A NEW APPROACH FOR QUALITY MANAGEMENT
FOR SEAPORTS INTEGRATED IN SUPPLY CHAINS

by

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degree of Doctor of Philosophy

Australian Maritime College

June 2013
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That the thesis contains no material which has been accepted for a degree or diploma by the University or any other institution, except by way of background information and duly acknowledged in the thesis, and to the best of my knowledge and belief no material previously published or written by another person except where due reference is made in the text of the thesis nor does the thesis contain any material that infringes copyright.

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27 June 2013
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The research associated with this thesis abides by the international and Australian codes on human and animal experimentation, the guidelines by the Australian Government’s Office of the Gene Technology Regulator and the rulings of the Safety, Ethics and Institutional Biosafety Committees of the University

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27 June 2013
ABSTRACT

Quality management has proven to be one of the most effective methods for organisations to be successfully sustainable in a hyper-competitive environment. However, this management method has not been fully utilised by seaports, especially in the context of global supply chains. This thesis argues that the increasing integration of seaports into supply chains requires a new approach to quality management to enable seaports enhance their own performance and the efficiency of the whole supply chain, in which they are involved. Thus, the objective of this thesis is to investigate what quality management practices are appropriate for seaports as they become further integrated in supply chains?

Employing deductive and inductive reasoning and a two stage methodology, this thesis proposes a literature-based quality management framework for seaports, beyond the quality management standards proposed by the International Organisational for Standardisation (ISO), to incorporate both internal and external approaches. An empirical study is used to test the quality management framework in the context of Vietnam, which is a prime example of seaports that are integrating into their supply chains as a result of implementing significant governmental policies on trade, transportation and supply chain.

The first stage of the empirical study was conducted via a preliminary mail survey with 100 seaports to test the initial quality management framework. A 38 per cent response rate was achieved. This stage suggested that the current quality management approach tended to be internally focused and insufficient for seaports that are broadening their business to incorporate supply chain thinking. Therefore, based on the outcomes of the preliminary survey and further examination of the
supply chain literature, a quality management framework consisting of eight external and four internal practices was developed for further testing.

A telephone interview survey with senior managers of 43 major Vietnamese seaports was conducted during the second stage. A 79 per cent response rate was achieved. The findings confirmed that although the internally focused ISO quality management approach has benefits, it is insufficient when considering the contemporary supply chain focus of seaports. Customer focus and leadership were perceived as the most important practices among the internal practices. The findings also indicated that the external practices were perceived increasingly important as seaports become more embedded in various supply chains. Among the external practices, quality integration and network optimisation were considered essential to increase the quality of collaboration and inter-relationships to minimise the complexity of supply chains. To manage supply chain flows and to share the mutual benefits and risks between seaports and other stakeholders, it is suggested that one linked intra-network will need to become the backbone of supply chains.

The empirical study also found that as seaports attempt to increase their sphere of influence in enhancing quality management throughout the supply chains, the business reality of implementing requires significant communication and collaboration among their stakeholders. This requires a stage approach to implementing quality management by the seaports: firstly collaborating with stakeholders who have the most direct relationship with seaports followed by the indirect stakeholders and so on along the supply chains.

The thesis has several contributions; firstly, it readdresses the importance of quality management and provides a broader approach which includes external dimensions
appropriate for contemporary businesses with a supply chain focus. Secondly, the empirical study conducted in Vietnam may draw attention of seaport management to implementing quality management as an economical and powerful means for long term sustainability. This may assist seaport management in preparing effective, competitive Vietnamese seaports for the future. Thirdly, for seaports in developing countries dominated by central governments, quality management is more than just attaining certification and should be embedded in an organisational culture and along a supply chain. The empirically tested quality management framework, although validated in Vietnam, also provides underlying principles that may be appropriate in other countries. Fourthly, a two stage methodology was found useful for explorative research. The outcomes of the first stage were able to provide initial feedback from respondents to enhance the quality of the second stage by sharpening the focus, and enabling further probing result in much greater insights. Finally, this thesis found telephone interviews to be an ideal means of collecting data from senior management due to their flexibility, cost effectiveness and convenience for respondents.
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Finally, I am indebted to my Mum and Dad for their endless love, scarification and constant belief in me. I dedicate this thesis to my parent, my beloved daughter and son, who are a great source of nutrition and challenge to me.
**LIST OF ACRONYMS**

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>DWT</td>
<td>Deadweight tonnage</td>
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<tr>
<td>EDI</td>
<td>Electronic data interchange</td>
</tr>
<tr>
<td>EFQM</td>
<td>European Federal Quality Management Awards</td>
</tr>
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<td>EM</td>
<td>Excellence Models</td>
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<td>GDP</td>
<td>Gross domestic product</td>
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<td>ISM</td>
<td>International Safety Management Code</td>
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<td>ISO</td>
<td>International Standard Organisation</td>
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<td>ISPS</td>
<td>International Ship and Port Facility Security Code</td>
</tr>
<tr>
<td>IT</td>
<td>Information technology</td>
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<tr>
<td>JIT</td>
<td>Just-in-time</td>
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<tr>
<td>KPI</td>
<td>Key performance indicators</td>
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<tr>
<td>MOT</td>
<td>Ministry of Transport of Vietnam</td>
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<tr>
<td>PRQ</td>
<td>Primary research question</td>
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<tr>
<td>QA</td>
<td>Quality assurance</td>
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<td>QC</td>
<td>Quality control</td>
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<td>QI</td>
<td>Quality inspection</td>
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<tr>
<td>SD</td>
<td>Standard deviation</td>
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<tr>
<td>TEU</td>
<td>Twenty foot equivalent unit</td>
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<tr>
<td>TQM</td>
<td>Total quality management</td>
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<tr>
<td>UNCTAD</td>
<td>United Nations Conference on Trade and Development</td>
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<tr>
<td>VINALINES</td>
<td>Vietnam National Shipping Lines</td>
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<tr>
<td>VINAMARINE</td>
<td>Vietnam Maritime Bureau</td>
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<tr>
<td>VPA</td>
<td>Vietnam Port Association</td>
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