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Morten has obtained a MSc in Economics and Business Administration - Management and Leadership from SDU in Kolding and, furthermore, holds a professions bachelor in Value Chain Management from VIA University College in Horsens.

Morten is currently employed as a Senior Associate at PwC Consulting and continues his research in a part time research and teaching position at the University of Southern Denmark.



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PhD Dissertation
The Department of Entrepreneurship
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University of Southern Denmark

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Conceptualization and
Value Creation of Big Data in
Supply Chain Management

A Business Process Perspective

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Conceptualization and Value Creation of Big Data in Supply Chain Management

A Business Process Perspective

The field of supply chain management (SCM) is showing interest to how big data is affecting SCM practices and big data has garnered increased awareness in recent years. The concept of big data has been introduced to represent data that comprise more volumes, variations and velocities from which added value can be created through better decision-making processes.

However, although big data has become a known word, little consensus exists regarding the nature of big data in SCM, where extant research is underdeveloped, and little is known about the concept of big data in SCM.

Despite that companies realize that more value and better can performance can be achieved by integrating big data to their business process decision making, they are also experiencing profound challenges in transforming from a “data” environment to a “big data” environment. Some companies have successfully implemented big data in certain SCM application areas but have not delivered repeated benefits to the organization. Therefore, there is a need for developing holistic SCM and big data capabilities that span across the organization, processes and functions.

This PhD dissertation includes four academic articles focused on two general research questions:

Research question 1: How can big data be understood and conceptualized in the domain of SCM?

Research question 2: How can the value of big data be created in the domain of SCM?

Article 1 addresses the terminologies and applications of big data in SCM through a Delphi study and a survey questionnaire. The article concludes three findings. First, big data terminology seemed to be more about data collection than about data management and data utilization. Second, the application of big data was more applicable for logistics, service, and planning processes than for sourcing, manufacturing, and return. Third, supply chain executives seemed to adopt big data slowly.

Article 2 is a content analysis-based literature review and develops a conceptual big data SCM framework that have been underpinned by value theory and business-process theory. 72 peer-reviewed articles were examined to identify constructs and assimilated measures through the meta-dimensions of value discovery, value creation, and value capture. The knowledge hereof is consolidated into research propositions regarding how to understand and realize the value of big data in SCM.

Article 3 examines how the value of big data can be created in SCM. By integrating theories of business process management and IT business value with a theory-building case study, 24 types of antecedents

are identified in human, IT, organizational, performance, process, and strategic practices. The conclusions show that the attributes of IT, organizational, and strategic practices changed at the intersection of big data and that the maturity levels of all six practices moderated the degree to which the value of big data was created.

Article 4 further builds on the analysis of article 3 by adding another coding procedure to examine the value creation of big data from an IT alignment perspective. The paper highlights fifteen alignment practices affecting the value creation of big data and further defines enabling variables to how each alignment practice is realized. The integral alignment between IT, process, and performance practices were found most critical to the value creation of big data, which further are moderated by various complementary alignment practices.

The collective implications comprise a theory-building contribution in clarifying the concept of big data in SCM as well as defining the important and critical firm-level value creation mechanisms of big data in SCM. In summary, the dissertation has focused on areas of terminologies, applications, conceptualization, antecedents and alignment practices important to the phenomena of big data and its value creation in supply chain management.

Future research might further inquiry these explorative findings for further validation and generalizability.

The managerial implications of the research could guide practitioners on how to create value from big data in SCM, where important practices and success factors are identified. The findings thus lead to recommendations that SCM practitioners can adopt to their strategies, which may help in prioritizing resources in developing the required practices and capabilities.

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Department of Entrepreneurship and Relationship Management

The Department of Entrepreneurship and Relationship Management (DERM) is a business economics department under the Faculty of Business and Social Sciences. The department resides on campus in Kolding, Sønderborg and Slagelse and has approx. 85 employees.

DERM is characterized by a clear link and synergy between research, education programs, dissemination and societal relevance, as well as a close collaboration culture between subject areas and interaction with external partners from companies and public organizations, locally, regionally, nationally and internationally. DERM is organized into 2 strong and focused research groups: Entrepreneurship and Organization, and B2B Marketing and Supply Chain. DERM's research is characterized by collaboration and interdisciplinary research groups. DERM carries particular weight within the spearhead areas: Entrepreneurship, Relationship Management, Design and Innovation.

