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**The Supply Chain in Air Capability Acquisition
by the New Zealand Defence Force**

**A thesis presented in partial fulfilment of the
requirements for the degree of**

Master of Arts in Defence and Security Studies at
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Disclaimer

The views, assumptions, thoughts and opinions expressed in this thesis are those of the author and do not necessarily reflect the official policy or position of the New Zealand Defence Force or any other agency of the New Zealand Government.

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Abstract

Over the last decade the New Zealand Government has acquired and introduced into operational service, two important platforms for air power capability, namely the new NH90, and SH-2G(I) Seasprite helicopters. The NH90 purchased new, and the Seasprite purchased second hand, are at different stages in their capability life cycles. The introductions of these aircraft have challenged support and sustainment within the Royal New Zealand Air Force (RNZAF) supply chain, which has been hampered by organisational factors such as the lack of capability and sustainment corporate knowledge, resource constraints, culture, and insufficient priority being given to Integrated Logistic Support (ILS) model In-Service. Equally aircraft specific issues such as their product maturity, and relationships also challenge the supply chain. The most significant level of aircraft acquisition is still yet to come as the Government progresses towards the replacement of the RNZAF surveillance and mobility capability. Therefore it is vital to understand the effect on support and sustainment from recent acquisitions.

Methodology

Research for this thesis has been drawn from both primary and secondary sources. The acquisition of the NH90 and the Seasprite helicopters provides two case study examples of the effect that the acquisition has had on the RNZAF supply chain. The two case studies selected were appropriate because they were acquired and introduced into service over the last decade to meet capability outlined in Defence White Papers. While both were rotary in nature, each helicopter type was at a different maturity point in their product life cycle, which had a direct impact on supportability and sustainment. The collection of data from primary research was gathered from semi-structured interviews with eight (8) New Zealand Defence Force (NZDF) personnel who met predetermined participant qualification criteria. The interviews took one to two hours each and were conducted face to face with interviewees over who had to have first hand knowledge or experience in areas that included: customers or suppliers of the RNZAF supply chain; or knowledge and experience in the introduction-into-service of either or both of the NH90 and Seasprite helicopters; or knowledge and experience of sustaining either or both

platforms in-service. All interviews with personnel participating in the research remain anonymous, and have been cited in a professional and appropriate manner. Each participant has been allocated a letter of the alphabet, which has been referred to when referencing the interviews in the thesis.

The aim of the interviews was to gain insight from participant's knowledge and experience of sustaining the NH90 and Seasprite during their capability life cycles. Research was collected on a range of specific areas including the product and capability maturity in the life cycle, ILS across capability life cycles, Through Life Support (TLS) models and mechanisms, people and financial resourcing, supply chain management and reporting, technical influences, organisational and cultural factors, and training. Data was collected from the interview responses, and then codified and grouped into similar categories. Results of the findings are set out in Chapter 3, and the analysis is presented using a qualitative Strength, Weakness, Opportunity, and Threat (SWOT) analysis in Chapter 4. This approach to analysing the findings is a simplified process that allows qualitative primary research collected through this thesis to be distilled into core themes and be presented in such a way that is meaningful.¹ Secondary research was drawn from government reports, unclassified NZDF documents, scholarly articles, books, and reliable industry periodicals and publications, as well as other appropriate literature.

Appendix A provides further detail regarding the research methodology and limitations, during the completion of this thesis.

Ethics Approval

Massey University Human Ethics Committee Southern B – 16/41 and the NZDF Organisational Research Unit have approved this research project and the methodology to obtain the research required to complete the thesis.

¹ Marilyn M. Helms and Judy Nixon, "Exploring SWOT Analysis - Where Are We Now?: A Review of Academic Research from the Last Decade," *Journal of Strategy and Management* vol. 3, no. 3 (2010): 216, 29; Doug Leigh, "SWOT Analysis," in *Handbook of Human Performance Technology: Principles, Practices, and Potential*, ed. James A Pershing and Darlene M. Van Tiem (San Francisco, CA: Pfeiffer, 2006), 1050.

Acronyms and Abbreviations

ADF	Australian Defence Force
ANAO	Australian National Audit Office
ANZAC	Australia, New Zealand Army Corps
ANZUS	Australia, New Zealand, United States
APIC	American Production Inventory Control society which merged with the Supply Chain Council and American Society of Transportation and Logistics
AUD	Australian Dollar
BBC	Better Business Case
CAF	Chief of Air Force
CapBr	Capability Branch
CIPS	Chartered Institute of Procurement and Supply
CMF	Capability Management Framework
CMP	Capability Management Plan
CMS	Capability Management System
CMSL	Capability Management System Lifecycle
CNS	Chief Of Naval Staff
CoA	Commonwealth of Australia
CoE	Centre of Expertise
DA	Defence Act 1990
DBC	Detailed Business Case
DCP	Defence Capability Plan
DCAP	Defence Capital Plan
DCCAP	Defence Capability Change Action Programme
Defence agencies	Ministry of Defence and New Zealand Defence Force
Defence	New Zealand Defence
Defence White Paper	New Zealand Defence White Paper 2016
DLC	Directorate of Logistic Command
DPEC	Directorate of Project Engineering and Certification

DWP	Defence White Paper
EASA	European Aviation Safety Agency
EDA	European Defence Agency
EMAR	European Military Airworthiness Requirements
ERT	European Resident Team
FOC	Final Operational Capability (German NH90s)
FOC	Final Operational Configuration (Finnish NH90s)
FST	Fleet Support Team
Government	New Zealand Government
IBC	Indicative Business Case
IIS	Introduction-Into-Service
ILS	Integrated Logistic Support
IOC	Initial Operational Capability (German NH90s)
IOC-	Initial Operational Configuration (Finnish NH90s)
IOC+	Nearly Operational Configuration (Finnish NH90s)
IPT	Integrated Project Team
Iroquois	Bell UH-1H Iroquois
IS	In-Service
ITAR	International Traffic and Arms Regulations
ITAS	Integrated Tactical Avionics System
LEP	Life Extension Programme
LCC	Life Cycle Costing
LFR	Logistic Field Representative
LRU	Line Replacement Unit
LUH	Light Utility Helicopter
MAWA	Military Airworthiness Authority Forum
MHC	Maritime Helicopter Capability
MHCP	Maritime Helicopter Capability Project
MPR	Major Project Reporting
MRH90	Multi Role Helicopter NH90 (Australian)
MSP	Managing Successful Programmes
MUH	Medium Utility Helicopter
NAHEMA	NATO Helicopter Management Agency

NATO	North Atlantic Treaty Organisation
NH90	NH Industries TNZA NH90 Helicopter
NHI	NH Industries
NZ variant	Kaman Aerospace SH-2G(NZ) Seasprite Helicopter (previously NZ variant sold to Peru)
NZD	New Zealand Dollar
NZDF	New Zealand Defence Force
OPC	Offshore Patrol Combatant
PIBC	Project Implementation Business Case
PRICIE	People, Research and Development, I, C, I, Equipment and Logistics
PRINCE2	Projects in a Controlled Environment
PuMP	Performance Measurement Process
RACI	Responsible, Accountable, Consult, and Inform
RAF	Royal Air Force
RAN	Royal Australian Navy
RNZAF	Royal New Zealand Air Force
RNZN	Royal New Zealand Navy
SB	Service Bulletin
SC	Supply Chain
SCMS	Supply Chain Management Squadron
SSCCs	Support System Constituent Capabilities
SCOR	Supply Chain Operational Reference
Seasprite	Kaman Aerospace SH-2G(I) Super Seasprite Helicopter
Super Seasprite	Kaman Aerospace SH-2G(A) Super Seasprite Helicopter (previously owned by Australia)
SWOT	Strength, Weakness, Opportunity and Threat
TLS	Through Life Support
TLM	Through Life Management
WoG	Whole of Government
WoLC	Whole of Life Cost
WW2	World War Two

UK	United Kingdom
US	United States of America
USG	US Government

Preface

Over the past decade, a significant level of new and upgraded major RNZAF air capability has been acquired and introduced into the NZDF. These projects have included the acquisition and introduction of the NH90 and the second-hand upgraded Seasprite helicopter fleets. The maturity of the product along with introduction of these aircraft, as well as the ILS and sustainment initiatives, has had a direct flow on effect to the RNZAF supply chain. This thesis examines those effects on the supply chain from the introduction into operational service of these aircraft.

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