positive affectivity for regular customers are greater than for first-timers. The results suggesting that the VCC process enables the involved actors to develop relationships, collaboration, and customer empowerment, developing solutions (as demonstrated by (Bonsu & Darmody, 2008; Ranjan & Read, 2016)). Also, the results support the idea that VCC requires the involved parties mutual understanding, which could encourage customers to have positive emotional responses to the company services (as shown in (Haumann et al., 2015)). This extends the discussion on differentiating customers based on the length of engagement. Maintaining existing customers (regular customers) through VCC can

enhance their positive feelings from these food shopping experiences. Regular customers are experienced users and tend to be the returning customers of this e-commerce channel. This means they regularly interact and communicate with the e-commerce and present such voluntary citizenship behaviour to become essential during the exchange interaction to develop a longer relationship. Because foods are daily consumer needs, purchases may be repeated regularly unlike the purchase of other products (e.g., fashion, electronics products). This makes online relationship development and positive emotional responses from the collaboration stronger for regular customers. As a result, the opportunity to develop stronger relationships and engagement with regular customers becomes more possible.

The finding also confirms the significant moderating effects of the length of engagement in VCC processes on the relationship between citizenship behaviour and WoM intentions greater for regular customers than first-timers. This result parallels the previous explanation concerning how customers who regularly do online shopping may have greater experience and frequent interaction with the company. Previous research argued that early adopters (e.g., regular customers) might frequently use the new system and have more experiences than the late adopters (e.g., first-timers) (C. Liu & Forsythe, 2011). They tend to have less motivation and cognitive effort to benefit from the product or service (Huh & Kim, 2008). This justification may clarify a more significant opportunity for regular users to increase intentions sharing positive experiences, beneficial relationships, and positive emotions using e-commerce through WoM. For regular customers, displaying voluntary citizenship behaviour (i.e., feedback, advocacy, helping, tolerance) can encourage them to engage with e-commerce and access free communication to deliver ideas and insights during the consumption experiences (before, during, and after the exchange interactions). The situation could reflect customer satisfaction with e-commerce services and increases customer intentions to recommend or refer this food channel to other people (WoM). These findings suggest a further understanding of the importance of the length of customer engagement in VCC processes and how this factor can influence customer consumption experiences using e-commerce for food purchases.

Second, as far as customer socio-demographic characteristics are concerned, the age factor is relevant. This finding contributes to current literature based on limited research focusing on the role of the age of the online shopper using e-commerce (Ansari et al., 2012; Pieri & Diamantinir, 2010; San-Martín et al., 2015). The findings indicate that intrinsic motivation influences VCC behaviour (i.e., participation and citizenship behaviour) for young

adults more than adults. On the other hand, skill development motives influence citizenship behaviour only for young adults and are not significant for adults. Citizenship behaviour affects online experience, and VCC behaviour (i.e., participation and citizenship behaviour) affects adults' willingness-to-engage more strongly than for young adults. However, the effect of participation behaviour on willingness-to-engage is not very different between adults and young adults. These issues have rarely been investigated in previous research, and this contributes to the current literature. The finding extends previous research about the criticality of recognising and understanding customer segments' different characteristics to develop co-creation strategies based on customer involvement in VCC initiatives (Shulga et al., 2018). The significant moderating effects of customer age groups explain the importance of customer segmentation based on customer profiles in VCC practices. Users' age can influence customer life experience and develop common beliefs and attitudes, possibly differentiating customer age in terms of online shopping behaviour could improve online food retail marketing practices.

Younger customers may enjoy food online shopping motivated by intrinsic forces such as enjoyment, fun, and entertainment for their own sake. This motivation has driven young customer creative endeavours by voluntarily expressing active co-creation behaviour. Being technology-savvy by having deeper involvement with the Internet, such as enjoying online shopping, younger customers tend to be stimulated by their interest in gaining more food-related skills from the virtual world. The motives enhance their extra-role behaviour regarding citizenship behaviour in virtual VCC. This finding extends previous research which suggested that younger customers (i.e., young adults) may not mind exercising extra effort, such as enjoying shopping (Sharma et al., 2012). This customer segment tends to put more emphasis on factors such as entertainment, including perceiving online shopping as fun and enjoyable activities (San-Martín et al., 2015) in terms of consumption, purchase, and post-purchase experience (Mahapatra, 2017). This result suggests that young adults tend to be involved in co-creation practices manifested through VCC behaviour driven by intrinsic motives for self-enjoyment.

However, mature customers (i.e., adults) tend to have a higher expectation of quality interactions in service exchange and delivery. Their experience could increase their willingness to engage with the company. As stated by Sousa et al. (2008), for adults, although maybe this channel is not yet intensively used, more satisfying interactions with the company will increase the shopping experience (food purchase via online channel). This result extends the previous

study about online shopping experiences as an essential factor for adult customers, and this factor could enhance future customer behaviour (San-Martín et al., 2015). Primarily, mature customers are likely to value health and food provision higher than younger customers (Angell et al., 2012), which relates to this research context on online food product purchases. Adults may have specific expectations in terms of their food needs. Hence, adults tend to emphasise VCC behaviour to support their interaction with e-commerce, increase their online shopping experience, and are willing to engage with e-commerce to co-create more value.

8.3 Summary

This chapter has developed the discussion from this current study with regards to the research questions and objectives. This chapter explained the new insights proposed by this mixed-method research by presenting the key findings from the qualitative and quantitative studies. This mixed-method research proposes several main implications explicitly in terms of the VCC concept promoted by digital technology applied in the agri-food industry in Indonesia and its manifestation in the B2B and B2C context based on the complexity of the business actors and targeted consumers of this specific market. This chapter elaborates this mixed-method research finding as follow: (1) the transformational VCC within the e-commerce chains, (2) the role of e-commerce in VCC processes, (3) the underlying VCC dimensions of engagements among agri-food supply chain actors at the BOP, and (4) the customer involvement in VCC facilitated by agri-food e-commerce based on the urban customer perspective in a developing economy market. The following Chapter 9 provides the conclusion, a summary of the research contributions, limitations, and opportunities for future research.

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CHAPTER 9 – CONCLUSION, LIMITATIONS, AND FUTURE RESEARCH

9.1 Introduction

This chapter presents the concluding reflections on the thesis. The primary data collection has contributed to the VCC process, ethos, and dimensions, e-commerce based MSMEs, B2B food retail business at the BOP, and food e-commerce marketing (e.g., online fresh produce purchases) for urban consumers in a developing economy. These thesis contributions are presented in Section 9.2. Section 9.3 outlines the managerial implications. Finally, Section 9.4 concludes this chapter by presenting the limitations and suggestions for future research.

9.2 Thesis Contributions

The main objective of this thesis was to examine the role of digital technology in promoting VCC in the agri-food industry in a developing economy. Although context-specific, the findings have implications for VCC in B2B and B2C service relationships, which have been made possible by digital technologies. The focus was on VCC initiated by local business actors and discovered that VCC within local agri-food business ecosystems in a developing country with BOP markets was facilitated by food retailing developments adopting e-commerce.

The findings of this mixed-method research contribute to the literature in four main areas. First, the qualitative research broadens the understanding of a transformational VCC within the agri-food e-commerce chain initiated by local business networks. The results suggest the importance of local communities' involvement in successful co-creation initiatives at the BOP. This research adds to studies concerning a new market configuration premised upon a social justice ethos underpinning co-creation practices at the BOP. Guided by social entrepreneurship marketing (Facca-Miess & Santos, 2014; Santos, 2013) and BOP strategy-based development approaches (Cañeque & Hart, 2017), this social justice logic attempts to accommodate and facilitate problem-solving strategies and a fair marketplace through competitive solutions for all parties in the e-commerce chain. This ethos enables strategic value propositions on VCC drivers through a digitised food retailing channel, indicating the

importance of digital technology as a VCC enabling mechanism at the BOP (Dey et al., 2019). Following Storbacka and Nenonen's (2011) idea about market scripting, social entrepreneurs can successfully promote the agri-food e-commerce chain to stakeholders by identifying beneficial market propositions. The orchestration of VCC in the e-commerce market has reinforced a new business model that emphasises mental models' development within B2B at the BOP and B2C in urban consumer communities.

Second, the qualitative study provides empirical evidence about the role of digital technology in promoting the VCC process motivated by local business networks at the BOP. The development of e-commerce has benefited the agri-food MSMEs in a developing country such as Indonesia. The business model designed for this digital food commerce in B2B and B2C formats has clear benefits and impacts for all parties within the network (BOP small-scale producers, social entrepreneurs, consumers). This qualitative study further elaborates the VCC process, which previously focused on the encounter stage (see, for examples, Grönroos & Voima, 2013; Oertzen et al., 2018; Payne & Frow, 2005). The adopted process-based approach of the innovative social justice business model provides new insight into the VCC process by explaining the elements expected in the pre-interaction, the encounter, and the discovery stages. The finding demonstrates VCC manifestation initiated by social entrepreneurs enabled by e-commerce for inclusive, sustainable, and fair business ecosystem reconfiguration practices. This qualitative research adds to the current literature about co-creation for inclusive business model innovation at the BOP. It explains the involved actors' experience value – i.e., resource advancement for small producers, 'development scripting' for social-entrepreneurs and 'in-use' for customers (consistent with S-D logic). Thus, digital technology has become a strategic enabler for the emergence of the agri-food e-commerce channels and co-creation facilitation at the BOP through a series of processes that trigger the involved parties to exercise co-creation activation, execution, and result realisation voluntarily.

Third, the qualitative findings take a further step in clarifying the critical elements required for a transformational VCC process of engagement among e-commerce supply chain members. The development of digital agri-food retail in Indonesia has shown the agri-food actors' behaviour, interaction, and interdependency across the e-commerce chain, demonstrating a transformational VCC in a developing country and BOP market. This is consistent with previous research on acknowledging the local constraints and technology innovation to foster creative development and local innovativeness of the BOP (Heikkurinen, 2018; Santos & Lacznia, 2012; Sinkovics & Archie-Acheampong, 2020). This research

extends the VCC process by understanding the innovative design for inclusivity and impacts, including the best practices for VCC across the supply chain, as suggested by the current literature (Howell et al., 2018; Knizkov & Arlinghaus, 2019). Therefore, this research provides a practical process for successful VCC by emphasising four significant elements required in the structure and triggering local business actors' interest (i.e., social justice ethos, technology and innovation, collaboration and strategic partnerships, inclusive business initiatives). It also sheds light on the co-created value that is feasible in VCC initiation, exchange interactions, and outcomes. The configuration and integration of these four elements in VCC activities that involve multiple actors' participation could offer value propositions for the beneficiaries, which may contribute to the discussion of the foundation of S-D logic as a general theory for VCC and, more broadly, for the market theory (Brodie et al., 2019; Vargo & Lusch, 2017).

Fourthly, this quantitative research broadens the understanding of customer driving factors that encourage customers to participate and engage in the VCC process, including the behavioural consequences of virtual co-creation. This research extends previous research (Dai et al., 2019; Ferreira & Menezes, 2015; Gordon et al., 2018; Prayag et al., 2020) by clarifying the VCC process utilising micro perspectives of developing economy consumers reflecting their experiential food online purchases and consumption. This research elaborates customer virtual VCC enabled by agri-food e-commerce amongst Indonesian urban consumers. Virtual VCC could anticipate engagement with customers initiated by the local MSMEs. By aligning to the first stage of qualitative research, this quantitative research contributes to adopting and diffusing S-D logic as the foundation for VCC theory, particularly in B2C service relationships. It extends customer VCC insight by adding customer-related resources, VCC motives, VCC behaviour, ViU, and future predictions on actual customer responses and behavioural intentions. The relationships between these factors can explain the customer role as co-creator of value and co-collaborator in the VCC process by understanding customer consumption experience in the context of agri-food e-commerce.

The quantitative study offers three main contributions related to: (1) customer VCC drivers, behaviour, actualisation; (2) customer VCC behavioural consequences; (3) the moderating effects of the length of engagement in VCC processes and customer age on customer VCC facilitated by e-commerce. The second stage of this thesis provides empirical evidence concerning the main elements of the customer VCC conceptual model grounded on the S-D logic and links it to other theories. Firstly, the research contributes to the extended resource-based theory (ERBT) (Mathews, 2003) related to customer-related resources

(Kozlenkova et al., 2014) by managing the company's external environment linked to customer-related resources used as the operant resource in customer VCC. It explains customer-personality related (openness) and customer social-related (social expertise) as the integrators in VCC processes facilitated by e-commerce. Also, by resonating with cognitive role theory (Collier & Callero, 2005), the findings add to the current studies about customer VCC motivation, participation and willingness to collaborate with the company (Auh et al., 2007; Etgar, 2008; Felleson & Salomonson, 2016; Fitzsimons et al., 2008; Yu et al., 2020). The focus of this research on customer intrinsic and cognitive skill motives clarifies the triggers of customer VCC behaviour and direct subsequent voluntary actions to participate in VCC in the online environment. The findings also extend previous research about the customer role activation as co-creator of value (see for example (Grönroos, 2011b; Payne et al., 2008; Verleye, 2015), primarily regarding the driving factors to activate customer role in virtual VCC activities.

Secondly, the results provide a further understanding of the linkage between S-D logic and relationship marketing concept related to customer engagement (Fernandes & Remelhe, 2016; Grönroos, 2011a; Gummesson, 1997). In line with this theory, this research explains ViU as the VCC manifestation based on interactive online experiences and relationship development between the customer and e-commerce. This result provides quantitative empirical evidence that VCC measurement derives from the interaction between the customer and company and the consumption experience process, as explained by the literature (Ranjan & Read, 2016; Vargo & Lusch, 2008; Vivek et al., 2012). The relationships of these factors are presented as the basis for engaging and influencing customer responses toward VCC activities (i.e., willingness-to-engage, positive affectivity) and predicting customer behavioural intentions (i.e., channel usage continuance intentions, WoM intentions). These behavioural consequences reflect realistic customer involvement in co-creation practices enabled by digital technology. Lastly, the findings explain customer VCC customer behavioural consequences linked to the expectation confirmation theory (Oliver, 2010). This research adopts this theory applied in virtual VCC practices by clarifying behavioural intentions to confirm future customer behaviour based on customers' experiential assessment of value propositions and psychological responses to VCC activities. This result extends the current literature on predicting customers' actual behaviour through their behavioural intentions in virtual co-creation practices (Bolton & Saxena-Iyer, 2009; Mavlanova et al., 2016). Customer expectation is further found to be significantly verified by ViU and customer positive emotions on using e-

commerce. Confirmation is further identified to be significantly determined by customer future behavioural intentions (to continue using the channel and share positive information about the e-commerce channel with others). Moreover, these research findings extend the contributions to the moderating effects of the length of engagement and customer age in VCC processes facilitated by e-commerce. Different customer categories are affected by different co-creation driving factors (i.e., resources, motives) and VCC initiatives. Categorising customers based on the length of engagement in VCC processes and customer profile (i.e., age) can support predicting customer behavioural responses and outcomes for engaging with e-commerce in VCC activities. This research extends the discussion on the length of customer engagement in VCC processes corresponding to customer interaction, co-created value and future behavioural actions. Also, it extends the discussion on the age of online shoppers in the context of online food shopping experiences. Thus, the overall quantitative findings provide a step toward understanding the causes and effects of customer VCC and segments in digital environments, particularly valuable for the research stream focusing on digital technology promoting VCC within urban communities in developing economies.

This thesis captures multiple actor perspectives, co-creation spheres within the local network of a country-specific, digital technology, their interrelated relationships, and VCC initiatives and practices. This research highlighted the transformational agri-food retail and supply chain, moving from traditional and conservative modern retail to e-commerce in the developing economies. It is connected with current literature about agri-food e-commerce as an alternative channel for food retail by specialising in providing food items, reflecting the evolution in agri-food retailing (L. Lu & Reardon, 2018). This research extends the discussion on VCC and competitive advantage in the agri-food industry in developing economies. The use of digital technology for e-commerce has empirically facilitated market fairness and problem-solving of the complex problems in the agri-food in developing economies and proposed competitive solutions for the network actors, from smallholder farmers to consumers. This research provides an insight into the complexity and multiplicity of business actors at the BOP and developing country consumers, including market actors' behaviour, which has been influenced by digital technology. By taking multiple actor perspectives along the agri-food chain and focusing on VCC, this current study has moved beyond the current VCC concept into a more comprehensive multi-actor relational exchange interaction of B2B and B2C dynamic behaviour within technological innovation transition in developing economies.

This research has highlighted the contribution of e-commerce businesses in Indonesia's agri-food sector to promote new service innovation through VCC by engaging market actors in these retailing developments. Such VCC has enhanced the collective creativity, innovation, and inclusivity for MSMEs within the e-commerce chain thereby creating market fairness. The success of VCC in Indonesia's e-commerce vegetable supply chain raises the question of the generalisability of the findings to other industry supply chains and cultural contexts. Based on the findings of this study, three criteria are suggested as necessary for their transferability outside the Indonesian context, such as developed economies. First, the presence of digital technology and its application in the service system appear to be enablers for supporting the creation of service innovations. This finding has been highlighted in various industries such as industrial companies, business-based technology, hospitality services, professional services, retail, and fast-moving consumer goods (Lindhult et al., 2018; Ramaswamy & Ozcan, 2018). It is one condition that needs to be satisfied. Second, an entrepreneur with a social justice value system is required to catalyse or take on the role of 'market scriptor' by bringing multi-local actors in the market ecosystem together. This approach has a natural affinity in a cultural context which values co-operation and mutual support. The social justice business logic may therefore be more applicable in relatively collectivist than individualistic societies (Hofstede, 2011). For example, a cultural context of competition and profit generation for shareholders is philosophically different to a social justice approach. Third, each member of the value chain needs to support the social enterprise and the social justice logic as moral imperatives to the success of VCC and in particular, benefits relating to the positive impacts of human capital empowerment, competitive solutions, wellbeing across the market chain, creating a fairer and better marketplace and providing better value propositions for consumers (through innovative product-service). Therefore, this research takes another step by establishing the generalisability of digital technology, social justice logic, social entrepreneurship, and market actor empowerment (from producers to consumers) link to VCC of even greater market complexity. One should note, generalisations of these research findings should be identified and performed carefully by considering how they may generalise to other industry contexts or other economic settings, such as developed countries.

From a practice perspective, this research offers practical suggestions to various agri-food stakeholders at the local BOP and in developing economies, particularly e-commerce practitioners, MSME agri-food firms, social entrepreneurs, policymakers, and other interested institutions (e.g., NGOs) supporting the sustainable development of the agri-food industry

towards digitised food systems. The collective innovation amongst these actors may empower the spirit of a social justice ethos to create market fairness.

9.3 Managerial Implications

The positive contribution of VCC to sustainable development demonstrated in this research has implications for actors and institutions working in the agri-food industry with the potential to contribute to or facilitate VCC development in the spirit of the social justice ethos. First, digital technologies were a crucial enabler of the e-commerce marketing channel, where VCC flourished. In particular, the Internet and smartphone accessibility in Indonesia's rural areas enabled collaboration and VCC. As rural areas in many BOP markets are the most impoverished, achieving digital transformation will require Governments to support a digital infrastructure by ensuring connectivity and accessibility for rural and urban populations. This implication echoes recent Food and Agriculture Organisation (2020) recommendations for achieving digital transformation in Global South agri-food sectors (which include BOP markets).

Success factors enabling the transformational development of the demand-led e-commerce channel (rather than supply-driven, which is the dominant channel model) included advocacy and empowerment through knowledge, skills, capability enhancement, and fair-trade practices shared amongst MSME producers. These factors can be characterised as criteria for engaging with MSME producers' organisations and institutions, such as NGOs and private sector organisations with a sustainable development remit. At a micro-level of the 'social entrepreneur', market scripting based upon a social justice logic provides a business model for the execution of VCC in BOP markets for future e-commerce innovators.

Moreover, this research has shown that urban consumers in Indonesia are beginning to consider digital retailing such as e-commerce to be the alternative food channel for fulfilling food needs. E-commerce practitioners have an excellent opportunity to benefit from these findings by encouraging and developing relationships with online consumers to offer unique food shopping and consumption experiences. As stated in Chapter 2, about 71% of Indonesian people are predicted to live in big cities by 2030 (Budiman et al., 2013). Indonesian urban consumers, then, are essential as the target market of agri-food e-commerce. These urban dwellers are also predicted to be a middle-class and affluent consumer (MAC) base and have increased demand for high-value agriculture commodities (e.g., fruits and vegetables) (Arifin et al., 2018; Rastogi et al., 2013). E-commerce proposes alternative food channel solutions for

urban consumers, especially in developing countries with various key challenges such as food safety, fragmented food chains, ineffective food supply and distribution. By adapting to the developing country consumers' economic, social, and cultural context, the local e-commerce channels can make food shopping not just a transactional exchange but also a relational exchange with new shopping experiences integrated into the VCC process. The e-commerce practitioners could also benefit from this research by providing beneficial information that links customer intrinsic and cognitive-related motives into e-commerce marketing content (mostly facilitated by social media and instant messaging services). For example, adjusting marketing content with customer interest in better food choices, cooking recipes, and cooking techniques. This will keep customers engaged and encourage them to be involved in the co-creation process.

This research also suggests that VCC practices can enhance customer positive affectivity reflecting satisfaction and positive future behavioural intentions representing loyalty. This means the local SME e-commerce should involve customers in the business process and develop marketing strategies with more appealing offerings and benefits that impact the VCC process and greater expected value designed for the targeted markets. Customers' tendency to share food e-commerce with others can be used as a source for referral marketing ideas to acquire new potential customers by making the existing customers into advocates. E-commerce could utilise Indonesian consumers' social context by creating 'grouped deliveries' for segmenting consumers based on their locations or communities. It can encourage collaborative commerce by recruiting 'agents' or 'resellers' (probably from their current customers) and creating a group on the digital platform for the buying-selling transaction (e.g., social media, instant messaging apps). These agents or resellers can add their relatives, friends, or neighbours to join the 'grouped deliveries' as their targeted consumers. This marketing strategy and approach could benefit from customer social expertise that culturally influenced Indonesian consumer behaviour, primarily urban consumers, to source new food shopping channels, such as using e-commerce.

This research helps agri-food e-commerce practitioners, mainly MSME, to distinguish customer consumption experience based on the length of engagement (a first-timer or returning user). It may distinguish customer motivations, ViU, and the perceived benefits of using e-commerce and influencing their involvement in the co-creation process. E-commerce can segment the customers based on the age groups since users' age can influence their consumption experience (pre-purchase, purchase, and post-purchase) based on their shared

beliefs and attitudes (Meriac et al., 2010). For example, e-commerce can segment the customers based on consumer lifestyle preferences by customising product selection to customer interest in food, such as providing organic-, hydroponic-, certified-based fresh produce for adult customers and offering ready-to-cook or simple cook food packages for young-adult customers. This research also suggests customer segmentation based on the length of engagement, which can influence customer VCC process and consumption experiences. Retaining the regular customers could also be enhanced by sharing the company values and mission. For example, when e-commerce is committed to providing organic vegetables or supporting local farmers, this message can identify customers. Also, attracting novice or first-time customers to be regular customers could be approached by offering practicality and shopping convenience (e.g., easy order, easy contact, easy payment, fast delivery services, excellent customer services and support). Indonesian urban consumers tend to be more digitally savvy and show an increased focus on food consumption and healthier food choices (Deloitte, 2020). This market situation could make the demand for food (e.g., vegetables) online purchases more popular and preferable amongst urban consumers for its practical experience and product searching convenience. Thus, e-commerce practitioners could target this segmentation and support the VCC practices and initiatives of the companies. They should use this digital channel to connect these consumers successfully and maximise their contribution during VCC practices and gain mutual benefits.

9.4 Policy Implications

From a policy perspective, three broad policy implications come out of this research on realising agri-food retail development through e-commerce business practices to improve people's welfare (from farmer producers to consumers). First, continued investment in creating an accessible digital infrastructure is recommended. This aligns with the result from the qualitative research that digital technologies were a strategic enabler for the emergence of e-commerce channels, which support business operation, marketing communication, and market actor interactions. An example of digital infrastructure investments is the development of fibre-optic infrastructure networks to increase digital readiness and connectivity for remote locations. This can benefit the upstream agricultural actors dominated by small-scale farmers who often operate in hard-to-reach rural areas. Investments in this digital infrastructure network could enhance the opportunities to expand mobile broadband coverage, such as long-term evolution (LTE) coverage that is more affordable the agri-food small scale businesses can use.

Expanding broadband coverage could also increase mobile subscribers for various mobile broadband functions, such as consumer access to digital services and online purchases. More recommended investments are also related to digital technology applications provided by local companies collaborated with domestic leading or start-up tech companies that can be used in various agri-food business operations (B2B, B2C). Maintaining and improving access to this important resource has the capacity to improve economic, social and innovation-driven improvements in the agri-food supply chain. Thus, an appropriate digital infrastructure needs to ensure the empowerment for agri-food business transformations toward digitised business systems. Such potential should be supported by designing government policies to support agri-food e-commerce chain activities (production, distribution, marketing) tailored to the market needs and fit the local agribusiness actor capabilities. For instance, is continuance efforts from governments to support and implement policy roadmap supporting agri-food e-commerce development by providing agri-food business entities based MSMEs with digital marketing platforms. Such government interventions could focus investment into agricultural development and digital literacy for small-scale agricultural business practices. Technology infrastructure upgrades and advancement could benefit from creating a more mature service ecosystem, including digital technology for inclusivity in the agriculture sector.

Second, identifying the innovation capacity of micro-entrepreneurs provides a place for small scale producers, intermediaries, and retailers in the modern digital agri-food chain. Aligns with the qualitative research findings, smallholder rural producers and small-scale local intermediaries require facilitators or business collaborators to enhance the motivation and confidence to access new market channels, such as e-commerce markets. This means identifying local capacity and capabilities and knowledge on innovation that fit the business community and business sizes become essential. Identifying the innovation capacity is, for example, by maximising the role of agricultural extension services, social entrepreneurs, and other interested stakeholders (e.g., universities, NGOs) to facilitate these micro and medium entrepreneurs facing technological, social, and environmental challenges of the agri-food industry. The advantage to this could support the local SMEs agriculture business entities to extend new capabilities and be confident to try new ventures, such as being involved in new market access via e-commerce channels which provide better business returns. Such efforts also can enhance business collaboration environments, inclusiveness, and specific entrepreneurial attributes related to learning and market orientation, including innovation attitude and capabilities.

Moreover, identifying small scale business movements in the agriculture sector should also acknowledge that agricultural commodities production is based on comparative geographical advantages that are spread among rural and suburban areas. This will necessitate institutional innovations support to rearchitect agri-food retailing by investing in digitised food systems. Such endeavours could be initiated, for example, by encouraging the establishment of farmer groups, farmers' associations, and cooperative companies and use this networking to enhance smallholder farmer participation in the e-commerce chain, specifically in rural areas. The interested stakeholders, such as government agencies, NGOs, or social entrepreneurs or e-commerce practitioners could provide small business assistance programs based on digital technology for these rural organisations and businesses by promoting links and information to prospectus markets. Hence, institutional innovations in agri-food e-commerce business practices become essential to support the co-collaboration implementation between farmers' societies, social entrepreneurs, and e-commerce practitioners for realising resource advancement to enhance agri-food chain opportunities and innovations.

Third, promoting more investment and training in this area to support agri-food digital business development underpins MSME empowerment (small scale farmers, local intermediaries, retailers). Recognising this as a new but essential function contributing to digitised food system development are essential. Linking to the qualitative and quantitative research results, rural business organisations and consumers require knowledge and information to this new agri-food e-commerce to enable them to obtain benefits from these food digital business platforms. Business collaborators (social entrepreneurs, e-commerce practitioners), government agencies, or NGOs could support such efforts, for example, by providing the smallholder farmers and local traders with training and workshops related to agronomic practices, post-harvest handling, business digital, and digital marketing. This could benefit them to gain more knowledge and skill improvements about new agricultural practices and markets. Such endeavours could advantage the agri-food actor's resource and capability improvement and market networks to support innovation and technology upgrading. In order to promote the impact of such an effort, investment in credit lines provisions for small-scale farmers and other agri-food business entities are recommended to create greater business creativity and innovation.

Based on the qualitative and quantitative results, the increased consumer interest in online food purchases through using and experiencing various e-commerce platforms has resulted in new food shopping channels for consumers. This means that more investment is required to enhance consumer digital literacy, connectivity, and accessibility to enable consumers to use online food retail as food purchase alternatives. E-commerce practitioners could support this initiative, for instance, by continuously providing customer education using their digital platforms or social media platforms related to various benefited food-related information. Through such information provision, customer advocacy can enhance customer motivations to use the e-commerce channels and experience this new food digital retailing entirely. Consumers can use this e-commerce channel for food purchases that offer food channel alternatives and support improving consumer food literacy regarding healthy food lifestyles and empowering them to make better-informed food choices

9.5 Limitations and Future Research

Several limitations in this research and potential future research should be addressed and noted carefully. First, this study was situated in the Indonesian cultural context, which according to Hofstede's (1984) Cultural Dimensions Theory, is a highly collectivist society (Goodwin & Giles, 2003) supporting 'community' and cohesiveness. Thus, participating in an association or community group is culturally normative and may explain Indonesians' willingness to participate in collective groupings and support business network connections. Therefore, future research could examine the co-creation model underpinned by the social justice logic in different cultural settings to test the applicability and enhance the model. Second, although agriculture is the principal income generator in many BOP markets and MSMEs dominate this sector, there is scope to explore the social justice logic and VCC model in other industries and organisation sizes, which may have different perceptions and objectives in relation to VCC. Given the potential role of VCC to support a sustainable development agenda, understanding the attitudes and perceptions of stakeholders such as universities, NGOs, and government agencies could also merit analysis.

Third, the consumer food-related lifestyle link to virtual VCC-based markets and ecosystems, which was outside the scope of this study, merits further research. Fourth, exploring consumers' engagement, innovativeness, and co-creation involvement with BOP entrepreneurs in VCC development could corroborate the anticipated benefits of participation in these markets. Fifth, future studies could investigate VCC based on the B2C and C2C

interactions that created active virtual consumption communities organised by e-commerce or the co-consuming group (social level of consumption) created by the consumers' group. Further research on this topic could provide more insights into this developing economy socio-economic and cultural context related to digital technology use in the agri-food sector. Further analysis could also link these consumer consumption communities with the proposed social justice ethos for VCC within developing economy markets. These consumer consumption communities possibly support circulating this ethos orchestrated by social entrepreneurs and which are enabled by digital technology, creating market fairness that benefits all network members.

Next, the current customer survey was only conducted in two major cities in Indonesia, and the sample might be too small. It was also only focused on customer vegetable purchase via e-commerce, and the sample used for the survey focused on individual purchases. Therefore, future research should test the effects of using different agri-food products or other industries with a more representative sample and examine online food purchases from the perspective of household purchasing behaviour. Finally, this research did not differentiate the online platforms and digital technology devices used by customers. Future research could consider examining different online platforms (e.g., social commerce, web-based commerce, m-commerce) and digital technology devices (e.g., smartphones, laptops/PC, tablets) used by customers. Different customer channel usage behaviour and patterns for food online shopping could be linked to customer interaction, engagement, and participation in the VCC process and its consumption experience outcomes.

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Appendix A

Summary of Literature Review



TABLE 1. STUDIES ON VCC IN THE MARKETING FIELD

No	Source	Objective(s)	Method(s)	Business Setting	Key Finding(s)	Future research direction(s)
1	(Prahalad & Ramaswamy, 2004a)	Co-creation of unique value that involves customers as a new frame of reference on value creation	Qualitative - theoretical review	Goods and services	DART (dialogue, access, risk assessment, transparency) model as fundamental constrain elements of VCC that should be combined	Radical different approach to overcome business competition with value creation and personalised co-creation experience
2	(Prahalad & Ramaswamy, 2004b)	Access, give transparency and understanding of risk benefits in value creation practices	Qualitative - theoretical review	Goods and services	Value creation can reveal by interaction in any part of the system as a two-way street	The governance process should take part in co-creation as a mediator in the value creation practices
3	(Bititci et al., 2004)	The interaction of personnel and joint capabilities, competencies, and value transaction in the collaborative sphere	Qualitative - theoretical review	Companies with a collaborative network (e.g., ICI, IBM, Dell, Federal Express)	<ul style="list-style-type: none"> • Distinct stages of collaboration and identification model of value transaction in different cases • Value transaction could be identified based on each type of collaborative level of enterprises 	<ul style="list-style-type: none"> • Researching a platform in value transaction of a collaborative network • Empirical examinations of the value proposition of the presented model based on business capabilities, competencies, and value transaction of collaborative companies
4	(Payne et al., 2008)	Managing VCC through the development of the customer-supplier relationship	Qualitative – theoretical review and case studies	Enterprises operating in the B2C market	The crucial process of managing VCC	Framework and empirical testing with different degree of which industry
5	(Grönroos, 2008)	Value creation consequences-based S-D logic and further meaning on ViU	Qualitative - theoretical review and conceptual development	Services industries	The early stage of making the customer the co-creator of value through ViU; a new avenue of the ten service-logic propositions	The development of service-logic and its effect on business and marketing logic
6	(Allee, 2008)	Value network analysis by utilising and convert intangible assets	Qualitative - adaptive system and complexity theories	Technology company	<ul style="list-style-type: none"> • Integrating value creation and conversion of intangible assets in the context of the network • Value network can facilitate a systematic view of intangible value creation, realisation, conversion, and interconvertability 	Comparative analysis using different methods of value network analysis that apply to another context, model, or process
7	(Argandoña, 2011)	Value concept based on the essential relation between company and stakeholder	Qualitative - literature review	Not specified	Broader value concept defined based on stakeholder value-creating economic and non-economic value to sustain in the long run and creation inefficiency	Empirical testing on value creation benefits for all stakeholder to be more realistic and economic optimum
8	(Grönroos & Voima, 2013)	Value creation and co-creation based on service logic from customer and company interaction	Qualitative - literature review	Service industries (i.e., tour & travel companies)	Critics on value mainstream on S-D logic and introducing the VCC process that requires the joint sphere (the interaction between the involved parties)	Examines value spheres in value creation processes from the service-logic perspective
9	(Gummerus, 2013)	Value concept in marketing and how value generated	Qualitative - literature review	Not specified	Value in the marketing field from distinct streams which outcome-based on ideology for not to be compared or correspond one to others	Empirical examinations of value creation and value outcomes; the possibility of both concepts to have a complementary connection
10	(Karababa & Kjeldgaard, 2014)	Value and value creation processes in a marketing framework	Qualitative - literature review	Not specified	Explanation and elaboration the cornerstone of value in marketing from different approaches to developing the complexity of the concept	Examines value concept for market co-creation from consumer culture theory

No	Source	Objective(s)	Method(s)	Business Setting	Key Finding(s)	Future research direction(s)
11	(Haro et al., 2014)	The VCC process, the effect to consumer, and relationship in modern business	Qualitative - literature review	IT and social media	<ul style="list-style-type: none"> The VCC model from the company and consumer situation variables VCC process should facilitate relevant activities and business policies 	Empirical testing on the proposed model of VCC
12	(Bettencourt et al., 2014)	Service perspective on value creation to achieve a strategic advantage in a more sustainable way	Qualitative - explanatory historical theories	Not specified	<ul style="list-style-type: none"> Service lens enables marketing reorientation to encounter the market change and dynamic Perceived service as the co-creating value process with the customer, connecting with the customer, and resource integration 	Examines VCC as new opportunities in the new boundless market situation
13	(Agrawal & Rahman, 2015)	A variety of customer role in the VCC process by incorporating customer resources thru customer skills and competencies	Qualitative - structured literature review	Not specified	Customer empowerment become vital in the VCC process in interactive digital technology and the finding of customer roles in the VCC process	Examines customer roles and resource contribution on VCC process and its outcomes (i.e., relationship value and customer experience)
14	(Sidorchuk, 2015)	The concept of value in a marketing framework	Qualitative - literature review	Not specified	Value terminology is severe between definition and category in marketing theory, and this regard a category that involves a variety of value concept	Examines value in marketing based on theoretical development from various perspectives of customer types
15	(Kohtamäki & Rajala, 2016)	VCC and value proposition from the co-production perspective in the B2B systems (service ecosystem)	Qualitative - literature review	Not specified	Ambiguity on VCC concept employed regarding familiarity with the term used in VCC and co-production	Examines VCC in the B2B context
16	(Kumar & Reinartz, 2016)	The concept of measure, manage and communicate customer value to drive customer profitability and behaviour related to satisfaction and loyalty	Qualitative – literature review for model development	Not specified	Communicating and creating value regarding customer perceived value, both value for- and with- customer	Examines the customer lifetime value (CLV) measurement approach, driver factors, and empirical evidence of CLV application in various business settings
17	(Vargo & Lusch, 2017)	The S-D logic for the market theory and a general theory to VCC	Qualitative – theoretical review	Not specified	S-D logic can partially be informed by theories beyond marketing and potentially be a general theory for the market theory, while evidence-based research is still required	<ul style="list-style-type: none"> The applications of the S-D logic in a broader framework: micromarketing, economic, social sustainability, ethics, environmental, and public policy. Examining institutional arrangements to facilitate cross-functional coordination among actors in the service ecosystem
18	(Ramaswamy & Ozcan, 2018)	A new concept of ‘value-in-interactional creation.’	Qualitative – theoretical development	Interactive digital platforms for ‘Club Tourism.’	<ul style="list-style-type: none"> Value creation in platform interactions as interactional value creation (one entity activities to interact with other entities throughout the system of traditional creation in the digitalised world) Value-in-interactional creation in interactive platforms that influence by the increasing digital platforms (e.g., social media interfaces, IoT, virtual reality, artificial intelligence) 	Examines the dynamics of co-creation and interactions in the digitalised world

No	Source	Objective(s)	Method(s)	Business Setting	Key Finding(s)	Future research direction(s)
19	(Hein et al., 2019)	B2B platforms that employ VCC practices	Qualitative methods – case studies	IoT platforms for B2B	Three elements to promote the supply in the B2B IoT platforms: (1) complementary assets and demand-side integration via (2) confirming platform readiness and links both processes by (3) servitisation thru platform enablement	Examines the process model of IoT platforms that enable fostering the standardisation for VCC practices (the emergence of VCC residual)
20	(Brodie et al., 2019)	The development of S-D logic as a unifying paradigm for a general theory of VCC and the market	Qualitative – theoretical review	Not specified	<ul style="list-style-type: none"> The S-D logic has developed into different methodologies and theories that span three periods of formative (2004 to 2007), refinement (2008 to 2011), and advancement (2012 onwards) The S-D logic orientation towards a theory of the market and VCC, which required further development 	Cross-disciplinary fields of research on S-D logic to develop it into a theory
21	(Boukis, 2019)	Re-examined the aim, nature, and scope of internal market orientation and VCC mechanism for the company's internal market	Qualitative – conceptual framework	Not specified	<ul style="list-style-type: none"> Three main activities in the co-creation process by interconnecting operant resource: value identification-generation-enhancing Internal market orientation enactment requires the three functions of processes for value-enabling 	<ul style="list-style-type: none"> Examines different roles of operant resources in the VCC process (the exchange activities between internal stakeholders and company) Examines the VCC process from value networks and the gig economy perspectives Examines the formation of value that emerge from sharing economy and digital innovations
22	(Saha et al., 2020)	VCC in the field of business and management	Qualitative – literature review, bibliographic analysis	Not specified	The prominent themes in VCC literature: customer service, VCC for the marketing of services through service logic perspective, and enhancing brand value	Analysis of the VCC literature from more diverse disciplines, from other influential journal publications and continues every five or seven years for advancement
23	(Priharsari et al., 2020)	<ul style="list-style-type: none"> The constraints and enablers of VCC in sponsored online communities The role of the company in shaping VCC 	Qualitative – systematic literature review	Not specified	<p>Four dimensions as the enablers and constraints of VCC ecosystem in sponsored online communities</p> <ol style="list-style-type: none"> 1. Firm enabler and constrains 2. Individual participation enabler and constrains 3. Social enabler 4. Technology enabler and constrains <p>The role of the company in VCC in sponsored online communities are as facilitator and co-creator to build a sub-system in a service ecosystem (actively listening, advocating, interacting with the online community members, including employing reward systems)</p>	<ul style="list-style-type: none"> Analysis of the constraints of VCC (e.g., the role of technology) Examines the link between company role navigation and company-related enablers in the online co-creation communities Examines the causal effect (how they related, how they limit each other) of company, social related and technological enablers Examines specific types of sponsored online communities to get contextual frameworks and classification operationalisation
24	(Ghatak, 2020)	The constraints and interrelationship to customer resource contribution in VCC	Qualitative – systematic literature review, interpretative structural modelling (ISM)	Service industry	13-level of structure models that classified into driver, autonomous, linkage barriers, and independent barriers	<ul style="list-style-type: none"> Resource contributions in VCC in various geographical settings, company sizes, and sectors Examines the proposed model using the structural equation model
25	(Hofacker et al., 2020)	Digital marketing for B2B relationships	Qualitative – conceptual paper	Digital marketing	Seven major domains of B2B relationships and digital marketing related to VCC, co-opetition, servitisation, innovation networks, B2B branding, power - trust, and relationship dynamics	The interface of B2B marketing and digital marketing (the role of digital technologies, digitalisation)

TABLE 2. VCC AT THE DEVELOPED ECONOMY MARKETS

No	Source	Objective(s)	Method(s)	Business Setting	Key Finding(s)	Future research direction(s)	Research setting
1	(Payne & Frow, 2005)	The process-based conceptual framework of customer relationship management (CRM) and its relation to enhancing customer value	Qualitative – workshops with key participants	CRM practitioners and IT sectors	Five essential elements of cross-functional CRM processes that consist of a process of strategy development, value creation, multichannel integration, information management, and performance examination	CRM implementation and related issues	United States
2	(Crowther & Donlan, 2011)	Developed a new concept on the value of events and the potential from the service-dominant logic perspective	Qualitative methods – semi-structured interviews	Event providers (services)	The scope of value creation is a strategy that designed for conformity, and disconformity will hinder resource integration of the value creation utility, although based on S-D logic references	A more comprehensive empirical examination of value creation potential utilise various models conducted from multiple stakeholders	United Kingdom
3	(Y. Rashid et al., 2013)	VCC development framework with multiple actor integration	Qualitative - interpretive methodological (triangulation, thematic analysis)	Information and communication (ICT) systems integration project	The four features of the VCC process and its benefits along with conflicts and frustrations, findings on personnel and network regard to VCC	More investigation on the understanding of the value creation process with multiple case studies	New Zealand
4	(Kijima et al., 2014)	Developed a new platform of value orchestration to provide the systematic perspective of the VCC process	Qualitative	Application for e-commerce business models	Four stages of VCC process (4'Co) and afterwards describe value orchestration for the successful strategy of service system management	Empirical studies into the VCC process	Japan
5	(Matthyssens et al., 2016)	The changes over time in Marketing and Purchasing (M&P) alignment processes on inter-organisational interaction as the value creation process	Qualitative - case studies, longitudinal analysis	Industrial mechanical companies	Increased organisational alignment between marketing and purchasing based on path dependency and steadily accelerated pace due to the market change situation	Additional cases to be taken for a large and medium-sized company with empirical analysis	Italy
6	(Zátori, 2016)	VCC and experience-centric approach	Qualitative - attention-involve-make discover (AIM) model	Tour providers	Service designs contribute towards VCC, and the AIM model showed the result of value and experience co-creation process reveal based on attention provocation, involvement-engagement, and consumer discovery	Expand the subject area study on the AIM model for other hospitality business related to tourism, such as restaurants and theme parks	Hungary
7	(Quero et al., 2017)	Crowdfunding as an ecosystem through value-in-context and VCC innovation on in the B2B concept	Qualitative - nethnographic study	Spanish arts sector (service ecosystem)	Value-in-context in a service ecosystem present three conditions on co-produces, exchange, and co-create value with '7 Co-s' as determinants of the value process	VCC in practice in an ecosystem context and testing model validity from the qualitative funding of the research	Spain
8	(Gordon et al., 2018)	Value in behaviour that influences consumer energy efficiency behavioural outcomes	Quantitative - latent class analysis	Domestic energy consumption	Consumer perceived value-in-behaviour, a significant distinction of how consumers perceived value-in-behaviour with different profiles	More comprehensive insight and understanding on value-in-behaviour the term of consumer perceived value	Australia

No	Source	Objective(s)	Method(s)	Business Setting	Key Finding(s)	Future research direction(s)	Research setting
9	(Chuang, 2018)	The link between marketing orientation and VCC in a chain that adopted by e-marketing system	Quantitative – surveys	E-commerce for international tourist hotels	E-marketing adoption has a high effect on VCC both for sellers and buyers The sellers that integrate marketing orientation in the adoption of e-marketing systems to facilitate VCC	Employing mixed methods to evaluate VCC, adding more variables into the model and utilise another quantitative analysis with a longitudinal approach	Taiwan
10	(Lindhult et al., 2018)	Value logic: how to understand, target, and create value as the theoretical lens for discussing service innovation	Qualitative (constructive pragmatic view) – semi-structured interviews	Product-centric manufacturing companies (ICT companies)	<ul style="list-style-type: none"> Space shifts of companies toward information systems and digitalisation-driven new service innovation by trying to enhance value via four criteria of value logics, namely product-based, service-based, virtual-based, and systemic-based Different value logics presented challenges based on the service gaps and complexity traps 	Research on literature reviews and conceptual studies on: <ul style="list-style-type: none"> The shifting from product-service dialectic into value and VCC Value-dominant logic as the driver and orientation for innovation and specifically for service-innovation Value logic that focuses on the business model in terms of the essential space for service innovation Crossbreeding research on innovation fields, system, and complexity of management from the view of systemic logic	Sweden
11	(Dai et al., 2019)	Customer participations based on the S-D logic by integrating the perspectives of information system and service marketing	Quantitative – surveys	Social commerce	<ul style="list-style-type: none"> Social commerce innovations Customer participation in social commerce can help to co-create social value in terms of utilitarian and hedonic value Customer experience on using social commerce and realise the co-created social value, customers are willing to be loyal and share a positive review of the social commerce 	<ul style="list-style-type: none"> A greater comprehension of the nature of social commerce by refining the literature and theories Investigations of the nature of social commerce interactions from a multidirectional perspective of theories and practices Surveyed different customer segmentation for the opportunities of research generalisability 	China
12	(D'Andrea et al., 2019)	Co-creation process from the participation in two sets of co-creation initiatives of B2B and B2C	Qualitative – the laddering technique (the means-ends chains)	B2B – IT companies B2C – consumers of cosmetics	<ul style="list-style-type: none"> Disconnections between the co-creation theory and motivation of participants in B2C, which occurred in B2B but much smaller The collaboration was inconsistent in B2C, while the access to collaboration in the B2B cases considered being more accessible The co-created outcomes (the process from inputs to outputs) more encouraging for B2B compared to B2C The benefits of co-creation initiatives were more addressable for B2B due to 	Researching more conclusive endeavours to achieve conclusiveness on the distinguishing the process of co-creation initiatives in B2C and B2B context	Brazil

No	Source	Objective(s)	Method(s)	Business Setting	Key Finding(s)	Future research direction(s)	Research setting
					more consistent goal sharing, greater mutual understanding among parties, and more constant exchange and communication		
13	(Davey et al., 2019)	Explored self-generated activities and service-generated influence VCC	Qualitative – semi-structured interviews, hybrid approach	Healthcare services (standardised screening services)	<ul style="list-style-type: none"> Understanding relationships, protecting self and others, and obtaining control are factors that show as customer responses to co-creation related to service-generated activities (relinquishing control, compliance) A high customer internal health locus of control has higher initiatives to participate and empowered in co-creation, and vice-versa Interpersonal dialogue is the factor that can increase customer motivation to participate in the co-creation 	<ul style="list-style-type: none"> Research on customer willingness to participate and the types of co-created results Research on paid prevented services (non-subsidised) Research that uses a more diverse sample for broadening insights into customer participation Research on consumer wellbeing through the Transformative Service Research (TRS) Research updated co-creation process focuses on (dialogue-access-risk-benefit, transparency-execution (DART-E)) 	Australia
14	(Skourtis et al., 2019)	The mechanism on co-recovery behaviour (in-role co-creation behaviour) and favourable VCC as a reaction to a service failure to enjoy the utilitarian and hedonic value	Mixed methods – in-depth interviews and surveys	Service providers	<ul style="list-style-type: none"> Extrinsic motivation mediates the relationship partially between in-role behaviour to value co-recovery and the ability to co-recover In-role behaviour in co-recovery lessens hedonic value by enhancing the utilitarian value 	<ul style="list-style-type: none"> Research on different service settings for generalisability opportunities Investigation on the effect of service provider's capabilities for assimilation and acquisition 	United States
15	(Medberg & Gronroos, 2020)	Value as ViU from the customer perspective on services	Qualitative – narrative-based adaptation	Retail banking	<ul style="list-style-type: none"> Seven empirical elements of ViU, both positive and negative: solution, convenience, attitude, speed of service, expertise, flexibility, and monetary sacrifices (costs) The seven dimensions of ViU overlap with the dimensions of service quality 	<ul style="list-style-type: none"> Longitudinal studies to track ViU throughout the customer relationship Researching customer experience in ViU from the interactions of customers with multiple service providers The needs for quantitative research for generalisation Researching ViU and service quality from other contexts of service 	Finland
16	(Mingione & Leoni, 2020)	Co-creation corporate brand (corporate marketing) in a B2B2C marketplace between the company and its stakeholders	Qualitative – a case study	Technology corporation in the financial sector	Six drivers of a successful VCC: interdependency, trust, knowledge sharing, direct approach, modus operandi, and strategic alignment	<ul style="list-style-type: none"> Researching the topic from multiple case studies and multiple stakeholders Examining the validity and interconnectedness of the drivers to VCC 	Ireland

No	Source	Objective(s)	Method(s)	Business Setting	Key Finding(s)	Future research direction(s)	Research setting
17	(Watanabe, 2020)	The effects of VCC, customer share, and switching costs in B2B and B2C	Quantitative – surveys (B2B and B2C)	B2B: Financial services B2C: Hair salon services	<ul style="list-style-type: none"> There is a positive effect of VCC presented as the value in relational exchanges on customer share and switching costs in both B2C and B2B relationships Value in relationship exchanges has an adequate impact on customer share in both B2B and B2C relationship 	<ul style="list-style-type: none"> Re-conceptualisation of VCC in the proposed model related to the interrelationship of co-production, value exchange on VCC in B2B settings Consideration for using customer share as the indicator for behavioural intention 	Japan
18	(Nöjd et al., 2020)	The process of value creation in the physical retail space and how digital technology influences the customer experience	Mixed methods – cross-sectional surveys (quantitative and qualitative elements)	Digital technology	<ul style="list-style-type: none"> The qualitative analysis reveals three interrelated clusters on understanding customer value-scape: customer, digital technology, and service provider The three factors determine customer-specific needs, objectives, and desire to interact that may improve or disturb the VCC process The importance to align customer drivers and digital solutions that support technology 	<ul style="list-style-type: none"> The use of another method (e.g., consumer diary method) to examine the role of digital technology in the customer VCC process The consumer diary method may capture customer value-scape by displaying consumer activities and behaviour, and the affective and cognitive processes 	Sweden
18	(Koivisto & Mattila, 2020)	User-generated content on facilitating co-creation on visual content	Qualitative – illustrative visual frame analysis	Social media for luxury fashion	<ul style="list-style-type: none"> The dominance frames of co-creation: luxury, art, self, and high life Two dimensional of the brands the keying of the frame: creative production and role of the brand The dynamic of customer-company co-creation by using a novel method of visual analysis to understand customer-generated images 	Observing the phenomenon from the perspective of brand management to acknowledge different strategies to cultivate brand communities, inspire a content generation, and promote the VCC initiatives	England
19	(Abeza et al., 2020)	Social media as the channel to co-create value established by the company with consumers	Qualitative – multi-domain data for netnography, interviews, focus groups	Social media (i.e., Twitter) for professional sport	<ul style="list-style-type: none"> Social media as the new tool in relationship marketing that show as an effective way to realise the objectives of relationship marketing An extended work from Grönroos (2004) on relationship marketing process model (communication, interaction, value creation) from the views of social media and VCC Developing integrated results of organisation-oriented, shared, and consumer-oriented 	<ul style="list-style-type: none"> The best practice of social media, relationship marketing applications, and the typology of social media consumption The application and impact of social media as service offerings to non-conventional market or growing and increasing the consumer base The usage of social media patterns that used the service provider Research on other industry settings 	North America

No	Source	Objective(s)	Method(s)	Business Setting	Key Finding(s)	Future research direction(s)	Research setting
						<ul style="list-style-type: none"> • Studying the relationship between social media opinion leaders or influencer and a brand • How organisations manage, filter out, sort out, and extract the unstable data on social media • Investigating why some organisations disregard or do not engage in consumer-initiated requests or communications 	
20	(A. Q. Li et al., 2020)	The product-service systems (PSS) in the digital era	Qualitative – semi-structured interviews	Manufacturing industries	<ul style="list-style-type: none"> • The motivations of economic and social rather than the environmental aspect drive the change to a certain PSS maturity level in the manufacturing industry • Although the company has the advantage of digital connectivity, VCC is the primary challenge to implement and indicated the needs for advance human skills for social connectivity and readiness enabling the power of digital technology 	<ul style="list-style-type: none"> • Further exploration of how to manage VCC that facilitate by digital technology in the process • Expanding more data from a bigger sample size • Research on PSS and VCC to understand the synergy between technical and social elements that purposively perceived from a high maturity level of PSS 	Western European
21	(Cassidy et al., 2020)	Reconfigured physical retailing within the town centre ecosystem based on S-D logic and the evolving of service ecosystem perspectives	Qualitative – case studies	Retail industries	<ul style="list-style-type: none"> • Physical retailing can survive when they collaborate with other actors on a broader community for solution purposes • To achieve effective VCC, physical retailers can align their strategic operations and position in their holistic place plan to actively engage the operant resources of customers to create physical store experiences 	Further exploration on how physical retailers maintaining their crucial role within town centres for further contributions to place marketing from service ecosystem and S-D logic perspectives	The United Kingdom

TABLE 3. VCC AT THE DEVELOPING ECONOMY MARKETS

No	Source	Objective(s)	Focus of co-creation	Research Site	Method(s)	Research setting	Key Finding(s)	Future research direction(s)	Research setting
1	(London & Hart, 2004)	MNCs strategies to penetrate BOP markets and pursuing business opportunities	Business creation with a bottom-up approach	MNC managers	Qualitative – interviews, case studies, archive data	Western and local (indigenous) profit ventures	<ul style="list-style-type: none"> Enhancing recognition to Western-style patterns of economic development to enter the BOP Business strategies through co-inventing personalise solutions, developing relationships with non-traditional partners, and local capacity development 	<ul style="list-style-type: none"> Additional case studies to broaden the empirical findings Examining how companies create and understand the competitive advantage in the unfamiliar marketplace Exploring the value-added for MNCs by operating at the BOP Comparison between MNCs and large local companies operate in emerging markets 	Asia, Africa, Latin America
2	(Wheeler et al., 2005)	Framework development for Sustainable Local Enterprise Network (SLEN)	Value-creating sustainable enterprise	MNCs, large domestic (local) companies, local actors/enterprises	Qualitative – case studies, secondary research from various sources	Agriculture business, energy, financial services, ICT, manufacturing, others (water, extractive, tourism)	<ul style="list-style-type: none"> The characteristic of social enterprises at the BOP is frequently a traditional development: engaged relatively dense networks of business for profit-oriented, a non-profit organisation, local communities, and other actors, working in a self-organised way that aims to create economic, social, ecological, and human values SLENs allow the members to have different ideas to define value in various ways SLENs enable the participating organisation to generate competitive advantage (leveraging complementary resources, competencies, capabilities, assets) 	The outcomes of value-creating sustainable enterprise comprise of (1) trade and local economic development, (2) profits and reliable returns on investment, (3) economic self-reliance of individual and community, (4) the improvement of quality of life, human and environmental development. Findings other categorisation of the outcomes that give a significant or less influence may differ in other cases.	Africa, Latin America, Asia
3	(Brugmann & Prahalad, 2007)	The learning process between a corporation and NGO to work with each other at the BOP markets	Co-creation business relationships	A global company, small local NGOs	Qualitative – case studies	Banking company, small NGOs	<ul style="list-style-type: none"> Three phases in the convergence between the commercial sector and civil society: (1) co-exist that can influence each other, (2) set-up businesses by learning from and work with each other, (3) co-create 	Testing the co-creation benefits at the BOP that may offer more than just affordable prices and better products, but also to enable people at the BOP to enjoy the benefits of globalisation and propose new	India

No	Source	Objective(s)	Focus of co-creation	Research Site	Method(s)	Research setting	Key Finding(s)	Future research direction(s)	Research setting
							business relationships to deliver value that benefited both sides <ul style="list-style-type: none"> • Collaboration to define the norms for future relations and behaviour: (1) co-create markets through innovative business models, (2) task-orientated relationships, (3) align global positions by adopting local ability to create value and serve customers, (4) internalised the new business models, (5) gain society legitimacy and develop value propositions (6) advocating common policy positions and develop co-regulation schemes 	livelihood for both economic and social effects	
4	(A. T. Rashid & Rahman, 2009)	Innovative marketing approach to penetrate the BOP markets	Value proposition, resources, distinctive capabilities	MNCs	Qualitative – a case study	Village phone programme (a collaboration between businesses/companies and non-profits)	The advantages of the village phone programme: <ul style="list-style-type: none"> • A cornerstone for business expansion by increasing more users • Reduce costs for the users by creating consumer surplus (costs for alternative communication) • Empowerment and social status for women and their households • Additional non-economic benefits 	<ul style="list-style-type: none"> • Exploring how MNCs penetrate the BOP market and its relationship with poverty reduction • Researching strategic alliances build by the MNCs by collaborating with social entrepreneurs for economic and social wellbeing 	Bangladesh
5	(Prahalad, 2012)	BOP markets as a source of radical innovation	4As (awareness, access, affordable, availability) marketing approach for BOP	Poor rural community	Qualitative – a case study	Biomass stove	<ul style="list-style-type: none"> • Innovation at the BOP is a continuous process of refinement and learning • The 4As to incorporate the innovation process accessing the BOP with cost-effective, scalable, provide skills-knowledge, and collaboration in the ecosystem • The needs to balance between global standards and local responsiveness: (1) no universal solution for BOP; (2) 4As approach to address BOP challenges; (3) deep immersion to consumer lives; (4) innovation is creating an appropriate ecosystem for the business system to work 	Researching the involvement of innovation and participation of global companies or MNCs in BOP markets to set global competitiveness	India

No	Source	Objective(s)	Focus of co-creation	Research Site	Method(s)	Research setting	Key Finding(s)	Future research direction(s)	Research setting
6	(Santos & Lacznia, 2012)	Normative ethical framework development of Integrative Justice Model (IJM) for impoverished consumers	Co-creation linked to IJM	MNC subsidiaries	Qualitative - conceptual research	Various business industries	<ul style="list-style-type: none"> To move from product-centric to business model innovation, develop new services and applications IJM approach proposes a defensible set of general and theoretical values required to navigate the thoughtful of professional and ethical obligations to impoverished consumers IJM approach supports the BOP for the non-theory recommendation to overcome the market constraints in the involvement of MNCs VCC and IJM propositions through collaboration with communities with a direct concern in partnership with the BOP consumers 	Further exploration on the use of the IJM approach by MNC managers as the ethical principles or guidelines into business thinking for a specific context of business by providing the actionable framework for creating a benefiting situation for both the BOP consumers and the company	Various BOP markets
7	(Simanis & Milstein, 2012)	<ul style="list-style-type: none"> Designed a market-based solution to poverty alleviation Business economic drivers by reorienting community engagement and co-creation strategies 	<ul style="list-style-type: none"> Mutual value creation Co-venturing Intense dialogue, collective entrepreneurship capability 	Community perspective	Qualitative – a case study	Protein-based food products	<ul style="list-style-type: none"> Reframing the BOP concept Poverty alleviation as a positive externality a by-product to drive business success Four reversal business fundamentals: (1) from BOP to D&E (the developing and the developed) markets/consumers; (2) from broad-room rhetoric to grounded opportunities; (3) from consumer engagement to business economic drivers; (4) from external impact examination to internal business performance 	Exploring the maximisation, the potential of the sector at the BOP for positive impact by focusing on business fundamentals	India
8	(Williams Jr. et al., 2012)	Value flame at the BOP (VFBOP) based on the principles of mutual value and co-venturing	<ul style="list-style-type: none"> Product co-design Co-invention Co-venturing 	Company and BOP communities	Qualitative – a case study	ChotuKool (small refrigerator)	Twenty-one elements of value flame at the BOP that categorised into four dimensions: <ol style="list-style-type: none"> Mindset changes Do not compete Align all company activities in search of differentiation Create and capture new market demand 	<ul style="list-style-type: none"> Researching the paradigm shift of international business facilitating MNCs in emerging economies Further research on examining the proposed model of VFBOP in emerging economies 	India
9	(Varman & Belk, 2012)	Assumptions of the association between poverty	Value creation through ICT initiatives	Project officials, farmers,	Qualitative – in-depth interviews	e-Choupal IT initiative	A non-liberal governmental concept can assist in explaining the paradox of	<ul style="list-style-type: none"> Researching on how coercion applied in neoliberal societies 	India

No	Source	Objective(s)	Focus of co-creation	Research Site	Method(s)	Research setting	Key Finding(s)	Future research direction(s)	Research setting
		alleviation with profit-seeking at the BOP		traders, state functionaries			poverty alleviation and profit-seeking initiatives: 1. Draw a systemic framework of policies to situate the failure of such initiatives 2. Governmentality supports to uncover the contradicts between the two paradoxes from the microlevel Expand the boundaries of policy making theories and marketing at the BOP	to encompass aspirations of the observed groups • Exploring the role of institutions and the subaltern groups on accessing the control of domination • Constructing the market based on the neoliberal governmentality and its dependency on sovereignty power	
10	(Gebauer & Reynoso, 2013)	Combined research priorities in service subject with the topic of service management at the BOP	VCC within service research at the BOP	Literature review	Quantitative - Bibliography methods	Service management subject	<ul style="list-style-type: none"> The critical research topic area for BOP related to service management subject are business, management, and accounting that dominated by USA researchers, while researchers from developing countries remain as minority except for India and South Africa The research direction refers to BOP in service management subject is BOP innovation, international strategies in emerging markets, CSR, and poverty alleviation 	The application of other types of bibliographic methods for service research opportunities such as expert-based methods for further reliable long-term predictions	Not mentioned
11	(Jun et al., 2013)	A multi-criteria approach to identify business models implemented at the BOP	Identification of factors influencing the success of firms at the BOP	Literature review	Quantitative – analytical network process (ANP)	Business models at the BOP	<ul style="list-style-type: none"> Three clusters of criteria to the success of firms operate at the BOP: product development, customer service, and infrastructure Other factors that influence the success of firms to operate at the BOP may occur related to all alternative solutions 	The use of opinions of a local expert to improve the reliability and accuracy of the criteria from the ANP model results	Not mentioned
12	(Facca-Miess & Santos, 2014)	Marketing planning for social entrepreneurs operate at subsistence marketplace	'Integrative Justice Model' (IJM) adaptation for co-creation	Corporation/organisation	Qualitative – case studies	Micro-ventures, banking	<ul style="list-style-type: none"> The IJM framework is designed marketing 'to, for, and/or' with the poor The IJM evaluates plans and strategies to adapt to the impoverished marketplace 	The employment of robust qualitative methods from less data but enable generate more evidence to assist marketing planning in the context of innovation explored	Philippines, Mexico
13	(Bharti et al., 2014)	The drivers of customer	Customer participation	BOP consumers and	Qualitative – in-depth interviews	For consumer: NPd process	Two categories of the factors influencing customer participation in VCC:	Further research on the suitability of polycentrism orientation in VCC practices at	India

No	Source	Objective(s)	Focus of co-creation	Research Site	Method(s)	Research setting	Key Finding(s)	Future research direction(s)	Research setting
		participation in the VCC process		manufacturers /marketers		For marketers: agri-food industries	<ol style="list-style-type: none"> 1. Dispositional factors (behaviour exhibit to the internal state of one's being) 2. Situational factors (behaviours occur due to environmental factors) 	the BOP (e.g., how to penetrate the BOP) to sustained competitive advantage and gain long-term profitability	
14	(Santos et al., 2015)	The conception of the 'Integrative Justice Model' (IJM) by MNCs at the BOP	VCC with impoverished customers	BOP consumers	Qualitative – conceptual research	MNCs who entered BOP markets	The connection between 'Integrative Justice Model' (IJM) and 'Transformational Justice' (TJ) dimensions via proactive actions by the institutions to guide a better proposal to serve BOP consumers	<ul style="list-style-type: none"> • Exploring the BOP consumer interest to propose a better presentation of the organisation • Examining the IJM model in different settings, including stakeholders • Matrix development to map the match between the interest of BOP consumers and stakeholders 	Not mentioned
15	(Letaifa & Reynoso, 2015)	<ul style="list-style-type: none"> • Combined S-D logic premises with the BOP ecosystem characteristics • Created the foundations of a new services ecosystem for BOP 	Service co-creation for local communities	Ecosystem perspective	Qualitative – theoretical propositions	Service industries	<p>Ecosystem framework for BOP contexts:</p> <ol style="list-style-type: none"> 1. The need to move from a top-down to a multi-actor BOP approach 2. The necessity of social embeddedness for successful BOP initiatives 3. Service co-creation for and with local communities by involving inclusiveness of multi actors playing multiple social roles 4. Multi-dimensional and multi-actor value creation 	The needs for conceptual model validation and confirmation through empirical research for both quantitative and qualitative studies	Not mentioned
16	(Dwivedi, 2015)	A sustainable model by incorporating best practices, innovations, and public services system	Shared value via a business model of hybrid partnerships	Health care service providers	Qualitative – case studies	Health care services	<ul style="list-style-type: none"> • Co-creation through technology integration and local engagement • An improvised healthcare model for rural settings at the BOP through the 4A framework of availability, accessibility, affordability, awareness 	Incorporating the stakeholder elements (i.e., service providers, NGOs, governments, BOP communities) to co-create and distribute the value by developing a suitable, sufficient healthcare market at the BOP	India
17	(Goyal & Sergi, 2015)	The market ecosystem of social embeddedness at the BOP	VCC ecosystem and co-innovation through capacity building and empowerment	Stakeholders of social enterprises	Qualitative – case studies	Healthcare and energy solutions	<p>Setting up an ecosystem via social embeddedness:</p> <ul style="list-style-type: none"> • Local capacity building development • Creating a unique value network by developing non-traditional partnerships 	Exploring the observed phenomenon of social embeddedness in other country settings to investigate different social needs of the BOP	India

No	Source	Objective(s)	Focus of co-creation	Research Site	Method(s)	Research setting	Key Finding(s)	Future research direction(s)	Research setting
18	(Agrawal et al., 2015)	Social VCC of companies and their stakeholders			Qualitative – a case study	Health insurance	<ul style="list-style-type: none"> Grassroot learning ecosystem development Co-creation is not finite to the customer but influencing society through reciprocal action and relationships 	<p>population throughout the urban and rural markets</p> <p>Identify value destruction along with the role of trust and cultural context</p>	India
18	(Nahi, 2016)	Reviewed VCC conceptualisation at the BOP	VCC diversity, distinguishing the width of participation and the intensity of co-creation purposes, feasibility, and necessity at the BOP	Systematic literature review	Qualitative – literature review	Business-related disciplines	<ul style="list-style-type: none"> Co-creation defines as the interaction that integrates various knowledge and capabilities of partner by emphasising iteration Interaction is the component builds VCC to keeping and develop personal relationships in the partnerships that employ formal governance mechanism at the BOP The purpose and participants of co-creation show a considerable range that led to the width (focused-orientation to inclusive-orientation) and depth (business-driven to empowerment driven) of co-creation at the BOP VCC initiatives at the BOP are by addressing the structural drives of poverty rather than necessarily always bring needed and affordable products to the poor. 	Examining more accurate definitions, the processes, the indicators, and factors on the broad and deep facilitation of VCC at the BOP, including observing transformative cross-sector alliances at the BOP	Not mentioned
19	(Angeli & Jaiswal, 2016)	Model business innovation (inclusive business model)	Value discovery for BOP consumers	BOP consumers	Qualitative – case studies	Inclusive health care	<ul style="list-style-type: none"> Inclusive health innovation via co-creation of patient needs, community engagement, continuous involvement, technology innovation, HRs, strategic partnerships, the economics of scale Business model conceptualisation through four elements of value discovery, value proposition, value creation, and value appropriation 	<ul style="list-style-type: none"> In-depth analysis with the qualitative inquiry for a smaller sample to get insights into organisational mechanisms for specific strategic application on each case study Examining the similar topic in different country settings 	India
20	(Dey et al., 2016)	BOP market dynamics (consumer) lead to VCC	Customer knowledge (product knowledge) and interaction with product	Farmers as BOP customers	Qualitative – FGDs, in-depth interviews,	Mobile phone	<ul style="list-style-type: none"> VCC characterises by ViU that facilitates by product features, consumer capabilities, socio-economic practices, and technology appropriation 	<ul style="list-style-type: none"> Examining the level and scope of influence factor on the VCC process Exploring how VCC can facilitate marketing 	Bangladesh

No	Source	Objective(s)	Focus of co-creation	Research Site	Method(s)	Research setting	Key Finding(s)	Future research direction(s)	Research setting
21	(Angeli et al., 2018)	Advancing current knowledge regarding BOP and business model on social entrepreneurship	designers led to VCC Consumer decision making process to specific choices by including socio-economic and socio-cultural factors	BOP consumers	Explanatory sequential mixed methods	Healthcare services	<ul style="list-style-type: none"> • Consumer preferences and services-seeking behaviour difference between BOP consumer and TOP consumer regarding public vs private services • Aspirational demand for private services • Service provider choice emerges as the results of collective socio-cultural decision making 	<ul style="list-style-type: none"> • Examining choice behaviour across multiple city regions to generate better insights • Investigating different categories between low-income population living in both urban and rural areas 	India
22	(Makonese & Bradnum, 2018)	A suitable product for low-income consumers based on product components and performance	Co-design	Low-income households	Qualitative – a participatory bottom-up approach	Wood-burning (biomass) cookstoves programmes	The needs for iterative designing and testing for a suitable product with good quality and performance to use by the low-income communities	Researching experimental work for different types of product design	South Africa
23	(Howell et al., 2018)	The role of IT developments in frugal innovation and affecting new business model of the BOP	Value creation, value capture, inclusive innovation	A technology-based project	Qualitative – a case study	Trans-African Hydro-Meteorological Observatory (TAHMO)	<p>The IT factors affecting frugal innovation and business model:</p> <ol style="list-style-type: none"> 3 Reduce transaction costs 4 Lower prices 5 IT externalities <p>Adaptive business model, IT co-creation approach has helped to create a successful new business model and innovation at the BOP</p>	<ul style="list-style-type: none"> • Exploring the role of technology in designing the business model and innovation diffusion for the BOP that can maximise inclusivity • Examining how frugal innovations can impact inclusiveness at the BOP • Researching the shifting on the approach to the BOP into pull demand instead of technology push innovation 	Sub-Saharan Africa
24	(Duarte et al., 2019)	Last-mile delivery (LMD) at the BOP and how to overcome the pressures and constraints	Value creation of urban logistics to operate in impoverished areas	SCM and LMD practitioners (employees, supervisors, managers, directors)	Qualitative – in-depth interviews, archive data, field observation	Distribution, logistics, and transportation companies	<ul style="list-style-type: none"> • LMD circumstances: product characteristics (value, features) and slum (access, infrastructure) • LMD practices related to how products are delivered (vehicle size, delivery selection and times, access points): delivery controls, settings, and community engagement • LMD results based on performance related to costs and service level. 	Extending the model to enrich the insights in similar contexts, including testing the model with quantitative methods	Brazil

No	Source	Objective(s)	Focus of co-creation	Research Site	Method(s)	Research setting	Key Finding(s)	Future research direction(s)	Research setting
25	(Hernandez-Cazares et al., 2019)	The practices of new business benefiting (ethically and financially) the BOP markets	VCC through new business ventures with the BOP population	BOP farmers and key stakeholders	Qualitative - action research	Agriculture business	<ul style="list-style-type: none"> • Collaboration with both upstream and downstream stakeholders to increase farmer's wellbeing and create additional business opportunities • VCC strategy through new business ventures with the BOP population by proposing a process model 	Further assessment for applying the conceptual framework in different social backgrounds for further theorising	Mexico
26	(Knizkov & Arlinghaus, 2019)	The principles of VCC to operate in complex BOP and social value facilitates BOP individuals and economic value for companies	VCC principles across the supply chains	Companies	Qualitative – case studies	Various sizes of companies (micro, small, medium)	Guiding framework (patterns and practices) for co-creation operationalisation and its sustainable outcomes (social value for BOP consumers and economic value for companies)	<ul style="list-style-type: none"> • Exploring the challenges related to production activities at the BOP • Further investigation on the possible best practice for VCC from the perspective of supply chain 	African countries
27	(Dey et al., 2019)	Technology upgrading experience by developing countries through VCC at the retail consumption level with or without governmental policies and MNC strategies	Technology (ICT) upgrading through VCC	Industry experts, policymakers, employees	Qualitative – in-depth interviews, archive data	Mobile telephone industry	<ul style="list-style-type: none"> • Technology upgrading at the retail consumption in developing countries can be achieved even without the presence of some critical perquisites (e.g., institutional, infrastructure, financial) • The cooperation and mutual support between SMEs, MNCs, NGOs and government institution can create a symbiotic and organic ecosystem and refer to co-creation mechanism for technology upgrading • The development, design, and use of the mobile phone as an example for various business support (agriculture, banking, health, entrepreneurial development) has contributed to other auxiliary industries by supporting, accelerating, and sustaining technology upgrading 	<ul style="list-style-type: none"> • Investigating the indicative findings for other country settings, such as South Asia and beyond • Conducting longitudinal research for a similar conceptual framework 	Bangladesh
28	(Khalid & Seuring, 2019)	Analysed supply chain management (SCM) and sustainable SCM (SSCM) usually	Market-based development for the creation of win-win scenarios for stakeholders to	Literature review (content analysis)	Qualitative – literature review	SCM	<ul style="list-style-type: none"> • The most frequently discussed in literature was the linkages between SSCM and BOP, about supplier integration, de-commoditisation, strategic purchasing, long-term 	<ul style="list-style-type: none"> • Investigating literature on a similar topic with a more selective choice of constructs for broader insights as a comparison 	Not mentioned

No	Source	Objective(s)	Focus of co-creation	Research Site	Method(s)	Research setting	Key Finding(s)	Future research direction(s)	Research setting
		employed in BOP research	achieve sustainable SCM				relationships, and communication amongst SC actor enhancement <ul style="list-style-type: none"> The most crucial links between the two topics discovered to be between strategic purchasing and long-term relationships and between communication coordination with suppliers and supplier integration 	<ul style="list-style-type: none"> Creating well-cited frameworks to gain a better construct validity that asses by multiple researchers to compile the results 	
29	(Nayak et al., 2019)	The strategic priorities of digital technology for the inclusive social models in health services for the BOP customers	Value proposition	Health insurers and regulators	Qualitative – in-depth interviews	Health services	<ul style="list-style-type: none"> Technology implementation in the social health sector reveals three essential elements of risk management, customer experience enhancement, and risk management Leveraging technology and service coverage for the BOP population can enhance through the role of insurers 	The applications of this specific framework for research in different social inclusion strategies	India
30	(De Silva et al., 2020)	Co-creation opportunity by social enterprises that involve actors in the network (stakeholders)	Co-creation opportunities across the pyramid from the supply side	Company founders and directors	Qualitative – case studies	Transcending pyramid social enterprises	<ul style="list-style-type: none"> Co-creation opportunities had generated social value commercialisation (relevance, prevalence, accessibility) and economic value (demand creation to fulfil pro-social behaviours and customer needs, supply creation) The factors to co-create supply-side opportunities: fulfilling institutional voids, collaboration with strategic partners, collegial feeling development with BOP producers, culture of belongingness development, reputation of supportive working development, value addition processes involvement, addressing social needs 	<ul style="list-style-type: none"> Conducting survey-based research on a large scale for generalisability of the findings Investigating other factors of social innovation by focusing on how companies source resources, engage in various forms of collaboration and develop dynamic capabilities via networks and alliances <p>Discovering a comprehensive VCC process and opportunities focusing on the dynamic evolution of strategic alliances</p>	India, Jordan, Mexico, Malawi, Palestine, Pakistan, Cambodia, Vietnam, Philippines, Ghana, Zambia, Kenya
31	(Lashitew et al., 2020)	The role of embeddedness of hybrid organisation contributes to social innovations at the BOP in the frame of inclusive business	Co-creation for social innovations	Middle-level managers, senior managers, external company partners	Qualitative – a case study (semi-structured interviews, archives of media interview and reports	Telecommunication operator company	<ul style="list-style-type: none"> Strong social embeddedness increased the ethical and pragmatic imperative for social issue internalisation and provided access to various resources to implement and legitimate social innovations Embeddedness in extensive network enhanced radical legitimation for new social innovations by generating 	<ul style="list-style-type: none"> Applying the focus of embeddedness factors between commercial profits and social impact through digital technology for social innovation in other industries Exploring the compatibility on the objective between commercial gain and social 	Kenya

No	Source	Objective(s)	Focus of co-creation	Research Site	Method(s)	Research setting	Key Finding(s)	Future research direction(s)	Research setting
							collaboration and interaction opportunities <ul style="list-style-type: none"> • A hybrid organisation with a mission-driven identity can provide a meta-narrative that facilitates goal diversities, process changes, and rationalises structural 	mission on organisational change that can lead to inclusiveness	
32	(Lashitew & Van Tulder, 2020)	Embeddedness is the strategy for MNCs creating social value at the BOP	Social value creation	MNCs	Qualitative – conceptual research	Business subject	<ul style="list-style-type: none"> • The potential limitations and the effectiveness of embeddedness for social value creation at the BOP: (1) non-transferability; (2) exposure to opportunism; (3) time and financial costs; (4) political and cultural risk • Proto institutions as a beneficial concept to explore MNCs engaging in co-design efficient and inclusive institutional ways aimed for stimulating social value creation • Proto institutions refer to organic advancement of small-scale institutional innovations 	<ul style="list-style-type: none"> • Exploring the focus of sustainable social value creation at the BOP based on institutional change • Researching the role of MNCs for effective formal organisations and inclusiveness, including the emergence of these factors 	Not mentioned

TABLE 4. RESEARCH ON VCC IN THE AGRI-FOOD SECTOR

No	Source	Objective(s)	Method(s)	Product	Key Finding(s)	Future research direction(s)	Research setting
1	(Gow et al., 2003)	Examined the application of the conceptual framework of opportunity-gap initiatives on modular chain architectures utilisation by livestock producers	Qualitative - exploratory design	Livestock (Murrellen pork)	Opportunity-gap through initiatives from the producer on innovation and capability to shift consumer preference can support the success of value creation in the long-term	An empirical study to support the conceptual framework of value creation through farming operation restructuring to meet consumer demands	New Zealand
2	(Pratt, 2007)	Insight on food system movement based on authenticity and values	Qualitative - literature review	Agro-industrial food	Non-monetary values of food movement alternatives from a consumption perspective	Interpretation and connection among a series of experiments on the agro-industrial food system as a fundamental political issue	European insight
3	(Insch, 2008)	The determinants factors along with the process of value creation in the meat supply chain	Qualitative - a historical case study	Chicken	Transformation on modern agri-food supply chain show the distinct phase of value creation based on supply chain actor behaviour and investment	Expand the model for other potential market situations from the western market to develop a valid model of value creation stage on agri-food	Australia
4	(Matthyssens et al., 2008)	Value innovation can drive value creation across value chain actors	Qualitative - focus groups and in-depth interview	Functional food industry	Value innovation different for each level of the food chain that might hinder the innovation development on creating new value that needs the willingness to break the dominant chain logic	Exploration of the operationalisation of value innovation as a form of value creation in the food industry	Netherland
5	(C. Xie et al., 2008)	Customer prosumption propensity (behavioural-based) to verify customer as co-creators of value	Quantitative - statistical modelling	Home food preparation	<ul style="list-style-type: none"> • Consumer attitude, efficacy, and past behaviour are influence food prosumption intention in a domain-specific value • Domain-specific value influence by food presumption in global • The factors that influence food prosumption intention can shape consumer engagement in the future 	<ul style="list-style-type: none"> • Correlation between behaviour, attitudes, and global values toward the behavioural intention • Relationship between actual decision making and intention 	Norway
6	(Lawson et al., 2008)	New alternatives to provide smallholder producers to access direct distribution channel through value creation with the cooperation	Mixed methods (Quantitative study with descriptive statistics and qualitative study with exploratory design)	Horticultural commodities and processed products (preserve and sauces)	Reinforcing the community-based activities through cooperative activities followed by traders but could not serve to have a correlation with their business performance but emerge as co-created value	Examine the explanatory analysis by testing the hypothesis	New Zealand
7	(Hollebeek & Brodie, 2009)	Examined and developed a conceptual model of wine marketing channel on branding thru VCC and consumer involvement	Qualitative - literature review	Wine	A conceptual model of VCC on the wine service industry that incorporating consumer involvement, brand hierarchy, and various level of the marketing channel	Exploration of value co-creation role in more developing forms of service based on the wine industry	New Zealand

No	Source	Objective(s)	Method(s)	Product	Key Finding(s)	Future research direction(s)	Research setting
8	(Kähkönen, 2012)	Acknowledged value creation logic based on value net for the food industry	Qualitative – a case study	Finnish food industry	Value creation logic from the food industry perspective should see from the business network actors by utilising value nets	Emphasising the involvement of collaboration in the value nets as the new concept of value creation for the food industry	Finland
9	(Hunt et al., 2012)	Co-production leads to improve customer satisfaction based on community theory	Quantitative – surveys	Fresh Produce	Two types of VCC based on product-related activities on co-production commitment and behavioural involvement that related to product satisfaction based on product-related by incorporates product satisfaction that drawn upon behavioural involvement rather than attitudinal measurement	Co-production studies should consider the community as part of the customer value driver, although it is not an absolute fact	United States
10	(Dagevos & Ophem, 2013)	A broader paradigm on food consumption value	Qualitative - a conceptual framework	Food in general	Four dimensions of food value that derived from value creation	Empirical testing of food value in a more complex and integrated concept in the agriculture business	Netherland
11	(Matzler et al., 2013)	Verified the application of business model innovation with the format of critical dimensions	Qualitative – a case study	Bundling product of coffee drink and machine	The importance of business model innovation by delivering the unique value proposition	Value concept regarding value creation together with value capture examination used as an innovation of the business model	United States
12	(Aihwa et al., 2013)	Consumer personality (3M model) influence by food traceability label as a form of value creation	Quantitative - structural equation model	Food for daily use	Consumers who concern on food value give a positive influence on the perception of food traceability label and this result give insight on building competitive advantage through a food traceability system	Investigation for the resulting model on another distribution channel to make the conclusion generalised	Taiwan
13	(Weiler et al., 2013)	National Park survival in the global rapid economic change	Qualitative - Conceptual model	National Park	Threat reduction to enhance customer experiences and visiting benefits	<ul style="list-style-type: none"> • Visitor experiences threats clarification • Synchronise benefits accrual and management setting • Intervention design analysis to enhance and manage visiting benefits 	United States
14	(Alonso & Northcote, 2013)	Multifunctional agriculture related to the food crisis and food prices	Quantitative - statistical modelling and content analysis	Small-scale orchard business	Cost–benefits rationalisation affected less interest in adding value to food production due to cost expenses, lack of knowledge, time, and markets	Clarification of the needs of value-adding in agriculture production in other agricultural region and sectors	Australia
15	(Martinez, 2014)	Collaborative knowledge on VCC process by utilising the perspective of a consumer event	Qualitative – a case study	MCBC-UK (beer company)	Open innovation embraces consumers idea will determine a superior value proposition, and VCC management success will lead to attaining desired consumer segments and maximise consumer lifetime value	Study on other industry of food and drink to apply the conceptual framework	The United Kingdom
16	(Manning, 2015)	Value terminology applied to multiple stakeholders that involved interaction on the food supply chain	Qualitative - literature review	Meat product	Value perceives individualistic, and disconfirmation arise for food business regarding shareholder value within the food supply chain and delivering value management to the customers	Investigation on VCC that considered intangible assets and liabilities as risk mitigation	The United Kingdom

No	Source	Objective(s)	Method(s)	Product	Key Finding(s)	Future research direction(s)	Research setting
17	(Handayati et al., 2015)	VCC principal application for food supply improvement	Qualitative – a case study	Horticulture industry	VCC may occur in every relationship within the network chain, and it is not restricted only to two market actors	Simulation of the co-created value in the network within agricultural chains	Indonesia
18	(Vellema & Wijk, 2015)	Co-creation of a standard-setting in a global chain partnership that fit the local organisations with a multi-stakeholder involvement	Qualitative - case studies	Tea and shrimp of global-local partnership	VCC process in the context of business relationships reveal a new mutual benefit to accelerate the co-creation process by benefiting local stakeholders as partners rather than as standards takers such as applying certification	Investigation on how VCC process take place in another setting of agriculture business that applies the same business collaboration of local and global companies	South Africa and Indonesia
19	(Ferreira & Menezes, 2015)	The driving factors of the VCC process in the ViU concept of B2B marketing provider	Qualitative	Food-services provider	ViU dimensions can elaborate B2B relationship driving factors for the VCC process for the foodservice logistics provider	Investigating the change of customer needs in the conceptual model and integrate with company resources	Portugal
20	(Bitzer & Bijman, 2015)	Innovation initiatives benefits in agri-food chain co-innovation	Qualitative - case studies	Potato, pineapple, and citrus	Co-innovation promoting agriculture requires three components of collaboration, coordination, and complementary	<ul style="list-style-type: none"> • Explore success cases of co-innovation • An in-depth study on processes on the knowledge exchange in co-innovation • Analysis of actor interaction thru the power dimensions 	Africa (Ethiopia, Benin, and South Africa)
21	(Makri & Koutsouris, 2015)	Transfer innovation among farmer producers from a network perspective	Simulation modelling through social network analysis	Horticulture PGs (Producer Groups)	Innovation dissemination in the network require coordination and support instead rely only on organisation leadership	<ul style="list-style-type: none"> • Exploring the needs of know-how skills • New roles for innovation dissemination for the farmer-producers necessity 	The EU and Greece
22	(Bush & Oosterveer, 2015)	Environmental certification standards	Qualitative – a case study	Fisheries industry	Standardisation gives effect on market, trade, and internal organisation governance to respond to global value chain threats	Dynamic behaviour and the role of employing standardisation on the value chain	The Netherland
23	(Erickson et al., 2015)	Food literacy, children healthy eating choices, and local food	Qualitative – a case study	Elementary school garden	<ul style="list-style-type: none"> • Verify the distinction between institution centred and institution target-centred • Consumer involvement in ViU relevance on social marketing • The needs for community support enhanced social networks • Consideration of barriers to exchange the desired and competitive behaviours on value creation in social marketing 	Research extension to verify the analysis of other settings	United States
24	(Borges et al., 2016)	Comprehension of VCC process among wine producers and consumers that affect the rise of innovation	Qualitative – a case study	Wine	DART model (Dialogue-Access-Risk Benefit-Transparency) as an innovation component generator showed that a firm is a co-creator whereas merely by one of the four components is emerging	Innovation concept development by implicating consumers in the change process	Brazil
25	(L. K. Campbell et al., 2016)	Green infrastructure through urban tree planting	Qualitative - comparative case studies	Urban forestry	<ul style="list-style-type: none"> • Embeddedness and trust are the primary keys of co-production 	Exploration of knowledge co-production from a different perspective of beliefs,	United States

No	Source	Objective(s)	Method(s)	Product	Key Finding(s)	Future research direction(s)	Research setting
					<ul style="list-style-type: none"> Co-production new approaches require the blending form of expertise, capability and how to know 	knowledge, values and management such as profit organisations	
26	(Delate et al., 2016)	Participatory organic research	Quantitative - statistical modelling	Organic agriculture	<ul style="list-style-type: none"> A similar result on participatory organic farming research in the US and Italy based on farmer knowledge and participation enhancement with farming system focus Differences appear in term of pest management in the US and farming equipment in Italy 	<ul style="list-style-type: none"> Inspiration to create an applicable participatory research methodology Enhance the research focus on innovation partnership (co-innovation) for organic farming 	The United States and Italy
27	(De Koning et al., 2016)	Mental innovation space of agri-food with small-scale industry	Simulation modelling through Mental Innovation Space	Fresh produce (fruits & vegetables), fish & meat, processed product (tea & coffee)	<ul style="list-style-type: none"> The unfamiliarity of VCC Inexperienced with new product innovation among agri-food with SMEs Recognition of innovation necessary to maintain customer SMEs enthusiasm for VCC 	Further exploration thru qualitative research on innovation and co-creation among agri-food with SMEs	Vietnam
28	(Vyt et al., 2017)	Value creation of online grocery shopping model with a pickup system	Qualitative - exploratory design	Grocery product	The retail network can consider as creating value for the customer for the online grocery pickup system	Examination of home delivery service and fresh products as the additional product in the pickup service range	The United Kingdom and France
29	(Teklehaimanot et al., 2017)	Insight on the existing studies of business training for smallholders that serves as a source for customer creating value	Qualitative - literature review	High-value commodities such as fruits and vegetables	The capacity to develop a value for customer influenced by the market knowledge of smallholder as producers that can improve through marketing training	Qualitative research of African smallholders and their market; and quantitative research with a longitudinal survey to examine the marketing training effects	Africa
30	(Tardivo et al., 2017)	Defined and explained the integration of customer into the VCC process in SMEs	Qualitative - case studies	Food and beverages products	An increasing emphasis on customers as the critical part of the VCC process with limited participation in the case of SME enterprises	Investigation and empirical testing on the involvement of the customer in VCC process development	Italy
31	(Wikström & Decosta, 2018)	Consumer role in value creation	Simulation modelling (network-integrated hierarchy)	Food industry	<ul style="list-style-type: none"> Hierarchical goals of consumer value creation Consumers resources and capacity identification Firm-to-firm (B2B) interaction necessity as value creation support 	Validation relevant solution for consumer value creation process based ViU on other food industries or countries	Sweden
32	(Ji et al., 2018)	Economic change effect on personal experience (customer escape experience)	Quantitative - Statistical simulation (multi-methods)	The food at the fine dining restaurant	<ul style="list-style-type: none"> Customer escape experience mediated food attachment and C2CI Economic regional condition mediated escape experience and C2CI Customer experience on food attachment also become part of the regional economic situation 	Investigation of other social (cultural values, preferences, lifestyle) and economic factors on escape experience and C2CI	Macau
33	(Raheem et al., 2019)	Future possibilities to transform and develop a food system that facilitates digital solutions	Qualitative – conceptual framework	Food system digitalisation	<ul style="list-style-type: none"> Digital technology can ensure consumer safety towards food and nutrition and propose food business providers to forecast consumer trend in the future 	Conceptualising further gathering of metrics to create an integrated approach in future collaboration on food safety and security	Euro-Arctic Region (Sweden, Norway,

No	Source	Objective(s)	Method(s)	Product	Key Finding(s)	Future research direction(s)	Research setting
					<ul style="list-style-type: none"> Digital technology utilisation can propose conditions that advantageous for the diversification of business or company schemes Digital technology can help as an effective tool to monitor the operation of the food processor and provide food promotion and food security in the region 		Finland, North-West Russia
34	(Jayashankar et al., 2020)	Farmer experiencing VCC and ViU to accrue monetary benefits and non-monetary benefits	Qualitative – semi-structured interviews	Big data technology in agriculture	<ul style="list-style-type: none"> VCC in the digital agriculture sector through direct and indirect interaction, ViU (monetary, environmental), and autonomous co-creation and epistemic VCC through indirect interaction may increase epistemic ViU The elements of psychological ownership and relational actors are very significant to influence the VCC process 	<ul style="list-style-type: none"> VCC and ViU from network perspectives integrating various views from agriculture actors (e.g., farmers, distributors, agriculture technology providers (ATPs), extension agents, family members) B2B VCC and epistemic ViU through indirect interaction for monetary and environmental ViU 	United States
35	(Ngugi, 2019)	Collaboration and VCC practices in the dyadic relationships	Qualitative – case studies	SMEs of organic food	<ul style="list-style-type: none"> Collaboration between SME suppliers and customers can be in innovation, CSR, co-creation planning, and interactive learning Collaboration may lead to monetary and non-monetary benefits 	<ul style="list-style-type: none"> Examining VCC from the perspective of wider networks Exploration from other types of industries and country for generalisation 	England
36	(C.-C. Huang, 2020)	VCC process and mechanism from supplier perspectives	Qualitative – a case study	Rice farmers and their buyer of an agri-food company	<ul style="list-style-type: none"> Farmers and the supplier and the agri-food company as the buyer invest different resource types and density in the co-creation The motivations to co-creation were different, but both parties were mutually fit in the value aiming for sustainability Both parties contribute to similar process mechanism in the co-creation – i.e., co-production, mutual interaction, senses of trust and identification, and information sharing The consequences received by both parties are similar – e.g., co-development and sustainability 	<ul style="list-style-type: none"> Data analysis using qualitative-aided software, e.g., NVivo, MAXDQA Data collection through quantitative research Research concerning the same topic from other food or agri-food context 	Taiwan
37	(Widjojo et al., 2020)	VCC that may overcome the limitation of resources obtained by small companies	Qualitative – thematic analysis	An organic-product community	<ul style="list-style-type: none"> The needs for network collaboration with external parties Dynamic interaction with the members of the community may drive resource integration to develop the co-creation platforms and innovation 	<ul style="list-style-type: none"> Research on VCC based on community settings from different industries The needs for a longitudinal study to examine community measure its sustainability, and predict market changes Research methods using abductive and reproductive, including social network analysis 	Indonesia

No	Source	Objective(s)	Method(s)	Product	Key Finding(s)	Future research direction(s)	Research setting
38	(Garcia & Jerez, 2020)	The integration between a participatory approach with the end-users	Quantitative – surveys	Agri-food project for Digital Products and Services	<ul style="list-style-type: none"> • The importance of consumer involvement to incorporate with innovative farmers as early adopters to provide the best-required products and services • The encouraging perspective of new methods of participatory design for project execution 	<ul style="list-style-type: none"> • Exploring the practical insights of participatory methods for agricultural projects • A specific study of farmer cooperation as aggregators for exploring farmer-centric models and demand-driven approach • The elaboration of digital projects in the agriculture sectors for good tailor-made practices for businesses 	European countries
39	(Giacomarra et al., 2020)	Exploring the internal and external stakeholders in managing a food and beverage company for sustainable outcomes that contribute to the supply chain	Qualitative – multi-methods (semi-structured interviews, documentation review)	F&B packaging	<ul style="list-style-type: none"> • Managing stakeholder management and engagement to gain and share new knowledge to resolve stakeholder pressure • The result of co-creation models is to exploit knowledge from the supply chain actors (internal, external) to joint in eco-innovation projects to promote a sustainable culture 	<ul style="list-style-type: none"> • Investigating B2B companies in the F&B sector with panel data • Dividing the samples into smaller segments based on the types of packaging for intra-industry comparisons to gain a more functional, sustainable supply chain • Investigating the engagement of suppliers with stakeholders to achieve sustainability to get a comparison with another context of company operation levels (e.g., international), types of sectors (e.g., industrial), economic settings (e.g. less developed countries) 	Italy
40	(Prayag et al., 2020)	The effects of physical evidence, knowledge, and service quality to co-creation based on the concept of serious leisure and terroir (social aspect, physical aspect)	Quantitative – surveys	Cooking class of local foods (culinary tourism)	<ul style="list-style-type: none"> • Customer prior knowledge has a strong effect on recreational and reflective motives to participate in co-creation • Acknowledging experiential culinary consumption can be through VCC and encouraging serious leisure 	<ul style="list-style-type: none"> • Investigating the proposed model to other settings of participative culinary experience • Examining the influence of physical and social aspects on VCC and other experiential factors • Investigating the perspective from international tourist perspective to experience the local cooking customs 	Iran



Appendix B

Qualitative Interview Participants' Profile



TABLE 1. INTERVIEW PARTICIPANTS' AND THEIR BUSINESS MARKETING PROFILE

No	Role in the business/company/organisation	Gender	Age	Types of the company/organisation	Role of the company/organisation in agri-food chains	Supply chain characteristics	Market/marketing channel orientation	Types of products sold
1	CEO	Female	23	Start-up company	E-commerce supplier (B2B) and retailer (B2C)	Short supply chains	Modern market (supermarkets, e-commerce) and end-consumers	Non-organic fruits and vegetables, packaged foods, ready-to-eat food and beverage, staple foods (e.g., rice)
2	Farmer and supplier	Male	50	Sole proprietorship	Farmer producer and traditional supplier	Transition to short supply chains	The multichannel supply chain of supermarkets, exporters, and traditional markets (wholesale markets)	Non-organic vegetables
3	Head of the farmers union and co-founder of e-commerce retailer	Male	45	Association - farmers union and family business	Farmer producers and e-commerce retailer (B2C)	Transition to short supply chains	The multichannel supply chain of supermarkets, e-commerce, farmers markets, traditional markets (wet markets), and end-consumers	Non-organic vegetables
4	CFO and CRM manager	Female	31	Start-up company	E-commerce supplier (B2B) and retailer (B2C)	Short supply chains	Modern market (supermarkets, e-commerce), end-consumers	Non-organic fruits and vegetables, packaged foods, staple foods (e.g., rice), read-to-eat food and beverage
5	Head of the co-operative association	Male	36	Association - Co-operative company	Supplier	Transition to short supply chains	The multichannel supply chain of supermarkets and traditional markets (wholesale markets)	Fruits, non-organic vegetables
6	Founder and valuer	Female	32	Family business	E-commerce retailer (B2C)	Short supply chains	End-consumers	Organic vegetables, vegan food products, dairy foods
7	General affair manager	Male	50	Corporation	Supplier company	Transition to short supply chains	Modern market (supermarkets, food provider services)	Fruits, non-organic vegetables
8	Co-founder	Male	26	Start-up company	E-commerce supplier (B2B)	Short supply chains	Modern market (e-commerce), food services (café, restaurants)	Non-organic vegetables, staple foods (e.g., rice)
9	Traditional local wholesaler	Male	45	Sole proprietorship	Traditional trader	Transition to short supply chains	The multichannel supply chain of supermarkets, e-commerce, and traditional markets (wet markets)	Non-organic vegetables

No	Role in the business/company/organisation	Gender	Age	Types of the company/organisation	Role of the company/organisation in agri-food chains	Supply chain characteristics	Market/marketing channel orientation	Types of products sold
10	Founder	Male	50	Association - Co-operative company (social enterprise)	Farmer producer (e-farming), supplier	Short supply chains	Modern market (supermarkets, e-commerce, food services)	Hydroponic vegetables
11	Buyer (product sourcing) specialist	Male	35	Start-up company	E-commerce supplier (B2B) and retailer (B2C)	Short supply chains	Modern market (supermarkets, e-commerce, food services) and farmers markets	Non-organic fruits and vegetables
12	Farmer producer	Male	56	Sole proprietorship	Traditional farmer	Long – fragmented supply chains	Traditional market (wholesale markets, wet markets)	Non-organic vegetables
13	Operational manager	Male	34	Family business	E-commerce retailer	Short supply chains	Modern market (e-commerce)	Hydroponic vegetables, dairy foods
14	Department store manager	Female	24	Corporation	Conservative modern retailer (supermarket)	Transition to short supply chains	End-consumers	All types of food groceries
15	Store manager	Male	32	Corporation	Conservative modern retailer (supermarket)	Transition to short supply chains	End-consumers	All types of food groceries
16	Business owner	Male	39	Sole proprietorship	E-commerce supplier (B2B) and retailer (B2C)	Short supply chains	Modern market (e-commerce, food services) and end-consumers	Organic vegetables
17	Smallholder farmer and head of a farmer group	Male	55	Association - Farmer group	Farmer producer and supplier	Long – fragmented supply chains	Traditional markets (wholesale markets) and food services providers	Non-organic vegetables
18	Smallholder farmer and head of farmers union	Male	34	Association - Farmers union	Farmer producer and supplier	Transition to short supply chains	Modern market (supermarkets, food services providers) and farmers markets	Organic vegetables
19	Traditional wet market retailer	Male	50	Sole proprietorship	Traditional retailer	Long – fragmented supply chains	End-consumers	Non-organic vegetables and herbs
20	Street vendor (Warung)	Female	45	Sole proprietorship	Traditional retailer	Long – fragmented supply chains	End-consumers	Foodstuffs



Appendix C

Qualitative Interview Documents



Exhibit 1.

PARTICIPANT INFORMATION SHEET

The Role of Digital Commerce in the Agri-Food Sector in Indonesia



Date: __/__/__

The Newcastle University Ethics Chair has approved this study

We would like to invite you to participate in this research project. This research is part of a PhD research project which is funded by LPDP (Indonesia Endowment Fund for Education) and will involve fresh produce agribusiness business actors, which consists of farmer groups, farmers union, local traders, wholesalers, supplier companies, modern retail, and e-commerce in West Java and Great Jakarta – Indonesia.

What is this study aims?

The research aim is to explore and investigate the role of e-commerce to facilitate value co-creation concept based on collaborations amongst business actors in the agri-food (i.e., fresh produce) supply chains in Indonesia.

Do I have to take part?

Participation in the study is voluntary. You should only participate if you want to choosing not to take part will not disadvantage you in any way. You can withdraw at any time without giving any reason.

What will happen to me if I take part?

If you agree to take part in the study, you will be part of an interview which will be asked to discuss issues related to business-to-business (B2B) and business-to-customer (B2C) relations to co-create beneficial value that may improve business marketing competitiveness and enhance customer consumption experiences. Specifically, it focuses on the collaboration within business providers of fresh produce commodities to support intra-local agri-food business competitiveness in the Indonesian marketplace. No right or wrong answers to answer the interview questions. The researcher is only interested in your opinion, perspective, and experiences on the topic under discussion. The discussion will take place at a convenient place that agreed by both researcher and interview participant. With your permission, the interview will be audio recorded. The interview will last approximately one to two hours. The audio recordings will be transcribed (copied word by word) and then analysed. Each interview participant contribution on the transcripts will be identified by a participant number with anonymous results, and will only use for research purposes.

Are there any risks that be incurred by taking part in this study?

The researcher has undergone training to conduct an interview. Although no specific risks have been identified, there is always the possibility that the discussion could become heated. In the unlikely event of this occurring, the researcher will ensure that any disruptive and/or upset individual is retired from the interview and provided with appropriate care.

What if something goes wrong?

It is extremely unlikely that something will go wrong during this study. However, the University has procedures in place for reporting, investigating, and recording and handling adverse events and complaints from study volunteers. The university is insured for its staff and students to carry out research involving people. The university knows about the research and has approved it. Any complaint should make, in the first instance, to the researcher identified for this particular study. Any complaint you make will be treated seriously and reported to the appropriate authority.

What about data and information confidentiality?

The information and data you give and supply during the interview will be held in strict confidence, viewed only by the named researcher (see below) and then anonymised. Names will not be attached to audio recordings and informants will be identified by a code number. Anonymised interview transcripts will be stored in a locked password-protected computer.

What will happen to the result of the study?

All the received information from the interview will be analysed, reported and used for a PhD thesis. The result may also be published in academic journals or conference proceedings for use by other professionals engaged in business, marketing or agribusiness field. Many data will be produced in this study. Thus, anonymity and confidentiality of the participants will be maintained.

Contact details:

Hesty Nurul Utami
PhD researcher
Newcastle University Business School
5 Barrack Road, Newcastle Upon Tyne, NE1 4SE
Email – h.n.utami2@newcastle.ac.uk

Exhibit 2.

CONSENT FORM

**(one copy to be kept by the participant, the other by the researcher)*



Date: __/__/__

Title of Project: The Role of Digital Commerce in the Agri-food Sector in Indonesia

Name of PhD Researcher: Hesty Nurul Utami

Email: h.n.utami2@newcastle.ac.uk

The Newcastle University Ethics Chair has approved this study

Please initial box

1. I confirm that I have read and understood the information sheet for the above study. I have had the opportunity to consider the information and ask questions. Any questions asked to have been answered satisfactorily. ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my legal or personal rights being affected. ☐
3. I understand that the researcher will hold all audio recordings and transcripts of these interview collections during the study confidentially and all efforts will be made to ensure I cannot be identified as a participant of the study (except as might be required by law). I permit the researcher involved in the study to hold relevant personal data on me. ☐
4. I understand that other researchers will have access to this data only if they agree to preserve the confidentiality of the data and if they agree to the terms I have specified in this form. ☐
5. I agree to take part in the above study. ☐

Name of participant

Signature

Date (__ / __ / __)

Name of Researcher

Signature

Date (__ / __ / __)

TABLE 1. INTERVIEW GUIDES

No	Interview question <i>[prompts]</i>	Interviewee category
General information		
1	Can you tell me your story about how you come to be in this position?	Producer, trader/supplier, retailer
2	In your business experience, can you tell me what kinds of products you provide and how the production and/or marketing process occurs? <i>[conventional/non-conventional]</i>	Producer, trader/supplier, retailer
Marketing and Service Relationships		
3	Who are your primary customers, and what makes them the most important? <i>[Which customer means to you? Has it changed much over the years?]</i>	Producer, trader/supplier, retailer
4	How is the process you seek to initiate the search for potential partners? <i>[What factors that important to find and decide the business buyer? Cost, product quality, services? Why is it important?]</i>	Producer, trader/supplier, retailer
5	What are the business and marketing strengths, weaknesses, challenges, and opportunities, and the impact on competitiveness? <i>[any plan and action to the opportunities and face the challenges?]</i>	Producer, trader/supplier, retailer
6	What source of competitiveness that you consider can increase the local vegetable commodity sustainability? <i>[innovation capability, quality, delivery capability, supply capability, responsiveness, lower cost?]</i>	Producer, trader/supplier, retailer
Business and marketing activity changes		
7	Can you describe and give examples of business changes during this time, and what makes it essential compared to your competitors? <i>[Any new marketing attributes - products, pricing, distribution, and promotion, services marketing? Improving quality, production scheme, logistic? Any experience using different ways of production, logistic, or marketing?]</i>	Producer, trader/supplier, retailer
8	How do you aware of the retail food changes at present?	Producer, trader/supplier, retailer
9	Do you have any intention to make any changes on how to sell the products?	Producer, trader/supplier, retailer
10	By creating new ways for food marketing, what opportunities can you get for your business and market acceptance toward local vegetables?	Producer, trader/supplier, retailer
Digital technologies for business applications		
11	How do you consider the role of using digital technologies for a food business? <i>[why?]</i>	Producer, retailer
12	How important is it to use digital technologies at present for a food business?	Producer, retailer
13	How you distinct your electronic business from other food retails?	Retailer
14	How can electronic commerce help to improve business competitiveness?	Producer, trader/supplier, retailer
Co-creation activities		
15	Whom do you consider as the most influencing parties and business partners selling vegetables, and what makes them the most important? <i>[why?]</i>	Producer, trader/supplier, retailer
16	How do you consider the critical role of the business partner and customer for business development? <i>[why?]</i>	Producer, trader/supplier, retailer
17	How important is it to involve the business partners and/or customers in the business process? Have you considered them as a valuer for the business?	Producer, trader/supplier, retailer
18	How do you consider business customer preferences and decision-making changes that may affect the business? <i>[Future trends? Consumer behaviour change? Preferences? Decisions? Consumer interest? Buying system?]</i>	Trader/supplier, retailer
19	How do you explore new ideas to improve the business and influence the market? <i>[Any examples? Is your business partners do the same thing to you? The idea based on business partners and/or customer insight and request?]</i>	Producer, trader/supplier, retailer
20	How do you explore customer needs and how intensive communication takes place with your customer? <i>[any example? How to manage it?]</i>	Producer, trader/supplier, retailer
21	How do you manage interaction and relationship with business partners and customers?	Producer, trader/supplier, retailer

No	Interview question [prompts]	Interviewee category
	<i>[What are the benefits? Partnership offerings? Do you plan to have long-run relationships? What is your expectation in the future? Have you experienced any problems? If yes, how you manage and solve it?]</i>	
22	Can you specify how the business changes processes occur and the impacts on marketing relationships with suppliers and/or customers? <i>[Any difference between the current market situation and the previous time?]</i>	Producer, trader/supplier, retailer
23	What facilities and equipment possessed by your business/company to support marketing activities? <i>[Have you tried to improve the facilities and equipment during this time?]</i>	Producer, trader/supplier, retailer
24	How important are product quality, supply continuity, services, environmental approachability and production practices for your customers? <i>[Do consumers willing to pay for premium products?]</i>	Producer, trader/supplier, retailer
25	How do you consider the importance of shopping ambience and convenience, food choices (e.g. healthy fresh food, natural product), customer lifestyle, and customer well-being?	Retailer
26	Why do you think the customer wants to buy fresh vegetables from your store? <i>[Shopping benefits? Product attractiveness? Support for the local product? Support local farmers?]</i>	Retailer
Collaboration activities		
27	If you could collaborate with your supplier and/or customer, what factors motivate the collaboration? How can collaboration benefit the business? <i>[any example/experience of collaboration? Which areas will you be interested in collaborating with? Production plan, post-harvest, marketing? Innovation? Information sharing? Funding support? Market access support?]</i>	Producer, trader/supplier, retailer
28	What is your role as your supplier and/or customer in the collaboration? <i>[Any examples?]</i>	Producer, trader/supplier, retailer
29	How do you find access and improve skills and knowledge by collaborating with business partners and/or customers? <i>[Any examples?]</i>	Producer, trader/supplier, retailer
General information		
30	Do you have any other thoughts about these issues?	Producer, trader/supplier, retailer
31	Can you tell me about yourself? <i>[e.g., age, education]</i>	Producer, trader/supplier, retailer

**Note: any required additional follow-up questions will be asked to each interview participant as appropriate to the given topic.*



Appendix D

Survey Questionnaire



EXHIBIT 1.

Questionnaire - Vegetable Purchases from Food E-commerce (English version)



Dear participant,

Welcome!

Thank you for taking the time to participate in this survey, which is part of my doctoral research. Your participation is voluntary. Please remember we are seeking your opinions, and there are no right or wrong answers. All your answers will be kept completely anonymous. The questions take about 20 minutes to answer.

The purpose of the survey is to understand how people make vegetable purchases from an online food store using social media (e.g., Instagram, Facebook), websites or mobile apps. It includes the skills, knowledge and motivation underlying your decision to make vegetable purchases online. If you have bought vegetables from an online store and live in Jakarta or Bandung City, you can participate in this survey. Your recorded data will remain anonymous and confidential. The results will only be used for academic purposes.

Kind regards,

Hesty N. Utami, PhD candidate
Newcastle University Business
School
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Dr Eleftherios Alamanos, supervisor
Newcastle University Business
School
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Dr Sharron Kuznesof, supervisor
School of Natural and Environment
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General Instructions

Please read the instructions provided carefully as they vary between different sections. For each question, please select the answer that best represents your opinion. There are no right or wrong answers to the questions.

Screening Questions

1. Do you buy food for your household?
 - a. Yes, (please continue to question 2)
 - b. No

If you answered 'No', your participation in the survey will be end here.
Thank you very much for your time and participation in the survey.

2. Have you ever bought vegetables from an online store?
 - a. Yes, (please continue to the next question)
 - b. No, please explain why: _____

If you answered 'No', your participation in the survey will be end here.
Thank you very much for your time and participation in the survey.

Online purchase Frequency

3. How often did you buy vegetables from online food retailers in the last month?
 - a. Only once
 - b. Once a fortnight
 - c. Once per week
 - d. 1 – 3 times per week
 - e. 4 – 6 times per week
 - f. Daily

The following questions are about you

4. In which area do you live now?
 - a. Bandung
 - b. Jakarta
5. Which of the following categories best describes your age?
 - a. Under 18 years old
 - b. 18 – 24 years old
 - c. 25 – 34 years old
 - d. 35 – 44 years old
 - e. 45 – 55 years old
 - f. 56 years or older
6. Gender: ☐ Female ☐ Male
7. Please describe your current employment status:
 - a. Employed
 - b. Self-employed
 - c. Unemployed
 - d. Student
 - e. A homemaker
 - f. Retired
 - g. Other, please specify: _____

8. Please indicate your highest level of educational attainment:
- | | |
|--|------------------------|
| a. No school completed | e. Bachelor's degree |
| b. Nursery school to 9 th grade | f. Master's degree |
| c. High school/vocational school | g. Professional degree |
| d. Diploma's degree | h. Doctorate degree |

12. Which of these describe your net personal monthly income in Indonesian rupiah?

- Less than IDR 10,000,000 (*Less than £500*)
- IDR 10,000,000 – IDR 19,999,999 (*£500 - £1,099*)
- IDR 20,000,000 – IDR 29,999,999 (*£1,100 - £1,699*)
- IDR 30,000,000 – IDR 39,999,999 (*£1,700 - £2,299*)
- IDR 40,000,000 – IDR 50,000,000 (*£2,300 - £3,000*)
- Over IDR 50,000,000 (*Over £3,000*)

The following questions are about how you deal with your personal financial issues in day-to-day activities

Please select one response that best represents the extent to which you agree with each statement.

	strongly disagree	disagree	somewhat disagree	neither agree nor disagree	somewhat agree	agree	strongly agree
13. I feel satisfied with my present financial situation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. I feel stressed about my personal finances in general	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. I can manage my money	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. I have knowledge of my personal finances	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The following questions are about how you perceive changes in life

Please select one response that best represents the extent to which you agree with each statement.

	strongly disagree	disagree	somewhat disagree	neither agree nor disagree	somewhat agree	agree	strongly agree
17. Although I do not see the benefits, I cannot wait to change in my everyday life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. I am looking for changes in my life, even when things are going well	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. I am always looking for changes in my everyday life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

A. Online vegetable purchases

Please select the response that best represents the extent to which you agree with each statement.

	strongly disagree	disagree	somewhat disagree	neither agree nor disagree	somewhat agree	agree	strongly agree
20. People around me know much about how to search and acquire vegetables online	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. I get useful information about vegetables sold online from colleagues and friends	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. I usually speak with colleagues and friends about how to use the Internet to buy vegetables	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23. Overall, other customers' recommendations are an important source of information for me when I buy vegetables online	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24. I find that interacting with other internet users on social media enhances my knowledge about food such as vegetables	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

B. The Internet and new ideas

Please select the response that best represents the extent to which you agree with the statements.

	strongly disagree	disagree	somewhat disagree	neither agree nor disagree	somewhat agree	agree	strongly agree
25. I am very skilled at using the Internet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26. I have good skills in searching for information online	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27. I know how to find what I am looking for on the Internet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
28. I get excited by new ideas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
29. I enjoy thinking about new ways of doing things	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
30. I enjoy hearing new ideas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
31. I enjoy looking for a deeper meaning in things	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
32. I have a vivid imagination	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

C. Your motivation to do online food shopping

Please select the response that best represents the extent to which you agree with the statements.

	strongly disagree	disagree	somewhat disagree	neither agree nor disagree	somewhat agree	agree	strongly agree
33. I am curious about buying vegetables online	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
34. I enjoy keeping up with new ideas and innovations of food shopping, such as online vegetable purchases	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
35. I enjoy experiencing new and different vegetable products	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
36. I enjoy experiencing new food shopping styles, such as buying vegetables online	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
37. I like to support innovative food shopping methods, such as online vegetable purchases	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
38. I expect online vegetable purchases to be cheaper than vegetables bought from the supermarket	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
39. I am interested in the rewards offered by online food retailers (e.g. sale, special offers, special prices)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
40. I am interested in good value for money of vegetables sold online	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
41. I am interested in purchasing vegetables online because it can save money	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

D. Knowledge, skills and sharing creative ideas

Please select the response that best represents the extent to which you agree with each statement regarding **the motivation to use your knowledge, skills and sharing creative ideas when you buy vegetables online.**

	strongly disagree	disagree	somewhat disagree	neither agree nor disagree	somewhat agree	agree	strongly agree
42. I buy vegetables online to improve my skills in online food shopping	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
43. I buy vegetables online to test my skills in online food shopping that I use or will use in the future	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
44. When I buy vegetables online, I can exchange ideas with the online retailer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
45. I buy vegetables online to share ideas with the online food retailer about food, such as vegetables cooking recipes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

E. Your online food shopping behaviour

Please circle the response that best represents the extent to which you agree with each statement regarding **your shopping behaviour to purchase vegetables online**.

When I buy vegetables online:

	strongly disagree	disagree	somewhat disagree	neither agree nor disagree	somewhat agree	agree	strongly agree
46. I ask others for information on what this online food retailer offers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
47. I search for information on which kind of online platforms (e.g., social media, websites, or mobile apps) the online food retailer uses to make their products available	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
48. I pay attention to how others behave to use this online food retailer well	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
49. I clearly explain to the online food retailer what I want them to do	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
50. I provide to the online food retailer proper information about my shopping list and other related personal details (e.g. shipping address, payment proof) to complete my order	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
51. I provide the necessary information so that the online food retailer can perform their duties	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
52. I answer all the online food retailer's service-related questions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
53. As a customer, I perform all the tasks required by the online food retailer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
54. When I buy vegetable online, I adequately complete all the expected behaviours (e.g. I follow the step-by-step instructions provided by the retailers to complete the process)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
55. When I buy vegetable online, I fulfil my responsibilities to the online food retailer (e.g. being cooperative, agreeing on the shopping regulations, fulfil the obligation to pay etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
56. I follow the online food retailer's directives or orders	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
57. I am friendly to the online food retailer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
58. I am kind to the online food retailer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
59. I am polite to the online food retailer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
60. I am respectful of the online food retailer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
61. I do not act rudely to the online food retailer (e.g. by not saying unpleasant things while communicating with the online food retailer)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
62. If I have a useful idea on how to improve product and service, I let the online food retailer know	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
63. When I receive an excellent service from an online food retailer, I will provide an online review	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	strongly disagree	disagree	somewhat disagree	neither agree nor disagree	somewhat agree	agree	strongly agree
64. When I experience a problem, I let the online food retailer know about it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
65. I say positive things about buying vegetables from the online food retailer to others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
66. I recommend the online food retailer from which I buy vegetables to others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
67. I encourage friends and relatives to use online channels to buy vegetables	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
68. I assist other customers if they need my help to buy vegetables online	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
69. I help other customers if they seem to have problems when interacting with online food retailer to buy vegetables	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
70. I teach other customers to use the online channels correctly when they buy vegetables	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
71. I suggest to others to buy vegetable online (e.g., through social media)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
72. If a product or a service is not delivered as expected, I put up with it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
73. If the online retailer makes a mistake during the purchasing process or service delivery, I am patient	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
74. If I had to wait longer than usual to receive the service, I would be willing to accept the delays	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

F. Your willingness to cooperate with online food retailer

Please circle the response that best represents the extent to which you agree with each statement.

	strongly disagree	disagree	somewhat disagree	neither agree nor disagree	somewhat agree	agree	strongly agree
75. I collaborate with the online food retailer for enhancing my overall experience	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
76. I collaborate with the online food retailer for enjoyment and entertainment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
77. I collaborate with the online food retailer to develop myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
78. I collaborate with the online food retailer to get rewards	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

G. Your intention to use online food retailers in the future

Please circle the response that best represents the extent to which you agree with each statement regarding **your intention regarding using online food retailers to fulfil vegetable needs in the future.**

	very unlikely	unlikely	somewhat unlikely	neither likely nor unlikely	somewhat likely	likely	very likely
79. Given a chance, how likely is it that you intend to continue using the online food retailer to purchase vegetable in the future	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
80. How likely is it that you will continue using the online food retailer to purchase vegetable rather than use any other alternative means	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
81. How likely is it that you would like to continue using the online food retailer in the future	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

H. Your intention to recommend online food retailer to others

Please circle the response that best represents the extent to which you agree with each statement regarding **your intention of referring or recommending the online food retailer to purchase vegetables to others.**

	very unlikely	unlikely	somewhat unlikely	neither likely nor unlikely	somewhat likely	likely	very likely
82. How likely is it that you will introduce the online food retailer for vegetable purchase to others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
83. How likely is it that you will speak favourably about the food online retailer to others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
84. How likely is it that you will recommend the online food retailer to other people	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
85. How likely is it that you will encourage other people to use the online food retailer for vegetable purchase	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I. Your interaction with online food retailers

Using the rating scale below (1–7 scale), please circle one response that best represents **the importance of the following factors regarding your interaction with the online food retailer.**

86. The online food retailer's extended facilitation is necessary for consumers to fully enjoy the product and services (i.e., delivery services, customer complaint handling, customer services)	not important at all	2	3	4	5	6	absolutely important
87. The online food retailer gives service to the consumer with excellent hospitality and attitude	not important at all	2	3	4	5	6	absolutely important
88. I feel an attachment with the online food retailer	not important at all	2	3	4	5	6	absolutely important
89. Create a community, a group, or a network of consumers who are a fan of the online food retailer	not important at all	2	3	4	5	6	absolutely important
90. Choosing the online food retailer because it was renowned for its consumers usually spread the positive word about it on their social networks	not important at all	2	3	4	5	6	absolutely important

J. Your experience from using the online food retailer

Please circle one response that best represents the extent to which you agree with each statement regarding **how the online food retailer personalised the online purchasing process to meet your needs.**

	strongly disagree	disagree	somewhat disagree	neither agree nor disagree	somewhat agree	agree	strongly agree
91. The benefit, value, or fun from buying vegetable online depends upon the buyer and the quality of the food	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
92. The online food retailer tries to serve the individual needs of its customers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
93. Different consumers, depending on their choice, taste, or knowledge, involve themselves differently in the online buying process when they purchase vegetables	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
94. The online food retailer provides an overall pleasant experience, beyond the functional utilities (e.g., to complete vegetable needs, practicality)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
95. Buying vegetable online is a memorable experience for me (i.e., the memory of the process lasted for quite a while)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
96. Depending upon the nature of my participation, my experiences in the process of using an online food retailer might be different from other consumers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
97. When I buy vegetable online, I can try or experiment with something new	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
98. When I buy vegetable online, I have an enjoyable experience, and I feel immersed in it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

K. The feelings towards online vegetable shopping

Using the rating scale below (1–7 scale), please circle the response that best represents **the extent to which you experienced various feelings and the magnitude of those feelings regarding your most recent online vegetable purchases.**

My last experience of buying vegetables online was...

Unhappy	1	2	3	4	5	6	7	Happy
Melancholic	1	2	3	4	5	6	7	Contented
Annoyed	1	2	3	4	5	6	7	Pleased
Sluggish	1	2	3	4	5	6	7	Frenzied
Calm	1	2	3	4	5	6	7	Excited
Unaroused	1	2	3	4	5	6	7	Stimulated
Influenced	1	2	3	4	5	6	7	Influentia
Guided	1	2	3	4	5	6	7	Autonomous



Thank you for spending your valuable time completing this survey.

If you would like to participate in the prize draws, please leave your email address or mobile number in the box below. Your email or mobile number will only be used for the prize draws purpose.

If you need any further questions, please do not hesitate to contact us.

EXHIBIT 2.

Questionnaire - Vegetable Purchases from Food E-commerce

(Bahasa Indonesia version)



Responden yang terhormat,
Selamat datang pada survei ini!

Terima kasih telah meluangkan waktu untuk berpartisipasi di dalam survei ini yang merupakan bagian dari penelitian doktoral saya. Partisipasi anda adalah murni bersifat sukarela. Mohon diingat bahwa kami mengharapkan pendapat anda dan tidak ada jawaban benar atau salah. Semua jawaban yang anda berikan akan terbentuk tanpa nama. Untuk menjawab pertanyaan – pertanyaan ini akan membutuhkan waktu sekitar 20 menit.

Tujuan dari survei ini adalah untuk memahami bagaimana masyarakat melakukan pembelian produk sayuran dari toko makanan online dengan menggunakan sosial media (contohnya Instagram, Facebook), website atau aplikasi seluler (*mobile apps*). Pemahaman mengenai konsumen juga termasuk tentang bagaimana keahlian, pengetahuan dan motivasi yang melatarbelakangi keputusan konsumen untuk melakukan pembelian sayuran secara online. Jika anda pernah membeli sayuran secara online dan anda berdomisili di wilayah Kota Jakarta dan Kota Bandung, maka anda dapat turut berpartisipasi dalam survei ini. Data yang tersimpan akan terjaga kerahasiannya dan tanpa menampilkan identitas responden. Hasil dari survei ini hanya akan digunakan untuk kebutuhan akademik semata.

Salam Hormat,

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Petunjuk Umum Pengisian Kuesioner

Silakan membaca petunjuk pengisian kuesioner ini secara seksama karena setiap bagian dari kuesioner ini akan menanyakan tentang topik yang berbeda. Untuk setiap pertanyaan silakan berikan jawaban yang paling sesuai dengan pendapat anda. Tidak ada jawaban benar atau salah untuk setiap jawaban yang anda berikan.

Pertanyaan Saringan

9. Apakah anda membeli makanan untuk kebutuhan rumah tangga anda?
- Iya, (silakan lanjutkan ke pertanyaan no 2)
 - Tidak

Jika jawaban anda '**Tidak**' maka partisipasi anda dalam survei ini berakhir sampai disini.
Terima kasih banyak telah meluangkan waktu untuk turut terlibat dalam survei ini.

10. Apakah anda pernah membeli sayuran dari toko online?
- Iya, (silakan lanjutkan ke pertanyaan berikutnya)
 - Tidak, mengapa: _____

Jika jawaban anda '**Tidak**' maka partisipasi anda dalam survei ini berakhir sampai disini.
Terima kasih banyak telah meluangkan waktu untuk turut berpartisipasi dalam survei ini.

Frekuensi Pembelian sayuran secara online

11. Seberapa sering anda membeli sayuran dari penjual makanan online dalam satu bulan terakhir ini?
- | | |
|-----------------------------|------------------------------|
| d. Hanya sekali | d. 1 – 3 kali dalam seminggu |
| e. Setiap dua minggu sekali | e. 4 – 6 kali dalam seminggu |
| f. Seminggu sekali | f. Setiap hari |

Pertanyaan berikut ini adalah mengenai diri anda

12. Di kota manakah anda tinggal saat ini?
- | | |
|------------|------------|
| a. Bandung | b. Jakarta |
|------------|------------|
13. Manakah dari kategori berikut yang paling menggambarkan usia anda?
- | | |
|----------------------|---------------------|
| a. Di bawah 18 tahun | d. 35 – 44 tahun |
| b. 18 – 24 tahun | e. 45 – 55 tahun |
| c. 25 – 34 tahun | f. Di atas 56 tahun |

14. Jenis kelamin: ☐ Perempuan ☐ Laki - laki

15. Silakan sebutkan status pekerjaan anda saat ini:
- | | |
|--|--------------------------|
| a. Berkerja | e. Ibu rumah tangga |
| b. Usaha sendiri (<i>entrepreneur</i>) | f. Pensiunan |
| c. Tidak berkerja | g. Lainnya, yaitu: _____ |
| d. Pelajar/mahasiswa | |

16. Silakan sebutkan tingkat pendidikan terakhir yang anda capai:
- Tidak tamat SD
 - SD atau SMP
 - SMU atau sederajat
 - Diploma (D1, D2, D3, D4)
 - Sarjana (S1)
 - Magister (S2)
 - Pendidikan spesialis
 - Doktoral (S3)
17. Manakah dari pilihan berikut ini yang menggambarkan pendapatan bersih anda dalam sebulan dalam hitungan rupiah?
- Kurang dari Rp.10.000.000,-
 - Rp.10.000.000 – Rp.19.999.999,-
 - Rp.20.000.000 – Rp.29.999.999,-
 - Rp.30.000.000 – Rp.39.999.999,-
 - Rp.40.000.000 – Rp.49.999.999,-
 - Di atas Rp.50.000.000,-

Pertanyaan berikut ini adalah mengenai bagaimana anda menangani permasalahan keuangan pribadi dalam aktivitas sehari – hari

Silakan pilih satu jawaban yang paling mewakili sejauh mana anda setuju dengan setiap pernyataan berikut ini.

	sangat tidak setuju	tidak setuju	agak tidak setuju	tidak juga setuju atau tidak setuju	agak setuju	setuju	sangat setuju
33. Saya merasa puas dengan situasi keuangan saya saat ini	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
34. Saya merasa stress tentang keuangan pribadi saya secara umum	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
35. Saya dapat mengelola keuangan saya	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
36. Saya memiliki pengetahuan tentang keuangan pribadi saya	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Pertanyaan berikut ini adalah mengenai bagaimana anda melihat perubahan dalam hidup

Silakan pilih satu jawaban yang paling mewakili sejauh mana anda setuju dengan setiap pernyataan berikut ini.

	sangat tidak setuju	tidak setuju	agak tidak setuju	tidak juga setuju atau tidak setuju	agak setuju	setuju	sangat setuju
37. Meskipun saya tidak melihat manfaatnya, saya tidak sabra untuk berubah di dalam kehidupan sehari – hari saya	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
38. Saya mencari perubahan di dalam hidup saya, meskipun ketika semuanya berjalan dengan baik	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
39. Saya selalu mencari perubahan di dalam kehidupan sehari – hari saya	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

A. Pembelian sayuran dengan cara online

Silakan pilih satu jawaban yang paling mewakili sejauh mana anda setuju dengan setiap pernyataan berikut ini.

	sangat tidak setuju	tidak setuju	agak tidak setuju	tidak juga setuju atau tidak setuju	agak setuju	setuju	sangat setuju
20. Orang-orang di sekitar saya tahu banyak tentang bagaimana mencari dan mendapatkan sayuran yang dijual secara online	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. Saya mendapatkan informasi bermanfaat tentang sayuran yang dijual secara online dari teman dan kolega saya	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. Saya biasanya bertanya kepada teman atau kolega saya tentang bagaimana cara menggunakan internet untuk membeli sayuran secara online	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23. Secara keseluruhan, rekomendasi pelanggan lain menjadi sumber informasi penting untuk saya saat membeli sayuran secara online	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24. Saya merasa bahwa berinteraksi dengan pengguna internet lain di sosial media dapat meningkatkan pengetahuan saya tentang makanan contohnya sayuran	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

B. Internet dan ide – ide baru

Silakan pilih satu jawaban yang paling mewakili sejauh mana anda setuju dengan setiap pernyataan berikut ini.

	sangat tidak setuju	tidak setuju	agak tidak setuju	tidak juga setuju atau tidak setuju	agak setuju	setuju	sangat setuju
25. Saya sangat ahli dalam menggunakan internet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26. Saya memiliki keahlian yang baik dalam mencari informasi dengan cara online	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27. Saya tahu bagaimana cara menemukan apa yang saya cari melalui internet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
28. Saya merasa bersemangat dengan ide-ide baru	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
29. Saya menikmati memikirkan tentang cara – cara baru untuk melakukan sesuatu	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
30. Saya menikmati mendengar tentang ide-ide baru	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
31. Saya menyenangkan untuk mencari tahu lebih dalam tentang sesuatu hal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
32. Saya memiliki daya imajinasi yang kuat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

C. Motivasi anda untuk berbelanja makanan secara online

Silakan pilih satu jawaban yang paling mewakili sejauh mana anda setuju dengan setiap pernyataan berikut ini.

	sangat tidak setuju	tidak setuju	agak tidak setuju	tidak juga setuju atau tidak setuju	agak setuju	setuju	sangat setuju
33. Saya penasaran untuk membeli sayuran secara online	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
34. Saya senang mengikuti ide-ide dan inovasi baru untuk berbelanja makanan, seperti membeli sayuran secara online	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
35. Saya menikmati pengalaman baru dan mencoba produk sayuran yang berbeda	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
36. Saya menikmati pengalaman gaya berbelanja makanan yang baru, seperti membeli sayuran secara online	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
37. Saya akan mendukung inovasi cara berbelanja makanan yang baru, seperti membeli sayuran secara online	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
38. Saya berharap dengan membeli sayuran secara online akan menawarkan harga sayuran yang lebih murah dibandingkan dengan membeli sayuran di supermarket	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
39. Saya tertarik dengan hadiah yang ditawarkan oleh penjual makanan online (contoh: diskon, penawaran khusus, harga spesial)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
40. Saya tertarik dengan harga yang sepadan dengan nilai produk dari sayuran yang dijual secara online	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
41. Saya tertarik untuk membeli sayuran secara online karena dapat menghemat uang	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

D. Pengetahuan, keahlian dan berbagi ide kreatif

Silakan pilih satu jawaban yang paling mewakili sejauh mana anda setuju dengan setiap pernyataan berikut ini terkait dengan **motivasi untuk menggunakan pengetahuan, keahlian and berbagi ide kreatif saat anda membeli sayuran secara online.**

	sangat tidak setuju	tidak setuju	agak tidak setuju	tidak juga setuju atau tidak setuju	agak setuju	setuju	sangat setuju
42. Saya membeli sayuran secara online untuk meningkatkan keahlian saya dalam berbelanja makanan dengan cara online	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
43. Saya membeli sayuran secara online untuk menguji kemampuan berbelanja makanan secara online yang saya gunakan atau akan saya gunakan di masa yang akan datang	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
44. Saat saya membeli sayuran secara online, saya dapat bertukar ide dengan penjual makanan online	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
45. Saya membeli sayuran secara online untuk berbagi ide dengan penjual makanan online berbagai hal tentang makanan, misalnya berbagi resep cara memasak sayuran	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

E. Perilaku anda dalam berbelanja makanan secara online

Silakan pilih satu jawaban yang paling mewakili sejauh mana anda setuju dengan setiap pernyataan berikut ini terkait dengan **perilaku anda dalam membeli sayuran secara online**.

Saat saya berbelanja sayuran secara online:

	sangat tidak setuju	tidak setuju	agak tidak setuju	tidak juga setuju atau tidak setuju	agak setuju	setuju	sangat setuju
46. Saya meminta informasi kepada orang lain tentang apa saja yang ditawarkan oleh penjual makanan online tersebut	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
47. Saya mencari informasi tentang jenis aplikasi online apa (contoh: sosial media, website, mobile apps) yang digunakan oleh penjual makanan online untuk menyediakan produk mereka	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
48. Saya memperhatikan tentang bagaimana orang lain berperilaku untuk dapat menggunakan dengan baik penjual makanan online	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
49. Saya menjelaskan dengan rinci kepada penjual makanan online apa yang saya ingin mereka lakukan	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
50. Saya memberikan informasi yang tepat kepada penjual makanan online mengenai rincian belanja saya serta data diri yang dibutuhkan (contoh: alamat pengiriman, bukti pembayaran) untuk melengkapi pesanan saya	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
51. Saya memberikan informasi yang dibutuhkan agar penjual makanan online dapat menjalankan tugasnya	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
52. Saya menjawab semua pertanyaan terkait layanan yang diberikan oleh penjual makanan online	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
53. Sebagai seorang pelanggan, saya melakukan semua tugas yang diminta oleh penjual makanan online	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
54. Saat saya membeli sayuran secara online, saya cukup memenuhi semua tindakan yang perlu dilakukan (contoh: mengikuti langkah – langkah instruksi yang disediakan oleh penjual makanan online untuk melengkapi proses berbelanja)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
55. Saat saya membeli sayuran secara online, saya memenuhi semua tanggung jawab saya sebagai pelanggan kepada penjual makanan online (contoh: bersikap kooperatif, menyetujui aturan dan ketentuan yang diberlakukan penjual, memenuhi kewajiban untuk membayar, dsb)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
56. Saya mengikui arahan dan petunjuk dari penjual makanan online	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
57. Saya menunjukkan sikap yang bersahabat kepada penjual makanan online	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
58. Saya bersikap baik kepada penjual makanan online	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
59. Saya bersikap sopan kepada penjual makanan online	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	sangat tidak setuju	tidak setuju	agak tidak setuju	tidak juga setuju atau tidak setuju	agak setuju	setuju	sangat setuju
60. Saya menghormati atau menghargai penjual makanan online	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
61. Saya tidak bersikap kasar kepada penjual makanan online (contoh: dengan tidak berkata – kata hal yang tidak menyenangkan saat berkomunikasi dengan penjual makanan online)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
62. Jika saya memiliki ide yang bermanfaat tentang bagaimana meningkatkan kualitas produk dan layanan, saya memberitahukan hal tersebut kepada penjual makanan online	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
63. Saat saya menerima layanan yang memuaskan dari penjual makanan online, saya akan memberikan komentar atau ulasan secara online tentang hal tersebut	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
64. Saat saya mengalami masalah atau kendala, saya memberitahukan hal tersebut kepada penjual makanan online	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
65. Saya mengatakan hal-hal positif tentang berbelanja sayuran secara online dari penjual makanan online kepada orang lain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
66. Saya merekomendasikan penjual makanan online tempat dimana saya membeli sayuran secara online kepada orang lain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
67. Saya menganjurkan kepada teman dan kerabat saya untuk menggunakan saluran berbelanja online untuk membeli sayuran	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
68. Saya membantu pelanggan lain jika mereka tampak membutuhkan bantuan saya untuk berbelanja sayuran secara online	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
69. Saya membantu pelanggan lain jika mereka terlihat mengalami kendala atau masalah saat berinteraksi dengan penjual makanan online untuk berbelanja sayuran	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
70. Saya mengajarkan pelanggan lain tentang bagaimana cara menggunakan saluran belanja online dengan benar untuk berbelanja sayuran	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
71. Saya menyarankan kepada orang lain untuk berbelanja sayuran secara online (contoh: melalui media sosial)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
72. Jika produk atau layanan yang diberikan tidak sesuai dengan apa yang saya harapkan, maka saya dapat mentolelir hal tersebut	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
73. Jika penjual makanan online melakukan kesalahan selama proses pembelian atau selama penyampaian layanan, maka saya bersabar dengan hal tersebut	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
74. Jika saya harus menunggu lebih lama dari biasanya untuk menerima layanan dari penjual, saya akan bersedia menerima penundaan tersebut	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

F. Keinginan anda untuk bekerjasama dengan penjual makanan online

Silakan pilih satu jawaban yang paling mewakili sejauh mana anda setuju dengan setiap pernyataan berikut ini.

	sangat tidak setuju	tidak setuju	agak tidak setuju	tidak juga setuju atau tidak setuju	agak setuju	setuju	sangat setuju
75. Saya terlibat kerjasama dengan penjual makanan online untuk menambah pangalaman saya secara keseluruhan	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
76. Saya terlibat kerjasama dengan penjual makanan online untuk mendapatkan kesenangan dan hiburan	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
77. Saya terlibat kerjasama dengan penjual makanan online untuk mengembangkan diri	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
78. Saya terlibat kerjasama dengan penjual makanan online untuk mendapatkan imbalan	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

G. Keinginan anda untuk menggunakan penjual makanan online di masa yang akan datang

Silakan pilih satu jawaban yang paling mewakili sejauh mana anda setuju dengan setiap pernyataan terkait dengan keinginan anda untuk menggunakan penjual makanan online untuk memenuhi kebutuhan sayuran di masa yang akan datang.

	sangat tidak mungkin	tidak mungkin	agak tidak mungkin	Tidak diantara keduanya	agak mungkin	mungkin	sangat mungkin
79. Jika diberi kesempatan, seberapa besar kemungkinan anda berniat kembali menggunakan jasa penjual makanan online untuk membeli sayuran di masa yang akan datang	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
80. Seberapa besar kemungkinan anda akan terus berbelanja sayuran secara online dibandingkan menggunakan alternatif pilihan berbelanja sayuran lainnya	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
81. Seberapa besar kemungkinan anda dapat terus menggunakan jasa penjual makanan online di masa yang akan datang	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

H. Keinignan anda untuk merekomendasikan penjual makanan online kepada orang lain

Silakan pilih satu jawaban yang paling mewakili sejauh mana anda setuju dengan setiap pernyataan terkait dengan keinginan anda merekomendasikan penjual makanan online dalam berbelanja sayuran kepada orang lain.

	sangat tidak mungkin	tidak mungkin	agak tidak mungkin	Tidak diantara keduanya	agak mungkin	mungkin	sangat mungkin
82. Seberapa besar kemungkinan anda akan memperkenalkan penjual makanan online untuk membeli sayuran kepada orang lain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
83. Seberapa besar kemungkinan anda untuk menceritakan hal - hal yang baik tentang penjual makanan online kepada orang lain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
84. Seberapa besar kemungkinan anda akan merekomendasikan kepada orang lain untuk menggunakan penjual makanan online	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
85. Seberapa besar kemungkinan anda akan mendorong orang lain untuk menggunakan penjual makanan online dalam membeli sayuran	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I. Interaksi anda dengan penjual makanan online

Dengan menggunakan skala penilaian di bawah ini (skala 1-7), silakan pilih salah satu jawaban yang paling mewakili seberapa pentingnya faktor – faktor berikut ini terkait dengan interaksi anda dengan penjual makanan online.

86. Penambahan fasilitas yang disediakan penjual makanan online adalah hal yang diperlukan konsumen untuk sepenuhnya menikmati produk dan layanan (contoh: layanan pengiriman, penanganan keluhan pelanggan, layanan konsumen lainnya)	sangat tidak penting	2	3	4	5	6	sangat penting sekali
87. Penjual makanan online memberikan layanan kepada konsumen dengan keramahan dan sikap yang sangat baik	sangat tidak penting	2	3	4	5	6	sangat penting sekali
88. Saya merasakan keterikatan dengan penjual makanan online	sangat tidak penting	2	3	4	5	6	sangat penting sekali
89. Membuat sebuah komunitas, grup atau jejaring konsumen yang menjadi penggemar penjual makanan online	sangat tidak penting	2	3	4	5	6	sangat penting sekali
90. Memilih sebuah penjual makanan online karena penjual tersebut dikenal atas konsumennya yang biasanya menyebarkan informasi positif tentang penjual online tersebut di jejaring sosial media mereka	sangat tidak penting	2	3	4	5	6	sangat penting sekali

J. Pengalaman anda dalam menggunakan penjual makanan online

Silakan pilih satu jawaban yang paling mewakili sejauh mana anda setuju dengan setiap pernyataan terkait dengan **bagaimana penjual makanan online mampu membuat proses pembelian online sesuai selera untuk memenuhi kebutuhan anda.**

	sangat tidak setuju	tidak setuju	agak tidak setuju	tidak juga setuju atau tidak setuju	agak setuju	setuju	sangat setuju
91. Manfaat, nilai dan kesenangan dari sayuran secara online tergantung dari pembeli dan kualitas makanan yang dijual	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
92. Penjual makanan online mencoba untuk melayani kebutuhan individu pelanggannya	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
93. Setiap konsumen, tergantung pada pilihan, selera atau pengetahuan mereka akan melibatkan diri mereka secara berbeda saat melakukan proses pembelian online saat mereka membeli sayuran	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
94. Penjual bahan makanan online secara keseluruhan memberikan pengalaman yang menyenangkan melampaui manfaat dasarnya (contoh: hanya untuk melengkapi kebutuhan sayuran, kepraktisan berbelanja)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
95. Membeli sayuran secara online adalah pengalaman yang tak terlupakan bagi saya (yaitu saya mengingat proses tersebut untuk waktu yang cukup lama)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
96. Tergantung dari keterlibatan saya saat berbelanja, pengalaman saya dalam proses menggunakan jasa penjual makanan online mungkin berbeda dari konsumen lain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
97. Saat saya membeli sayuran secara online, saya dapat mencoba atau melakukan sesuatu yang baru	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
98. Saat saya berbelanja sayuran secara online, saya memiliki pengalaman yang menyenangkan dan saya merasa tenggelam masuk di dalamnya	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

K. Perasaan anda saat berbelanja sayuran secara online

Dengan menggunakan skala penilaian di bawah ini (skala 1-7), silakan pilih salah satu jawaban yang paling mewakili sejauh mana anda mengalami berbagai perasaan dan seberapa besar perasaan tersebut saat anda terakhir kali berbelanja sayuran secara online.

Pengalaman terakhir saya saat berbelanja sayuran secara online adalah

Tidak senang	1	2	3	4	5	6	7	Gembira
Menyedihkan	1	2	3	4	5	6	7	Terpuaskan
Kesal	1	2	3	4	5	6	7	Senang hati
Lamban	1	2	3	4	5	6	7	Cekatan
Tenang	1	2	3	4	5	6	7	Penuh gairah
Berkecil hati	1	2	3	4	5	6	7	Tergugah
Dipengaruhi	1	2	3	4	5	6	7	Memberikan pengaruh
Dikendalikan	1	2	3	4	5	6	7	Mendapat kebebasan mengatur sendiri



Terima kasih telah meluangkan waktu anda untuk menyelesaikan survei ini.

Jika anda ingin berpartisipasi dalam undian berhadiah atas keikutsertaan dalam survei ini, silakan tuliskan alamat email atau nomor telepon pada kotak yang disediakan. Alamat email atau nomor telepon anda hanya akan digunakan untuk kepentingan pengundian hadiah.

Jika anda membutuhkan informasi lanjutan tentang survei ini, jangan ragu untuk menghubungi kami.