

Relationship between Logistical Support Factors and Effective Contract Management in Royal Malaysian Navy

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Abstract– This paper aimed to provide an insight on the effective contract management (ECM) relationship with logistical support factors namely financial support, leadership support, contract compliance, technological support and contracting officer competency within the logistic handling in Royal Malaysian Navy (RMN). The paper determined whether the logistical support factors have an impact on effective contract management in a maritime defense organization like RMN, in evidence of its readiness and agility in coping with any incoming threat. The paper used a literature search and comparative analysis complemented with examples from previous studies. No study has been done to explore aspects of skills and competency among RMN supply and secretariat officers, especially for those officers who are at the level of executives and professionals in the naval service. In conjunction with the regulatory requirements, risk management and cost control, many enterprises, organizations and firms are now taking stock of effective contract management in order to reduce uncertainty and enhance visibility and performance measure.

Keywords–Supply Chain Management (SCM), Effective Contract Management (ECM), Logistical Support Factors (LSF), Financial Support (FS), Leadership Support (LS), Contract Compliance (CC)

1. Introduction

Issues on contract management are often discussed at almost all levels of management, whether they are governmental organizations, private firms or government agencies. Previous studies are discussed in this study in terms of their approaches, methods, and fields of specialization that have been done by previous researchers on contract management aspects. In connection with the review of previous studies, the researcher aimed to identify a gap. Furthermore, this study is conducted in the hopes of determining if contract management can contribute to the effectiveness/improvement of the management aspects of the contract as well as to the wellbeing of the aspects of supply chain management itself. According to ref. [1], Supply Chain Management is the involvement of all parties, whether directly or indirectly, in fulfilling the demand/needs of customers. It includes but is

not limited to new products, development, marketing, operations, distribution, finances and customer service. Parallel with the issue of the involvement of all parties, whether directly or indirectly, Ref. [2] supported ref. [1] by stating that when identifying the customer and supplier relationships more closely and deciding how they can share data, observers expect to see improvements in earnings ratio.

Contractual agreements are commonly used means for overcoming uncertainty in transactions and for minimizing the transaction cost involved in business relationships [3]. A contract is an instrument that outlines the mutually agreed upon rules (and expectations) as to how fundamental elements such as risk, rewards and decision rights of business will be allocated in the transaction relationships among the contractors and the contractees [3]-[6]. With the mission to protect the national maritime interests and sovereignty, the RMN logistics support continues to grow and modernise in order to cope with the increasingly challenging maritime security environment in the South East Asia region. The use of contracting and service delivery is not new, but extensive and rising [7]. In tandem with this, operating from a few bases strategically positioned around the country, RMN logistics support has been functioning and assisting round the clock in operations in the South China Sea, the Strait of Malacca and the Sulu Sea, and when required, stretching the operational reach to remote waters of Indian Ocean (MH 370 incident) and the Gulf of Aden (combating piracy). As the platforms become more complex and sophisticated, an effective contract management is crucial to providing logistics support to ensure these invaluable assets are kept and operated at their highest state of readiness.

2. The Problem Statement

The RMN logistics organisation has been in place since the beginning of the RMN itself. The element of contract management remains an integral element, without which, the successful running of any organisation will be crippled. With abundant experience acquired in providing logistics support to the RMN fleet over the span of more than 84 years, it is expected that the logistics organisational structure, policy and processes have matured and stable. Therefore, the RMN fleet operations are expected to have benefited from these sound

organisational structure, policy and processes, which should translate into high state of readiness and optimised expenditures.

Hence, over the years, the RMN logistics organisation has adopted and introduced many initiatives such as, Integrated Logistics Support (ILS), In-Service Support (ISS) concept, computerisation and automation of logistics activities, and it has formed strategic partnership with logistics service providers. However, despite these efforts to improve the logistics support, particularly in terms of organisational structure and work processes, the RMN has been experiencing some challenges ranging from leakage in procurement process, partial delivery, sub-standard item, delay in refit completion and integrity issues. Therefore, RMN must adopt complex contracts that specify not only required actions and conditions of contractual breach, but also a framework for resolving unforeseen disputes [8]. With such a long history of success, the RMN must use the vast organisational experience to address these challenges effectively focusing not on the symptoms but the root causes of these shortfalls.

Certain issues that have continued to challenge the effectiveness of fleet operations such as delay in refit programmes and costly delay in delivery of spares and further incidences such as, leakage in procurement process as well as the integrity issues at the logistics depot, have led to the perception that there are still areas, which require serious attention as they are “handshake” contracts that leave contracting parties’ obligations vague or imprecise [8]. Some of the pertinent areas that this study must address include the following: What are the logistics issues that need attention? What are the factors that influence the identified state of logistics affairs, and what measures may be taken, both in short and long terms, to either remedy or mitigate the effects of the challenges? In an attempt to answer the above questions, the study must not negate the fact that logistics management in the RMN has demonstrated strength in many areas. A balanced approach of capitalising on the strength to amplify what have worked so far while identifying creative ways to overcome the obstacles will inevitably lead the RMN logistics management to a much better stature.

Despite of some issues that have been mentioned earlier, some problems such as, late delivery, equipment or items supplied by partial delivery, sub-standard and some of the equipment/item/ infrastructure obtained were not fully optimized (underutilize), still occur. These problems are seen as a barrier or constraint (set back) to the RMN acquisition, and they have a significant impact on the RMN fleet operational readiness. Therefore, the researchers intend to incorporate this aspect into the study as a mechanism of checks and balance to other factors that are more significant in contributing to the success of a government procurement contract management in the RMN. Carter, Kirby and Oxenbury [9] viewed good contract management as a positive adding value process.

Since the establishment of the RMN (84 years ago), which has already undergone various phases of development and modernization resulting from the management of the contracts involved, to date, no special studies related to the aspects of contract management has been conducted within the organization. This is despite the fact that the aspects of contract management are a major element to development and modernization of the RMN since its founding. It is feared that if such aspect is not properly address, the RMN reputation might be at stake for not being sensitive to the elements of good governance of contract management. This is in line with the basic requirements of an effective contract management by Carter, Kirby and Oxenbury [9] that support good practice contract management framework developed by the British Government by referring to the four main points (i.e. structure, resources, capabilities and strategy development), where elements of governance are contained in the four frames of good practice.

The researcher further found that even though contract management (CM) falls in the scope of supply chain management (SCM), it was noticed that little research on it has been carried out especially when it comes to defense industry, which specifically indicated lack of empirical research concerning contracts [10]. Most of the research merely discussed contract management in the commercial sector that is related to profit taking, business development as well as business achievement. A few to list only touched upon the aspect of maturity levels in the pre-award contracting processes (Procurement Planning, Solicitation Planning, and Source Selection) [11], performance monitoring and quality measures [7], cooperative working relationships and reducing failure costs of large complex projects [12], and contract on building construction by Lai, Yik and Jones [13] and Nawi et al [36].

Looking at the gaps in the previous studies, it is observed that in contract management especially in defense industry, there are several of gaps. Most of the studies put very little attention on factors affecting the effectiveness of contract management. In addition, many of the efficiency gains that are to be reaped from a contract management approach have already been realized in the public sector [14]. Nystén-Haarala, Lee and Lehto [15] stated that although the literature concerning contracting is diverse, there is still no single comprehensive theory of contracting. Contract theories tend to study different aspects of contracting. Therefore, the researchers conclude that those theories and frameworks in commercial sector do not fit or not suitable for contract management in defense industry.

In relation to the above, Patel [16] stressed that the roles and responsibilities are not as clearly defined for implementing, monitoring and enforcing compliance against contract post-award. In conjunction with that, for the purpose of filling up the gaps as well as contributing to the body of knowledge, this research aims to study the contract management issues that need attention, the factors that influence the identified state of contract management, and measures that may be

taken, both in short and long terms, to either remedy or mitigate the effects of the challenges in ensuring effective contract management in RMN. Lastly, this research also aims to ensure that the RMN is consistent with the requirements of the government that gives priority to the concept, while practicing effective and competent asset management and inventory as well.

3. Research Questions and Objectives

Based on the above issues and gaps, there are several issues forming the basis of this research. This research aims to identify and seek the answers to the following questions:

- a. What is the current level of performance of effective contract management in the RMN?
- b. Is there a significant relationship between the logistical support factors (financial support, leadership support, contract compliance and technological support) and effective contract management?
- c. What is the influence of logistical support factors on effective contract management?
- d. What is the moderating effect of contracting officer competency on the relationship between effective contract management and logistical support factors in RMN?

Based on the research questions there are several objectives that this research aims to achieve in light of the effects on effective contract management and they are as follows:

- a. To analyze the level of achievement of logistical support factors and effective contract management in the RMN.
- b. To examine the relationship between logistical support factors (financial support, leadership support, contract compliance and technological support) and effective contract management in the RMN.
- c. To examine the influence of logistical support factors and effective contract management in the RMN.
- d. To investigate the moderating effect of contracting officer competency on the relationship between effective contract management and logistical support factors in RMN.

4. Literature Review

4.1 Definition of Contract Management

Carter, Kirby and Oxenbury [9] referred to contract management a process to ensure that both parties involved in a contract understand their obligations and they need to be met efficiently and effectively to provide the best value for money spent. The authors also defined contract management as active management of the relationship between the customer and contractor on contractual terms for the procurement of goods and services according to the standards

agreed jointly. While the Office of Government Commerce, cited by Carter, Kirby and Oxenbury [9], defined contract management as a procurement cycle phase in which the supplier supplies goods or services is required to comply with the specifications set by the authority making the acquisition. Patel [16] described an effective contract management as a way to increase expectations and reduce uncertainty.

4.2 Previous Study

There are five main keys to successful contract management after contract award phase [17]. Patel [16] explained that automation on contract management is one of the fastest and most effective ways to improve vision (visibility) and contract compliance to reduce risk provisions. In addition, McGuinness [14] stated that the management contract is not something distinctive, but it is a group of techniques intertwined with each other. Meanwhile, Brandon-Jones and Carey [18] found no strong evidence of a positive relationship between the social changes that occur during the implementation of e-procurement and how corporate political is influenced by professionalism and content dimensions. In terms of the actual contract compliance, it is strongly influenced by consumer perception. Moreover, if contract negotiations were not well conducted, a business will be in a disadvantaged position [19]. Also, contracts that have not been managed properly can also lead to a business that pays for services which were originally not included in the consultation/approval of the original contract. Nerenz [20] review of contract bundling found it to be a major barrier to the participation of small companies to make a contract with the federal government in the United States. Results showed that the issue of contract bundling is rare and sporadic in nature, but it is not the main reason for the lack of participation of small companies into government. Qi [21] conducted a study focused on risk management in procurement. The study formulated the demand for goods according to the distribution function that is already established. Hence, a good procurement strategy must be obtained for any condition or performance that is not good. Xue [22] studied inventory management and procurement, and revealed that firms should have an operation policy in facing the current commodity price volatility. Shah [2] stated that project management contract aims to provide access to better information to the buyer regarding the aspects of the responsibilities of the contractual partners.

Table 1: *Contract Management Definitions*

Discipline	Author	Definition
Defense	Rendon [11]	"A contract between the government and a contractor reflects a principal-agent relationship. The principal (government) contracts with the agent (contractor) to perform a specified level of effort, such as developing and manufacturing a product or providing a service."

Performance and quality measures (Quality)	Dean & Kiu [7]	“Encapsulate three key areas: ensuring the contractor’s work is faithful to the contract terms, identifying the extent of variation in quality and its relationship to cost factors, and determining whether clients and the contracting agency are satisfied with the service.”
Construction (Engineering)	Lai, Yik & Jones [13]	“A contract is formed when two rational parties believe that there are gains from the trade by either party, as a result of their differences in belief, preferences and/or comparative advantages”
Information System (IT)	Ngwenyama & Sullivan [23]	“The contract as a mechanism for addressing risks associated with IS outsourcing as well as a tool for implementing management strategies to address these risks.”
Public Transport Sector (Transportation)	Camén [10]	<p>“ The contract:</p> <ul style="list-style-type: none"> • acts as a communication tool in the transmission of information from one party to another; • by reducing uncertainty and risk by stating each party’s contribution to the relationship; and/or; • by meeting the requirements of accepted practice in a given business setting. <p>One of the principal functions of the contract is that it should specify the content of the service and the resources needed for the service to be produced, with service quality being one of the issues.”</p>
Food Industry (Agriculture)	Fernández-Olmos [8]	<p>a. “Contract is the outcome of an optimization process in which the relative benefits and costs of additional incompleteness are traded-off at the margin”</p> <p>b. “The main costs incurred by the search for a more complete contract (as against a more incomplete one) will be costs of writing, enforcement and potential flexibility, and, in the absence of sufficient advantages, these costs will be a deterrent to formal contracting.”</p>
Legal	Nystén-Haarala, Lee & Lehto, [15]	“Contracts and contracting is understood as a way of balancing the trade-offs between hard and soft elements and that the optimal management of contracting capabilities needs to take such trade-offs into consideration.”

rules. In discussing the aspects of cost reduction, Carter, Kirby and Oxenbury [9] made a point that it should be clear in terms of the product or service involving contractors in a way that costs and prices are reduced while maintaining quality, and in turn, this can lead to a reduction in the cost of binding and organization contract practice. Next the authors felt a detailed analysis should be done on things like benefits, variable costs, fixed costs, profit margin and break-even point to determine whether a firm, suppliers or those organizations will gain or lose. Finally, they stressed about the importance of an organization’s stability that must be proven through documents such as Balance Sheet, Profit and Loss Account, Credit Rating and reputable contractors.

4.3.2 Leadership Support

In the aspect of leadership support, Patel [16] explained that with the support of top management, all employees will be more likely to comply with the various policies and regulations currently in force. Patel [16] then suggested that organizations should identify 'champions' of contract management and get strong support from the executive and shareholder interests. In the same line of study, Carter, Kirby and Oxenbury [9] stated that if the contractor has a key leader, for instance, an account manager in charge of the organization and supply contracts, it is likely that this leader will have a good knowledge of the organization and their needs, but if he leaves the contractor to his own devices, then supplies may began to fail. Also, it is a good idea, with important contracts in force, to ensure that the manager has an assistant or substitute. Bill Michels, cited in Shah [2], stated that technology is capable of managing all types of transactions, but it did not have the capability of strategic thinking. This statement indicates the need to have leaders of a certain caliber to determine the direction and objectives of the organization. Hosie [24] conducted a study on corporate managers in Australia and found that in many organizations, performance evaluation is an important component of the human resource management function in order to improve productivity and achieve business goals and strategy of the organization. Naylor, Pritchard and Ilgen [25] related that typically behavior is not observed but rather the result of behavior is observed or measured. This means that the end product to a job should be preferred over treatment geared towards a leader.

4.3 Factors Influencing Effective Contract Management

4.3.1 Financial Support

Sarbanes-Oxley cited, in Patel [16], emphasizes the importance of a company or firm to prepare and maintain documentation for financial reporting and internal controls. The main goal of this practice is to create ‘auditable’ transactions, improve financial transparency and strengthen internal control mechanisms. To achieve all these objectives and the level of transparency, a business entity must have an understanding and a clear view of the supply contract, and at the same time, be able to monitor adherence to the agreed

4.3.3 Contract Compliance

Carter, Kirby and Oxenbury [9] described contract performance measurement as a measurement that determines what has been achieved and it can be considered as the basis for deciding when an achievement is entitled to be given special recognition in the form of incentive payments, awards and recognition system. Still, in the context of contract management performance measurement process, performance measurement should be based on the quality, quantity, timeliness, and/or cost-effectiveness of a set of standards and results that have been set earlier. Carter, Kirby

and Oxenbury [9] further viewed that when the contract is awarded, the contractor will begin to implement it. Contractor performance should always be measured to ensure that they give us what we need as well as to identify the aspects of performance, which can be improved. If the contractor does not provide what is needed, the organization should take steps to ensure their performance is in line with the needs and requirements of the organization. Resolution to a particular problem can also be part of the contracting process. Palleschi [26] reviewed the quotation by the Defense Intelligence Agency, Pentagon, by the spokesman, Donald Black, when he stated, "We have reorganized our contract review process by conducting training department and stressed the need to contract file checklist". Steps are taken to ensure that every contract entered into with the contractors and suppliers always comply with the policies and the policies set by the Pentagon.

4.3.4 Technological Support

According to Patel [16], automation in contract management is one of the fastest and most effective means to improve vision (visibility) and contract compliance to reduce risk provisions. Carter, Kirby and Oxenbury [9] indicated that if a contractor supply items using yesterday's technology, there is the possibility that a profound impact will affect the contracting organization. This will most likely be a lasting effect even though products supplied may be reliable. Shah [2] believed that technology is another project which involves management contract and provide benefits to buyers to access information on contractual obligations between the contracting parties.

4.3.5 Contracting Officer Competency

Most studies described competency as a good, positive and acceptable trait, which should be possessed by an individual. This aspect is intended to be discussed further in the study because lately it is observed a few incidents like leakage in procurement, incomplete delivery, breached of trust and so on did happen within the RMN.

Just as individual competence will lead to greater success in performing contract management tasks and activities, organizational process maturity will ensure consistent and improved results for the agency [11]. Competence, in this case, is defined as "an underlying characteristic that is causally related to effective or superior performance, as determined by measurable, objective criteria, in a job or in a situation" [11]. The concept of competency is understood from two different perspectives – individual and organizational [27]. Thai and Yeo [28] described competency as a mixture between the skill, knowledge, ability and other sets of characteristics that an employee possesses which enable him/her to perform his/her activities more efficiently and effectively. Liyana Othman and Jaafar [29] defined personal competency as the individual characteristic or personality that people bring to their work roles, and is

typically used in performance management process, selection, and performance.

5. Underpinning Theory

There are two underpinning theories involved in this research namely, The Principal-Agent Theory and Competency Theory.

Principal – Agent Theory

From a management perspective, the evolution of agency theory can be traced back to the 1960s and 1970s [30]. Agency relationship is a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent [31]. If both parties to the relationship are utility maximizers, there is good reason to believe that the agent will not always act in the best interests of the principal [31]. Michael Jensen of Harvard's Business School and William Meckling of the University of Rochester published a paper in 1976 outlining a theory of ownership structure that would be designed in such a way as to avoid what they defined as agency cost and its relationship to the issue of separation and control. Then the principal-agent theory develops when a principal creates an environment in which an agent's incentives don't align with his own. As for this research, firstly the theory seems to have similarity on the flow of contract management processes in a way the item of contract management itself is understood as the government as the principal whereby it has its own objective in ensuring every activity that happens within the process will always safeguard the government (principal) interest at all times. The agent in this contract is represented by two items namely, the elements of contract compliance and technological support, as discussed before. The researcher decided to look into the aspect of contracting officer competency (government/principal) as the moderating variable. To balance up the function between the principal and the agent, other two items representing the principal, which are financial support and leadership support are considered in this research.

5.1 Competency Theory

In defining competency theory, Latham and Gross [32] quoted from Kruger and Dunning [33] who described competency theory as the students' (people) skills in any given domain that may be associated with their ability to self-assess their skill set, and furthermore, students (people) who have low-level skills may not, in fact, recognize that they have such a deficit.

Similarly, Latham and Gross [32] related that competency theory predicts that students (people) with a high level of information literacy skills are more likely to question their ability to perform, while students (people) with a low level of skills are more likely to overestimate their ability. As for this research, the theory seems to have similarity on the flow of

contract management processes in a way that the process of contract promulgation, handling, execution and reviewing, which are the critical parts of it, calls for highly associated skills and ability of a contracting officer. The contract management itself considers the government as the principal with its own objective, and that it ensures that every activity happens within the process will always safeguard its interest at all times. The agent in this contact will be represented by two items namely, the elements of contract compliance and technological support as discussed before. The researcher decided to look into the aspect of contracting officer competency (government/principal) as the moderating variable. To balance up the function between the principal and the agent, other two items representing the principal, which are, financial support and leadership support are included in the research.

6. Methodology Overview

Population of the research comprise of RMN Supply and Secretariat Officers, who were appointed in units, formation and headquarters of the Royal Malaysian Navy including Submarine Force Headquarters, Naval Headquarters (Materiel Department), West Fleet Supply Depot and West Naval Supply Depot. They are the primary/main players, which manage the government contracts in order to support the operation of the RMN as a whole. A total of 300 of them ranging from the rank of Lieutenant Commander (Z24 = N 46A) to Rear Admiral (Z32 = JUSA C) comprised the study sample. Officers Seniority List or RMN Officers Blue List for Supply & Secretariat Officer was used as a sample frame for this study. A total of 169 RMN officers based on Krejcie and Morgan's [34] sampling were involved from various ranks, length of service, age, gender and academic qualifications. This selection was made by taking into account the experience, knowledge, skills and attitudes of all RMN Officers in accordance with their job specification and expertise.

As for the data collection techniques, the researcher used several methods to obtain data required, including interviews, referrals to secondary data (proprietary data), contract documents and contract handling instructions, Circulars on Finance from Treasury and the Armed Forces Council Order as well as a self-administered questionnaire were distributed. The literature review on previous study were also used to support the key findings on the research.

7. Discussion and Findings

Looking at the research and writings conducted earlier, it is evident that studies have examined a few salient factors (e.g., closer relationship with the supplier/contractor and sharing of data and their obligations) and how they are to be met efficiently and effectively to provide the best value for money. Automation of contract management, inventory management, reporting and internal control all appear to be paramount to any organization as they may indicate the ability of the organization or the lack thereof to ensure

effective operations. Financial support/stability also play a major role in ensuring the aspect of contract management is able to be enforced and practiced throughout the operation. Furthermore, the aspect of superior support, adherence to contracts and technological interest in managing the contract are very crucial in demonstrating the vibrant and applicability of contract management within organizations.

However, no study has been done to explore aspects of skills and competency among officers, especially for those officers who are at the level of executives and professionals in the naval service. Thus, the researcher intended to meet and address this gap with a view of trying to understand the issues related to aspects of skills and competencies. Asgekar and Suleski [35] highlighted that Shah [2] only stressed on the role of manager turnover without directly discussing the roles, skills and competence of the employees/workers involved in the promulgation of a contract.

8. Conclusion

RMN, being the biggest maritime defense organization in the country, will always move ahead in ensuring all assets and infrastructures are operating well and able to be deployed at any time. Although the challenge in managing the government contract seems to be very complicated, yet management will always find a way and means to remedy every obstacle that emerges. Approaches, best practices and researches are carried out to identify the best item and application to be adopted. Factors related or concerning the effective contract management are handled gently in order to guarantee that every single cent being spent is worth spending. In this study, factors like financial support, leadership support, contract compliance, technological support and contracting officer competency are considered to have considerable effects.

In Patel's [16] study, the author explained that with regulatory requirements, risk management and cost control high on executive agendas, many enterprises are now looking to contract management for enhanced visibility, control and performance. And this in turn, requires them to improve the processes and tools used to manage the various activities related to contract management- ranging from contract creation to performance management. In line with that, Patel [16] suggested that enterprises take the following strategic actions to overcome the mentioned challenges.

a. Adopting appropriate technology

The ability to search through contracts and establish visibility in pricing, terms, clauses and so forth is critical to controlling and managing supplier contracts effectively. In addition, technology makes tracking and monitoring easier by automatically ensuring alerts for contract renewals and milestones.

b. Securing executive support

High-level of people's support will more likely lead to adherence to various policies and procedures.

c. Measuring performance

In particular, three areas of compliance are constantly reviewed and checked by enterprises in terms of performance at regular scheduled intervals.

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