

VALUE CO-CREATION IN ONLINE COLLABORATIVE  
INNOVATION COMMUNITIES:  
EXPLORING THE DRIVERS AND OUTCOMES OF VALUE  
CO-CREATION ACTIVITIES FROM THE INDIVIDUAL  
COMMUNITY MEMBER POINT OF VIEW

By

Hande Müberra Akman

Bachelor of Science (Statistics) – Master of Business Research (Marketing)

A thesis submitted to The University of Adelaide Business School in fulfilment of the  
requirement for the degree of

**Doctor of Philosophy (Business)**

May 2016

## **Abstract**

Online collaborative innovation communities are interactive platforms in which independent actors co-create value through resource integration. Despite fruitful research on collaborative innovation with customers, current understanding regarding how value is co-created in online platforms from an individual actor perspective remains limited. It remains unclear what drives individual actors to perform value co-creation activities and what value dimensions they derive as a result of the collaboration experience. Moreover, there is scarcity of knowledge regarding what activities independent actors perform in value co-creation. Only a handful of studies provide typologies of value co-creation activities, and none of these examine co-creation in an online collaborative innovation community context.

This thesis aims to advance existing knowledge on drivers and outcomes of value co-creation activities, namely information sharing, providing feedback, helping, and rapport building, from the perspective of an individual member of a collaborative innovation community. To best capture the drivers of value co-creation activities, a comprehensive set of individual and social factors were employed in this research. Social factors included social interaction opportunities available in the collaboration community and social capital dimensions, namely trust, shared vision, and centrality. Individual factors were captured by applying the motivation, opportunity, and ability framework in the collaborative innovation context. Moreover, value dimensions, namely social, emotional, utilitarian and value for effort, were examined as outcome factors from the individual community member point of view.

Literature on value co-creation was reviewed to uncover potential moderators and mediators of relationships between social and individual factors and value co-creation activities. Accordingly, learning activity was examined as a mediator between social and individual factors and value co-creation activities, while a flow state was analysed as a potential moderator of relationships between social and individual factors and learning and value co-creation activities, respectively. This research comprised an explanatory quantitative study. A self-administered online questionnaire was used to collect data from collaborative innovation community members yielding a total of 309 complete responses. Structural equation modelling was used to analyse data, employing variance-based SEM

with partial least squares (PLS) path modelling in SmartPLS due to the nature of the study and concerns regarding heteroscedasticity and abnormality of the data.

This research makes an important contribution to theory by confirming that independent individuals engage in different value co-creation activities for different social and individual reasons. Results indicated that information sharing is driven by community member centrality and leads to social and utilitarian value. Providing feedback, on the other hand, is driven by social interaction opportunities and individual motivation which generates emotional, utilitarian values, and value for effort. Similarly, helping is an activity driven by social interactions and motivation which leads to utilitarian value. Finally, rapport building is a value co-creation activity performed when community members perceive social interaction opportunities, centrality, have trust in other members, and are motivated. Performing rapport building in the collaborative innovation community generates social, emotional, utilitarian values, and value for effort. Furthermore, the important facilitator role of learning in co-creation of value experience was demonstrated. However, the proposed moderating effect of flow state was not confirmed. Finally, this research provided additional support of current knowledge on the determination and perception of value by demonstrating that different dimensions of value are uniquely and phenomenologically determined by the community members as main resource integrators who perform value co-creation activities in an online collaboration setting. This research also informs collaborative innovation community management about how to facilitate and understand factors that drive community members to perform value co-creation activities and how to contribute to co-creation of different value dimensions. Further research should continue to endeavour to establish a better understanding of how individual actors are engaged in value co-creation activities.

## Table of contents

Abstract.....	i
Table of contents.....	iii
List of tables.....	vi
List of figures.....	vii
List of appendices .....	vii
Declaration.....	viii
Acknowledgments .....	ix
Chapter 1: INTRODUCTION.....	1
1.1. Research background .....	1
1.2. Research objectives .....	2
1.3. Rational for research context.....	4
1.4. Research contribution.....	6
1.5. Thesis structure .....	9
Chapter 2: LITERATURE REVIEW.....	12
2.1. Introduction .....	12
2.2. A collaborative approach to innovation .....	12
2.3. Collaborative innovation with independent actors.....	13
2.4. Collaborative innovation in online platforms.....	16
2.4.1. Collaboration in company initiated innovation projects.....	16
2.4.2. Collaborative innovation in brand communities .....	21
2.4.3. Collaboration in online innovation communities .....	25
2.4.4. Collaborative innovation and the individual actor .....	29
2.5. The individual actor's role in value co-creation.....	30
2.5.1 Customers as participants in service production .....	31
2.5.2 Customers as value co-creators .....	32
2.5.3 Individual actors as resource integrators .....	34
2.6. Value co-creation activities.....	36
2.6.1 Information sharing .....	37
2.6.2 Providing feedback.....	39
2.6.3 Helping .....	40
2.6.4 Rapport building.....	41
2.6.5 Learning.....	42

2.7.	Social and individual drivers of value co-creation activities .....	43
2.7.1	Social interaction opportunities .....	44
2.7.2	Social capital dimensions .....	45
2.7.3	Individual drivers of value co-creation activities .....	49
2.8.	Determination of value .....	53
2.8.1	Dimensions of value .....	55
2.9.	Conclusion.....	59
Chapter 3:	HYPOTHESIS DEVELOPMENT .....	60
3.1.	Introduction .....	60
3.2.	Proposed conceptual framework .....	60
3.3.	Value co-creation activities and value dimensions .....	61
3.3.1	Information sharing and value dimensions.....	61
3.3.2	Providing feedback and value dimensions .....	64
3.3.3	Helping and value dimensions.....	66
3.3.4	Rapport building and value dimensions .....	68
3.4.	Drivers of value co-creation activities .....	71
3.4.1	Social factors and value co-creation activities .....	71
3.4.2	Individual factors and value co-creation activities .....	78
3.5.	Conceptualisation of indirect relationships .....	83
3.5.1	Mediating effect of learning .....	83
3.5.2	Moderating effect of flow state .....	87
3.6.	Conclusion.....	90
Chapter 4:	METHODOLOGY .....	91
4.1.	Introduction .....	91
4.2.	Research design and objectives.....	91
4.2.1	Philosophical orientation .....	92
4.2.2	Data collection method.....	93
4.2.3	Ethics and information confidentiality .....	94
4.3.	Operationalisation of constructs.....	94
4.3.1	Social factors .....	95
4.3.2	Individual factors .....	97
4.3.3	Co-creation of value activities.....	98
4.3.4	Value dimensions .....	100
4.3.5	Flow state.....	102

4.4.	Research sample .....	104
4.4.1.	Demographic profile of the sample .....	106
4.4.2.	Collaborative innovation community membership .....	108
4.5.	Common method variance .....	111
4.6.	Data analysis methods .....	114
4.7.	Conclusion.....	115
Chapter 5:	RESULTS.....	116
5.1.	Introduction .....	116
5.2.	Data examination.....	116
5.2.1	Outlier detection and data cleaning .....	116
5.2.2	Fundamental assumptions of multivariate analysis .....	118
5.3.	Measurement models in structural equation modelling .....	121
5.4.	Comparison of covariance based SEM and variance based PLS-SEM .....	121
5.5.	Measurement model assessments.....	125
5.5.1	Validity assessments.....	125
5.5.2	Internal consistency reliability.....	129
5.6.	Structural model assessment .....	130
5.6.1	Assessment of collinearity between latent variables .....	131
5.6.2	Assessment of unobserved heterogeneity.....	131
5.7.	Hypotheses testing.....	134
5.7.1	Stage 1: Estimations of direct relationships .....	136
5.7.2	Stage 2: Mediation effect of learning .....	142
5.7.3	Stage 3: Moderation effect of flow state .....	145
5.8.	Conclusion.....	149
Chapter 6:	DISCUSSION.....	152
6.1.	Introduction .....	152
6.2.	Contributions of the research .....	153
6.2.1	Value co-creation in online collaborative innovation communities.....	153
6.2.2	Establishment of the relationship between value co-creation activities and value dimensions empirically .....	156
6.2.3	Drivers of performing value co-creation activities.....	160
6.2.4	Indirect effects of learning and flow state .....	164
6.3.	Managerial implications.....	166
6.3.1.	Drivers and outcomes of value co-creation activities.....	166

6.3.2. Implications regarding learning.....	170
6.4. Limitations and directions for future research .....	171
6.5. Concluding thoughts .....	173
Appendices.....	175
References.....	213

## List of tables

<b>Table 2.1:</b> Collaborative innovation in online innovation projects .....	19
<b>Table 2.2:</b> Online collaborative innovation in <b>online brand communities</b> .....	23
<b>Table 2.3:</b> Online collaborative innovation in <b>online innovation communities</b> .....	28
<b>Table 2.4:</b> Information sharing .....	38
<b>Table 2.5:</b> Providing feedback.....	40
<b>Table 2.6:</b> Helping .....	41
<b>Table 2.7:</b> Rapport building.....	42
<b>Table 2.8:</b> Learning.....	43
<b>Table 4.1:</b> Constructs for social interaction opportunities.....	95
<b>Table 4.2:</b> Constructs for social factors .....	97
<b>Table 4.3:</b> Constructs for individual factors .....	98
<b>Table 4.4:</b> Constructs for co-creation of value activities.....	99
<b>Table 4.5:</b> Constructs for learning .....	100
<b>Table 4.6:</b> Constructs value dimensions .....	101
<b>Table 4.7:</b> Constructs for flow state.....	104
<b>Table 4.8:</b> Demographic profile of the sample .....	106
<b>Table 4.9:</b> Collaborative innovation community membership .....	111
<b>Table 5.1:</b> Selection criteria for covariance-based SEM and variance-based PLS-SEM. ....	124
<b>Table 5.2:</b> Indicators removed due to discriminant validity .....	128
<b>Table 5.3:</b> Average variance extracted (AVE) and composite reliability.....	130
<b>Table 5.4:</b> Relative segment sizes for five segment solution .....	132
<b>Table 5.5:</b> Segment retention criteria .....	133
<b>Table 5.6:</b> FIMIX results for two segment solution .....	134
<b>Table 5.7:</b> Stage 1: Proposed hypotheses .....	136
<b>Table 5.8:</b> Assessment of overarching hypotheses ( $R^2$ & $Q^2$ ).....	140

<b>Table 5.9:</b> Assessment of subsidiary hypotheses formed for value co-creation activities and value types (path coefficients) .....	141
<b>Table 5.10:</b> Assessment of subsidiary hypotheses formed for value co-creation activities and social and individual factors (path coefficients) .....	142
<b>Table 5.11:</b> Three step mediation analysis .....	145
<b>Table 5.12:</b> Stage 3: Moderation analysis - proposed hypotheses.....	146
<b>Table 5.13:</b> Flow moderation between social and individual factors and learning .....	147
<b>Table 5.14:</b> Flow moderation between learning and value co-creation activities .....	149
<b>Table 5.15:</b> Summary of hypotheses tested .....	150
<b>Table A14 A:</b> Structural model assessments ( $f^2$ and $q^2$ figures).....	211

### **List of figures**

<b>Figure 3.1:</b> Proposed conceptual framework.....	61
<b>Figure 4.1:</b> Indicators formed as sub-constructs with single indicator (an example).....	113
<b>Figure 5.1:</b> Scatter plot (standardised predicted values vs. standardised residuals).....	119
<b>Figure 5.2:</b> Histogram (standardised residuals).....	120
<b>Figure 5.3:</b> Normality probability (standardised residuals).....	120
<b>Figure 5.4:</b> Analysis of proposed conceptual model .....	135

### **List of appendices**

<b>Appendix 1:</b> ESOMAR recommendations .....	175
<b>Appendix 2:</b> Ethics approval .....	182
<b>Appendix 3:</b> Questionnaire.....	184
<b>Appendix 4:</b> Common method bias – Harman’s one factor method.....	196
<b>Appendix 5:</b> Common method bias – Liang et al. (2007) method .....	197
<b>Appendix 6:</b> Marker model - Rönkkö and Ylitalo (2011) method.....	199
<b>Appendix 7:</b> Skewness and Kurtosis of the indicators .....	201
<b>Appendix 8:</b> Indicator collinearity - Collinearity Statistic (VIF) .....	202
<b>Appendix 9:</b> HTMT ratio matrix .....	203
<b>Appendix 10:</b> Convergent validity - Indicator loadings .....	204
<b>Appendix 11:</b> The final constructs and items list .....	205
<b>Appendix 12:</b> Latent constructs collinearity assessments .....	207
<b>Appendix 13:</b> FIMIX analysis .....	208
<b>Appendix 14:</b> $f^2$ and $q^2$ assessments .....	211



## **Declaration**

I certify that this work contains no material which has been accepted for the award of any other degree or diploma in my name in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. In addition, I certify that no part of this work will, in the future, be used in a submission in my name, for any other degree or diploma in any university or other tertiary institution without the prior approval of the University of Adelaide and where applicable, any partner institution responsible for the joint-award of this degree. I give consent to this copy of my thesis when deposited in the University Library being made available for loan and photocopying, subject to the provisions of the Copyright Act 1968.

The author acknowledges that copyright of published works contained within this thesis resides with the copyright holder(s) of those works.

I also give permission for the digital version of my thesis to be made available on the Internet, via the University's digital research repository, the Library Search and also through Internet search engines, unless permission has been granted by the University to restrict access for a period of time.

Signed: \_\_\_\_\_

Date: 4<sup>th</sup> May 2016

## Acknowledgments

I like to dedicate this thesis to my father Professor Naim Akman. He was a peculiar man with an endless passion for learning. Like others of his generation, he was obsessed with the Moon Landing and full of hopes and dreams about the future. He was sure that we human beings can make the world a better place if we know better. I believe that is true and that is the reason I have moved to the other side of the world to learn and know more about something and then become an expert of it. After realising that there is nothing new to learn about Customer Satisfaction☺, I found myself getting interested in increasing opportunities for individuals and companies to interact and co-create. Finally, I ended up writing this thesis. I think I learn and know more about something now and there are numerous people I want to thank for it.

My supervisors Associate Professor Carolin Plewa and Dr Jodie Conduit made me complete my PhD with great patience and motivation. I will always be grateful for the support they have given me within the last five years. I also want to thank Professor Rod Brodie for his support and valuable feedback that help me to improve my ideas and start to think like an academic. I would also like to thank Dr Dana Thomsen for her support with this thesis's professional editing services.

Dr Chris Graves, Dr Olga Muzychenko, Associate Professor Dirk Boehe, Dr Peter Sandiford, Dr Sam Wells, Professor Ercan Tirtirođlu, Dr Sally Rao Hill, Dr Chris Medlin, Dr Roberta Crouch, Dr Steve Goodman, Dr Marilyn Clarke, Dr Cate Jerram, Dr Cullen Habel, Ms Janet Stone of The University of Adelaide have always been very helpful and friendly to me and I will always appreciate advice they have given me during my PhD. Arti Jhuremalani, Kate Duryea and Dr Graeme Gould became my very good friends. I thank them for making my Australian experience meaningful and joyful.

I thank my PhD fellows Nuha Nizam, Sylvia Ng, Yu Chen, Jodie Zhang, Lon Nguyen, William Lake and Mark Golsby for sharing this experience with me and being there whenever I needed. I became fond of Dr Rebecca Dolan and Ervin Sim since the very early days of my time in Australia. Their friendship gives me the warmest feelings and I really enjoyed being around them, I will miss their impossible to answer questions that only little children ask. Dr Joanne Ho is a very special friend of mine who helped me with her great ideas and shocked me with her strange curiosities. Dr Teagan Altschwager and Zubair Ali Shahid will always inspire me with the loyalty they have for each other and that crazy laughter they share. I thank you all for making my PhD experience unforgettable.

Friends I made out of the university have always been enthusiastic about my thesis and encouraging. Ayşen Kaplan and her family became my family in Australia. Lianne Gould brought art and love into my life. Rós Brady made me her jogging companion and I made her spend hours with me in the museums. I will never forget these experiences and carry their friendship with me wherever I go.

I have a family who supports me whatever I decide to do and however I do it. My mother Aysel Akman is the coolest and smartest person in the world. My sister Meral Akman is my best friend and keeps all of us together. Kerim Akman is my twin brother, he is, in fact, a part of me. My precious friend Bülent Aslan is the wise man saves my life with his wisdom every time I am in trouble. They love me unconditionally and care about me. I simply could not complete this PhD without them. Anneciđim, ablacık, Kerim ve Bülent bugün bu doktora bittiye sizin sayenizde ve sizin desteđinizle bitti. Ben en çok size teşekkür ediyorum ve en çok sizi seviyorum.