The Implications and Limitations of Commercial Supply Chain Management Process Models and Frameworks for Disaster Relief

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Submitted for the degree of Doctor of Philosophy
The University of Newcastle, Australia
August 2013.
STATEMENT OF ORIGINALITY

This thesis contains no material which has been accepted for the award of any other degree or diploma 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. When deposited in the University Library, I give consent to this copy of my thesis being made available for loan and photocopying subject to the provisions of the Copyright Act 1968.

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SYNOPSIS

The purpose of this document is to present the findings of a PhD research project, the objective of which is to identify a suitable supply chain management (SCM) process model / framework in order to explore the implications and limitations of supply chain management (SCM) process models and frameworks as a tool for analysing natural disaster relief chain (DRC) processes with a view to securing insights into potential strategies for improving the responsiveness of disaster relief chains (DRCs), and to make propositions for further research. The words process ‘models’ and process ‘frameworks’ are used interchangeably in the thesis to broadly depict the same object. The method used to conduct this exploratory research project is the multiple qualitative case study methodology. Case study data sources include secondary and archival materials, and in-depth face to face semi-structured interviews with a range of senior managers in various disaster response organisations in New South Wales, Queensland and Victoria.

Data collected and analysed are primarily qualitative from the disaster relief processes (DRPs) of three natural disasters in New South Wales, Queensland and Victoria. These are the Newcastle Earthquake 1989, Cyclone Larry of 2006 and Victoria Bushfires of 2009 respectively. Analytical techniques deployed include the use of process elements of the Global Supply Chain Forum framework to map and analyse interview data collected about each of the three disaster relief processes (DRPs) in the three cases selected for the study. Data was categorised, coded and pattern matched resulting in themes, and cross-case analysis of data from the three cases was undertaken to identify themes and patterns, and similarities and differences. The result of the research is that the Global Supply Chain Forum (GSCF) SCM process framework is an appropriate and suitable SCM process framework for analysing DRCs. Further, the implementation of customer relationship management (CRM) process, demand management process (DMP) and supplier relationship management process (SRM) by disaster relief and response agencies contributes significantly to increasing responsiveness in DRCs. This is the contribution of the research.

Recommendations are that implementation of the CRM process in natural disaster relief will contribute to making DRCs more responsive and effective. Pre-segmentation of potential relief beneficiaries before a disaster strikes will enable the supply of various relief goods and services to be better tailored to each group or segment of beneficiaries. Conceptualization of
the delivery of disaster relief in terms of a broad product/service portfolio by disaster managers will improve DRC responsiveness as it helps relief providers meet the needs of a wide range of groups and segments because there is a right relief product/service that matches the requirement of each group or segment of beneficiaries.
ABSTRACT

Keywords: Supply chain management; Disaster relief; Process model; Supply chain process model; Responsiveness; Disaster relief responsiveness; Humanitarian logistics;

The objective of this thesis is to empirically undertake an exploratory analysis of the disaster relief processes (DRPs) of public sector disaster mandated agencies (PSDMAs) using an appropriate and suitable commercial SCM process model or framework as a lens of analysis. SCM has enjoyed much success as an essential management concept for increasing operational effectiveness and efficiency (Childerhouse et al. 2011; Chong et al. 2011; Ellinger et al. 2011) but the inability of responsible organisations such as PSDMAs and other humanitarian organisations to make particular relief items available when needed is critical for many suffering people; and as a result, efforts at making timely deliveries of required disaster relief to those impacted by disasters have often come under criticisms by the media, the public, and the beneficiaries with critics often pointing to inefficiency, ineffectiveness and waste in DRCs.

Since there is no proven and empirically valid disaster relief model of SCM in the literature (Blecken 2010), this thesis contributes to the growing literature on SCM, humanitarian logistics and disaster operations management (DOM) through the exploration of the utility, implications and limitations of the Global Supply Chain Forum (GSCF) process framework as a tool for analysing disaster relief operations. The goal is to secure insights into potential strategies for improving the responsiveness of disaster relief chains (DRCs). The thesis sought to answer the following research questions (1) What is an appropriate and suitable SCM process model or framework in the published academic literature for analysing operational processes in the disaster relief chain (DRC)?; (2) What SCM processes in the selected framework or model might contribute to making disaster relief chains (DRCs) more responsive; and (3) What propositions can be made from the above exploratory research?

Fieldwork involved eliciting insights from the three case studies based on secondary and archival materials, and in-depth face to face semi-structured interviews with a total of 27 key informant interviewees from a range of public and non-governmental disaster response organisations who were involved in the Newcastle Earthquake 1989, Cyclone Larry 2006 and Victoria Bushfires 2009 disaster relief operations in Australia. Analytical techniques
deployed include: use of the process elements of the selected GSCF SCM process framework to analyse interview data collected about each of the three disaster relief processes (DRPs) in the three cases selected for the study. Data was categorised, coded and pattern matched resulting in themes (Miles & Huberman 1984; Yin 2003). Cross-case analysis of the three cases was undertaken to further identify themes and patterns, similarities and differences.

The findings and contribution of the research is that the GSCF SCM process framework is appropriate and suitable for analysing DRCs. Also, the implementation of customer relationship management (CRM) process, demand management process (DMP) and supplier relationship management process (SRM) aspects of the framework may contribute to increasing responsiveness in DRCs.

By using the GSCF process framework as an analytical lens, propositions are made regarding the research undertaken as well as other strategies for increasing DRC responsiveness such as broadening the concept of the recipients of ‘disaster relief’ to include a range of ‘recipient’ categories such as individual, environmental, and infrastructure. In addition the sequencing of the delivery of relief and the order in which particular goods and/or services are delivered need to be considered in disaster logistics planning and preparedness. Policy and practitioner implications include the need for pre-identification and pre-segmentation of target beneficiaries before a disaster; and the planning and delivery of disaster relief based on re-conceptualizing ‘disaster relief’ as a broad portfolio with a range of relief services and goods/products rather than being narrowly and merely construed as the provision of food, water, medicine and temporary shelter.
ACKNOWLEDGEMENT

The research required and the writing up of a Ph.D. thesis is an individual voyage along an often turbulent, challenging and unpredictable Ocean. Reassuringly however, there are people who provide encouragement, comfort, succour and support. In this acknowledgement, it is impossible for me to individually list the names of all the people that have inspired me to complete my Ph.D. However, I would first like to express my greatest appreciation to Buki my wife and ‘holding mid-fielder,’ and our boys Ire and Anu for their unconditional love, support, encouragement and sacrifice over Fourteen years of juggling scholarly pursuits: writing; fieldwork; teaching; university service; administration; and solving the day to day problems that are part of those responsibilities. I dedicate this thesis to them. I also wish to express my appreciation to my father Dr Sam Oloruntoba MBBS, FRCS, FMCN, FWACP; and mother Mrs Lola Oloruntoba B.Ed. (Hons), M.Ed. an accomplished teacher and educator of over 51 years for their support and encouragement through this voyage.

Second, I wish to express my deepest gratitude to my PhD supervisors, Associate Professors Ramaswami Sridharan and Graydon Davison. Without their supervision at various stages of my research, this thesis would not have been completed. To them I doff my hat and offer my sincere thanks.

Third, I would like to thank my research role models who believed in me, and encouraged the first steps of my scholarly journey and academic life: Dr Richard Gray and Professors Michael Roe, John Dinwoodie, Ian Huntley and Gordon Boyce. Against the odds, they dared to believe, and provided me with opportunities to prove them right. I will also like to thank my uncle Dr Isaac Madugu for being a role model, trail blazer, pioneer, scholar and teacher who persisted in sending a steady stream of encouraging words to me inspite of ill-health.

Fourth, to my Head of School Professor Alison Dean; and others: Associate Professor Frank Agbola; Dr Dipo Kolade; Dr Moni Kolade; Dr Kingsley Agho; Dr Peter Tatham; Dr Vincent Valentine; and Professors Godwin Ayoko, Kunle Oloyede, Kayode Omore, and Soji Adeshina for their persistent but softly spoken calls to ‘finish up the thesis for God’s sake,’ I offer my appreciation and gratitude. To Dr Antony Drew I say thank you for your IT expertise advice which you made available to me. I thank Pastor Dennis and Elaine Carter for their prayers.

Lastly, I would like to thank all the emergency response and disaster management organisations in Queensland, NSW and Victoria, and their serving and retired Directors for their willingness to participate in this research and for providing time and support for the project during data collection, analysis and feedback. I am most thankful to my employer, the Newcastle Business School in the University of Newcastle for allowing me the time to undertake this study and the financial support received for fieldwork travel.

Oluseye Richard Oloruntoba, Newcastle, August 2013
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Australian Defence Force (ADF)
British Broadcasting Corporation (BBC)
Business Process Management/Re-engineering (BPM/R)
Center for Research on the Epidemiology of Disasters (CRED)
Community Based Disaster Preparedness (CBDP)
Council of Logistics Management (CLM)
Council for Supply Chain Management Professionals (CSCMP)
Commercial Supply Chain Management (CSCM)
Disaster Operations Management (DOM)
Disaster Relief Chain (DRC)
Disaster Relief Chains (DRCs)
Disaster Relief Processes (DRP)
Disaster Relief Processes and Operations (DRPO)
Emergency Events Database (EM-DAT)
Geographical Information Systems (GIS)
Global Financial Crisis (GFC)
Goods in Kind (GIK)
Humanitarian Logistics (HL)
Humanitarian Assistance Research Thought Leaders Group (HART)
International Strategy for Disaster Reduction (ISDR)
Information Systems (IS)
Logistics Research Network (LRN)
Memorandum of Understanding (MOU),
Multi-National Corporations (MNCs)
Non-Governmental Organisation (NGO)
Non-Governmental Organisations (NGOs)

Public Sector Disaster Mandated Agencies (PSDMAs)

Resource Based View (RBV)

Search and Rescue (SAR)

Standing Order Agreement (SOA)

State Emergency Services (SES)

Supply Chain Management (SCM)

Unmanned Aerial Vehicles (UAVs)

United Nations International Decade for Natural Disaster Reduction (UN-IDNDR)

United Nations (UN)

United Nations Conference on Trade and Development (UNCTAD)

United Nations Development Programme (UNDP)

United Nations High Commission for Refugees (UNHCR)

Urban Search and Rescue (USAR)