

Supply Chain Management
Wolfgang Stölzle, Michael Eßig *Hrsg.*

RESEARCH

Julia Bendul

Integration of Combined Transport into Supply Chain Concepts

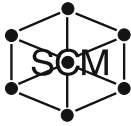
Simulation-based Potential Analysis
and Practical Guidance



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Supply Chain Management

Beiträge zu Beschaffung und Logistik



Herausgegeben von

M. Eßig, München, Deutschland

W. Stölzle, St. Gallen, Schweiz

Industrielle Wertschöpfung wird immer komplexer. Der steigende Wettbewerbsdruck zwingt zu differenzierten Angeboten, gleichzeitig nimmt der Kostendruck zu. Unternehmen können diesen gestiegenen Anforderungen nur gerecht werden, wenn sie neben der Optimierung eigener Produktion besonderen Wert auf die Gestaltung effektiver und effizienter Netzwerke legen. Supply Chain Management befasst sich mit unternehmensübergreifenden Wertschöpfungsaktivitäten von der Rohstoffgewinnung bis zur Endkundendistribution. Die Schriftenreihe sieht sich dabei besonders den lange vernachlässigten betriebswirtschaftlichen Teildisziplinen Beschaffung und Logistik verpflichtet, die als Treiber des Supply Chain Management gelten.

Herausgegeben von

Prof. Dr. Michael Eßig
Universität der Bundeswehr München

Prof. Dr. Wolfgang Stölzle
Universität St. Gallen

Julia Bendul

Integration of Combined Transport into Supply Chain Concepts

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and Practical Guidance

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Julia Bendul
Jacobs University
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Geleitwort

Aktuelle Supply Chain-Konzepte sind zunehmend durch den Anspruch gekennzeichnet, einerseits Sicherheitsbestände zu reduzieren und andererseits Flexibilität, Zuverlässigkeit und Servicelevel für den Endkunden zu erhöhen. Transport- und Logistikkonzepte bilden hierbei die materialflussbezogene Verbindung zwischen den Akteuren der Supply Chain. Heutige Supply Chain-Konzepte basieren in der Regel auf unimodalen Strassentransporten. Verzögerungen der sensiblen Transportprozesse gefährden damit die Performance ganzer Supply Chains.

Trotz der zentralen Bedeutung der Transportakteure für die Performance der gesamten Supply Chain, liegen bisher keine wissenschaftlichen Arbeiten zu diesem Themengebiet vor. Julia Bendul untersucht in ihrer Dissertation die Performance-orientierte Integration von Kombinierten Verkehren in Supply Chain-Konzepte, um den strassentransportspezifischen Problemen und der zunehmenden Vulnerabilität der Supply Chains entgegenzuwirken. Die Arbeit verfolgt die Idee, die Supply Chain-Konzepte hinsichtlich ihrer Distributions-, Produktions- und Beschaffungskonzepte so zu gestalten, dass eine Integration von kombinierten Verkehren begünstigt wird.

Julia Bendul hat im Rahmen des durch die Forschungsgemeinschaft V-Research, Dornbirn geförderten Forschungsprojekts an meinem Lehrstuhl in ihrer Dissertation die erste strukturierte Zusammenführung der Themenbereiche Supply Chain-Integration, Supply Chain Performance und kombinierte Transportkonzepte erarbeitet. Dabei hat sie die relevanten Ursache-Wirkungszusammenhänge zwischen den Elementen von Beschaffungs-, Produktions- und Distributionskonzepten modelliert und erste Propositionen im Rahmen einer Simulationsstudie überprüft.

Die Arbeit stellt praxistaugliche Vorgehensweisen, Methoden und Instrumente für die Integration Kombinierten Verkehren in Supply Chain-Konzepte bereit. Der Ansatz erlaubt es, die Kosten, Durchlaufzeit und Qualität als klassische Zielgrößen des Supply Chain Managements zu verbessern. Darüber hinaus werden die Flexibilität, Zuverlässigkeit und Emissionsbilanz verbessert und so die Kundenzufriedenheit positiv beeinflusst. Der praktische Mehrwert der Arbeit resultiert in erster Linie aus der Entscheidungsunterstützung für die Performance-orientierte Gestaltung von Supply Chains und schafft eine Grundlage zur konkreten Ausgestaltung einer unternehmensübergreifenden Zusammenarbeit. Der Arbeit ist insofern eine ausgeprägte Resonanz in Wissenschaft und Praxis zu wünschen.

Prof. Dr. Wolfgang Stölzle

Vorwort

Die vorliegende Arbeit entstand im Rahmen meiner Forschungstätigkeit am Lehrstuhl für Logistikmanagement der Universität St.Gallen. Die Arbeit adressiert gleichermaßen Vertreter aus Forschung und Unternehmenspraxis, die sich mit Fragen der Intermodalität sowie der Gestaltung von Supply Chains auseinandersetzen. Die Motivation, sich diesem Thema zu widmen, erwuchs aus einer Vielzahl von Forschungs- und Beratungsprojekten, die ich in meiner Zeit als wissenschaftliche Assistentin bearbeitet habe.

Die Erstellung dieser Dissertation wurde von verschiedenen Personen begleitet, unterstützt und geprägt, denen ich auf diesem Weg danken möchte. An erster Stelle möchte ich meinem akademischen Lehrer Professor Dr. Wolfgang Stölzle danken, der den Dissertationsprozess persönlich begleitet und mir die wertvollen Impulse für die inhaltliche Ausgestaltung gegeben hat. Er hat mich stets dazu motiviert, das Beste zu geben und tut dies bis heute. Ebenfalls gilt mein herzlicher Dank Professor. Dr. Karl Frauendorfer für die Übernahme des Korreferats, der wichtige Hinweise insbesondere für die methodische Ausgestaltung der Arbeit gegeben hat.

Der Erfolg praxisorientierter Forschung wird erst durch die Zusammenarbeit mit engagierten Projektpartnern möglich. Darum gilt mein weiterer Dank den Vertretern aus der Unternehmenspraxis, die durch ihre Unterstützung maßgeblich zum Gelingen der Dissertation beigetragen haben.

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Mein besonderer Dank gilt zudem der Forschungsgesellschaft V-Research in Dornbirn, Österreich, die das der Dissertation zugrunde liegende Forschungsprojekt finanziell unterstützt und mit Methodenwissen bereichert hat. Namentlich möchte ich Frau Susanne Schmid danken, die mir ihr gesamtes Erfahrungswissen als Grundlage für meine Simulationsstudie bereitgestellt hat. Sie stand mir stets mit Rat und Tat im Umgang mit grossen Datenmengen und kleinen Simulationsproblemen zur Seite.

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Der größte Dank gilt meinem Partner und Freund Dr. Alexander Skorna, nicht nur mit Geduld und Verständnis, sondern auch fachlich als Lektor durch diese Lebensphase begleitet hat. Er trug sie besonders in arbeitsintensiven Phasen durch moralischen und liebevollen Zuspruch erheblich zum erfolgreichen Abschluss dieser Arbeit bei.

Schließlich möchte ich meinen Eltern Angelika Siepmann und Wilfried Bendul sowie meiner Schwester Fiona aus vollem Herzen für die bedingungslose Unterstützung danken. Der familiäre Rückhalt und die Bestätigung, alles schaffen zu können, was ich nur wolle, waren der Grundstein für das Gelingen dieser Arbeit. In diesem Sinne, war es einer der letzten Wünsche meines lieben Opas Willy, dass ich die Dissertation erfolgreich abschließe. Auch wenn er die Veröffentlichung nicht mehr erlebt, sei ihm deshalb meine Arbeit gewidmet.

Julia Bendul

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List of Abbreviations

3PL	Third Party Logistics Service Provider
4PL	Fourth Party Logistics Service Provider
AMMPL	Association Materials Management, Purchasing and Logistics
APS	Advanced Planning System
BSC	Balanced Scorecard
BOM	Bill of Material
B2B	Business-to-Business
B2C	Business-to-Customer
CIF	Cost, Insurance and Freight
ConWiP	Constant Work in Process
CPFR	Collaborative Planning, Forecasting and Replenishment
CRM	Customer Relationship Management
CSCMP	Council of Supply Chain Management Professionals
CT	Combined Transport
DAF	delivered at frontier
DDP	Delivered Duty Paid
DC	Distribution Center
ECR	Efficient Consumer Response
ERP	Enterprise Resource Planning
EDI	Electronical Data Interchange
ETCS	European Train Control System
EVA	Economic Value Added
EXW	Ex Works'
FOB	Free On Board
ICC	International Chamber of Commerce
IT	Information Technology
I&C	Information and Communication
JIS	Just in Sequence
JIT	Just In Time
M&A	Mergers and Acquisitions

MRP	Material Requirements Planning
ODBC	Open Database Connectivity
OEM	Original Equipment Manufacturer
OPT	Optimized Production Technology
p.a.	per annum
p.c.	per capita
POS	Point Of Sale
UML	Unified Modeling Language
RDA	Resource Dependence Approach
RFID	Radio Frequency Identification
SC	Supply Chain
SCM	Supply Chain Management
SCP	Supply Chain Performance
SCOR	Supply Chain Operations Reference
SRM	Supplier Relationship Management
TCO	Total Cost of Ownership
TEU	Twenty-foot Equivalent Unit
VMI	Vendor Managed Inventory
WMS	Warehouse Management System

Sites in the Simulation Study

GEN	Geneva
LAU	Lausanne
MON	Montey
MOR	Morges
NYO	Nyon
PAY	Payerne
PF SIO	Platform Sion
SIO	Sion
SIE	Sierre
T DAI	Daillens Terminal