# THE ROLE OF SUPPLY CHAIN INTEGRATION AND AGILITY ON SUPPLY CHAIN ORIENTATION - PERFORMANCE RELATIONSHIP



# A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE FELLOW PROGRAMME IN MANAGEMENT INDIAN INSTITUTE OF MANAGEMENT INDORE

BY

AMOL SUBHASH DHAIGUDE [2012FPM02]

**MARCH 2016** 

THESIS ADVISORY COMMITTEE

PROF. ROHIT KAPOOR [CHAIRMAN]

PROF. SANJAY CHOUDHARI [MEMBER]

PROF. SUMIT K. GHOSH [MEMBER]

PROF. VIKAS GOYAL [MEMBER]

**DECLARATION** 

I hereby declare that this written submission represents my ideas in my own words

and wherever others ideas or words have been included; I have adequately cited and

referenced the original sources. I also declare that I have adhered to all principles of

academic honesty and integrity and have not misrepresented or fabricated or falsified

any idea/data/fact/source in my written submission. I understand that any violation of

the above will cause for disciplinary action by the institute and can also evoke penal

action from the source which has thus not been properly cited or from whom proper

permission has not been taken when required.

Signature:

Amol Subhash Dhaigude

Date:

/03/2016

Roll No.-2012FPM02

i

### **ABSTRACT**

Supply chain management (SCM) is one of the most widely studied areas in the field of operations management. Extant literature suggests that well-managed supply chain is crucial for enhancing business performance. Companies implementing SCM must have a supply chain orientation (SCO), as SCM is the implementation of a SCO across suppliers and customers (Mentzer et al., 2001). SCO is the extent to which there is a predisposition among chain partners toward viewing the supply chain as an integrated entity and on satisfying chain needs in an integrated way (Hult et al., 2008). Min & Mentzer (2004) advocated that supply chain oriented firm should build and maintain cultural elements like trust (credibility and benevolence), commitment, cooperative norms, organizational compatibility, and top management support with its supply chain partners. SCO affects not only the single firm performance within the supply chain but also the overall performance of the supply chain.

While conducting an extensive review of the literature, it was found that research on SCO clearly lacks the understanding of linkage between SCO and supply chain performance (SCP), and it is a largely unexamined topic (Schulze-Ehlers, Steffen, Busch, and Spiller, 2014). The present study attempts to fill this lacuna in the literature. This research takes an empirical approach of integrating SCO and SCP with two SCM practices supply chain integration (SCI) and supply chain agility (SCA) identified form the research gap while conducting the literature review.

An attempt has been made to extend the understanding of the impact of SCO along with SCI and SCA on SCP. Cross-sectional survey based research of Indian manufacturing firms has been conducted to test the proposed model and set of hypotheses. Smart PLS 3 is used as statistical tool to analyze the data.

Results show that SCO is an important construct impacting the SCP. The main

contributions of this study are discovering the mediation role of SCI and SCA on the

SCO-SCP relationship. SCI and SCA individually and together fully mediates the

SCO-SCP relationship.

Our results can assist supply chain managers to develop a more in-depth

understanding of the mechanisms underlying SCO-SCP relationships. Practitioners

and managers need to focus on collaboration with the supply chain members and at

the same time have agility to surpass the competition. Design of collaborative culture

and agility within a firm and along a supply chain can enhance SCO practices and

stimulate SCP. A high level of SCI and SCA should be pursued to effectively

transform SCO into performance. This may further enable Indian manufacturers to

achieve superior performance in the extremely competitive market place. The study is

expected to contribute to the theory of supply chain management, and enhanced the

understanding of intervening variables SCI and SCA in the proposed SCO-SCP

relationship.

**Keywords:** Supply chain orientation, Supply chain integration, Supply chain agility,

Supply chain performance, Manufacturing firms, India.

iii

### ACKNOWLEDGEMENT

As is the case with every thesis, this thesis is the culmination of years of efforts and research work. There are many peoples who have helped me, in varying proportions, throughout this journey and here I would like to extend my sincere thanks to all of them. I would foremost like to thank almighty God, Lord Shri Krishna who have gave me strength and wisdom to come to this stage where I am about to submit my thesis. I would like to express my sincere thanks to Prof. Rohit Kapoor, Chairperson, Thesis Advisory Committee (TAC), for his kind support and encouragement at every stage of my research work. I would like to thank him for sparing time for me from his busy schedule, and for the numerous sessions spent with me discussing and evaluating the design of models. He clarified my doubts as and when they arose, provided the kind of flexibility a researcher needs, motivated me to strive for the best and was there to provide all the emotional strength required during this journey. My heartfelt thanks to you, Sir.

During this dissertation work I was greatly benefited by having Professor Sumit Kumar Ghosh in the TAC. He provided the necessary inputs, shared his insightful observations on my work, and encouraged me to look beyond the current realm of research. I sincerely thank him for his support and guidance. I also express my gratitude to Prof. Sanjay Choudhari and Prof. Vikas Goyal. As TAC members, they provided critical evaluations and timely feedback in my research work. Their optimism, in particular has been a continual inspiration enabling me to reach this far. I take this opportunity to acknowledge the contribution of my Thesis Examination Committee (TEC) members: Prof. Peeyush Mehta (IIM C), Prof. Harshal Lowalekar (IIM I) and Prof. Saurabh Chandra (IIM I). Their critical observations on my dissertation helped in shaping this study in a better way. I thank them all.

Sincere thanks to present and previous FPM chairpersons: Prof. Ganesh Kumar N., Prof. Ranjeet Nambudiri, and Prof. Patturaja Selvaraj for taking interest in the progress of my work and for providing me the required administrative and academic support. I would also like to express my sincere gratitude towards all the faculty members who have taught me during this course.

I wish to extend heartfelt thanks also to FPM office executives Mr. Sandeep Kumar Das, Mr. Mukesh Choudhary, Ms. Neha Bhosle, Mr. Vikas and Ms. Monika Mandloi for their continued help in managing the logistics and administrative matters. Finally I would like to thank the Library staff Dr. Akhtar Parvez, Mr. Gopal Singh Jadon, Mr. Vilas, Ms. Tulika and Computer Centre staff for their help and support in conducting this research work.

Notwithstanding the support received from my TAC, the research and the FPM journey would not have been as enjoyable and fulfilling had I not received the support from my family members and friends. I extend reverence to all my family members. I would like to express special gratitude to my parents, sisters, brother; wife, brother in law and cousins for their unconditional love, support and good care throughout my life in general and FPM journey in particular. Here I would like to take a moment to express my gratitude to my father and mother in law along with the sister in law. Their trust on me was very supportive in this journey.

Sincere thanks are also due to my FPM seniors and FPM colleagues. My sincere thanks to colleague Peeyush, Shameem, Agrata, Santosh, and Rajesh for their help and useful suggestions in the ideation, research methodology, coursework and data analysis. Heartfelt thanks to Archit, Kapil, Baljeet, Vishnu sir, Sudhir sir for extending their emotional support in the moments of need. I also owe my gratitude to other fellow and PGP participants: Ankit, Alok, Atul, Vivek, Vaibhav, Nikunj,

Priyavarat, Shrawan, Jyoti, Roopak, Soumyajyoti, Ankita, Vinayak, Palka, Anita, Sudipta, Sandeep Trada, Manoj, Rihana, Vinod, Prasenjit, Bishakha, Shripad, Viswa, Vasudev Reddy, Anirban, Sandeep Kamble, Niraj Taksande, Rohan Patil, Yogesh Shivdas, Trunal and Ashwini Fulzele, Sneha Landge, Darshan Rajguru, Ambika, Indu, Angaee, and Praveen Jadhav for making this arduous journey look smooth and comfortable. Finally, I thank all the unmanned colleagues who have contributed in a way or other all through my stay at the campus.

## Dedicated to my loving parents,

Shri. Subhash Dhaigude and Ramabai Dhaigude,

Brother Sundarkrishna and Sisters Dr. Jyoti and Kalpana Dhaigude

And last but not the least my dear wife Soma Dhaigude.

# **INDEX**

DECLARATION	i
ABSTRACT	ii
ACKNOWLEDGEMENT	iv
LIST OF TABLES	xi
LIST OF FIGURES.	xii
LIST OF APPENDICES	xiv
CHAPTER 1 INTRODUCTION	01
1.1 Overview	02
1.2 Motivation for the Study	05
1.3 Management Context	06
1.4 Scope of the Study	10
1.5 Organization of the Thesis	11
CHAPTER 2 LITERATURE REVIEW	12
2.1 Theoretical Foundation	13
2.1.1 Resource Based View	13
2.1.2 Dynamic Capabilities	15
2.1.3 Relational View	17
2.2 Literature Review Process	18
2.3 Evolution, Development, and Linkages of Key Constructs	18
2.3.1 Supply Chain Orientation.	18
2.3.2 Supply Chain Performance.	23
2.3.3 Supply Chain Integration	28
2.3.3 Supply Chain Agility	30

	2.4 Research Gaps	31
	2.4 Research Questions.	32
СНАР	TER 3: THE CONCEPTUAL FRAMEWORK	. 34
	3.1 Conceptual Framework	. 35
	3.2 Developing the Hypothesis	.38
	3.3 Intervening Variables.	39
	3.4 Proposed Conceptual Model	47
СНАР	TER 4: RESEARCH METHODOLOGY	.48
	4.1 Sampling Technique	. 49
	4.2 Questionnaire Design.	50
	4.3 Pre-test and Pilot Study	50
	4.4 Common Method Variance	52
СНАР	TER 5: DATA ANALYSIS AND DISCUSSION	. 54
	5.1 Descriptive Statistics	. 55
	5.2 PLS-SEM Model Assessment	60
	5.2.1 Measurement Model Assessment	. 63
	5.2.1.1 Internal Consistency Reliability	63
	5.2.1.2 Convergent Validity	63
	5.2.1.3 Discriminant Validity	. 63
	5.2.1.4 Indicator Reliability	. 66
	5.2.2 Structural Model Assessment	. 66
	5.2.2.1 Path Coefficients	67

5.2.2.2 Discussions	67
5.2.2.3 Assessing R <sup>2</sup> values	70
5.2.2.4 Assessing Q <sup>2</sup> values	70
5.2.2.5 Assessing f <sup>2</sup> values	71
5.3 Mediation Analysis	
5.4 Impact Performance Matrix Analysis	78
CHAPTER 6: CONCLUSION	82
6.1 Managerial Implications	83
6.1 Limitations	87
6.3 Future Research Directions	87
6.4 Conclusion	88
REFERENCES	90
APPENDICES	124

## LIST OF TABLES

Table 4.1	Pilot Study CR and AVE	52
Table 4.2	Common Method Variance.	53
Table 5.1	Construct Validity and Discriminant Validity - Fornell and	Lacker
Criterion		65
Table 5.2	Results of Hypothesis Testing and Structural Relationship	69
Table 5.3	Results of R <sup>2</sup> and Q <sup>2</sup>	70
Table 5.4	Results of f <sup>2</sup>	71
Table 5.5	Mediation Analysis: SCA as Mediator	76
Table 5.6	Mediation Analysis: SCI as Mediator	76
Table 5.7	SCI and SCA as Mediators.	76
Table 5.8	IPMA	80

## LIST OF FIGURES

Figure 1.1	Importance of SCM	03
Figure 1.2	SCM Perception	04
Figure 1.3a	Direct/1 <sup>st</sup> Order Supply Chain	07
Figure 1.3b	Extended/2 <sup>nd</sup> Order Supply Chain	07
Figure 1.3c	Ultimate/n <sup>th</sup> Order Supply Chain	08
Figure 2.1	SCO Dimensions	19
Figure 2.2	SCP Literature Classifications	25
Figure 3.1	SCO Dimensions	36
Figure 3.2	Proposed Conceptual Model	47
Figure 5.1	Industry-wise Distribution	56
Figure 5.2	Designation-wise Distribution	57
Figure 5.3	Work Experience of the Respondents.	57
Figure 5.4	Educational Details of the Respondents.	58
Figure 5.5	Gender-wise Distribution of the Respondents.	58
Figure 5.6	Number of Employees.	59
Figure 5.7	Age of the Organization	59
Figure 5.8	Conceptual Model	62
Figure 5.9	PLS-SEM Output for the Direct Relationship Between SCO ar	nd SCP,
SCA and SC	I	68
Figure 5.10	PLS-SEM Output for the Direct Relationship Between SCI as	nd SCP
and that Bety	ween SCA and SCP	69
Figure 5.11	Mediation Analysis Using Bootstrapping Approach	72
Figure 5.12	SCA as a Mediator	74

Figure 5.13	SCI as a Mediator	75
Figure 5.14	PLS output after Bootstrapping	77
Figure 5.15	IPMA on SCP	80

### LIST OF APPENDICES

Appendix A	Why, What and How of SCO & SCP	125
Appendix B	Measurement Scale	140
Appendix C	Survey questionnaire	142
Appendix D	Outer Loadings	.146
Appendix E	Cross Loadings	147