

# SHIPYARD SUPPLY CHAIN PERFORMANCE FOR MODULAR SHIPBUILDING CONSTRUCTION



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**Kosongkan (balik cover)**

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# INTRODUCTION

Praise be to Allah SWT who has bestowed his guidance, mercy and guidance. Our greetings and peace be upon our lord the Great Prophet Muhammad SWT. So that we can complete the book entitled **“SHIPYARD SUPPLY CHAIN PERFORMANCE FOR MODULAR SHIPBUILDING CONSTRUCTION”**

This book is prepared based on the conditions of the shipyard industry where material procurement activities have a major influence on the price of the ship. More than 60% of ship production costs are costs for material procurement, so that it reaches the most percentage burden with the highest portion of fund flow distribution. Because the availability of materials affects the smooth production process of the ship especially the construction system using modular construction shipbuilding. In the modular system, a lot of sub-module and module construction work is carried out in parallel. Which includes hull construction, painting, outfitting and equipment installation. Shipyards that are able to streamline their supply chain, will save costs and time in procuring materials so that they are able to bring in materials smoothly and faster. This will have an impact on the ability to produce ships with a faster production process under the supervision of the required quality standards.

In this book there are case studies through improving the expertise of academics, researchers, and consultants in the application of science and knowledge in the field of engineering and our contribution in advancing the Shipping industry in Indonesia. In the preparation of this book, the author realises all the limitations of knowledge, experience and abilities possessed, so that this book is far from perfect. Thanks to the guidance and assistance of various parties, the authors can finally complete it well. This book is still far from perfect and improvements and refinements are still needed in the future by the authors and other researchers. Suggestions, criticism and input are very much expected, for the sake of improving the book. The author hopes that this book can benefit the authors and all readers.

Surabaya, February 2025.

Reviewer

# PREFACE

This book contains Conceptual Supply Chain performance on Modular Ship Construction in shipyards, risk approach methods, introduction to supply chain management, and several supply chain management theories including Just in time, Economic Order Quantity, Material requirement planning and Enterprise Resources Planning. We have conducted various researches and international publications with experts in **shipyards**, so that we can complete the reference book entitled "**SHIPYARD SUPPLY CHAIN PERFORMANCE FOR MODULAR SHIPBUILDING CONSTRUCTION**".

This book was prepared as an application of science and knowledge in the field of shipyard supply chain and as our contribution in advancing the Shipping industry in Indonesia.

As for the preparation of this book, we have verified with the relevant shipyard agencies and various reviews, the authors realise all the limitations of knowledge, experience and abilities possessed, so that this research report is far from perfect. Thanks to the support of various parties, the authors can finally complete this reference book well. This book is far from perfect, so, suggestions, constructive criticism and input highly expected, for the sake of improving the results. The author hopes that this book can benefit practitioners, academics and generally readers in the same field.

Surabaya, February 2025.

Author

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# SINOPSIS



The book "Shipyard Supply Chain Performance for Modular Ship Construction" explores the critical role of supply chain management in modern shipbuilding, particularly in modular construction. With over 60% of ship production costs allocated to material procurement, an efficient supply chain is essential for cost savings and timely project completion.

Through an in-depth analysis, the authors discuss supply chain theories such as Just in Time (JIT), Economic Order Quantity (EOQ), Material Requirement Planning (MRP), and Enterprise Resource Planning (ERP) to optimize material procurement and inventory management. The book highlights the advantages of modular ship construction, which allows parallel assembly of ship components—hull construction, outfitting, painting, and equipment installation—resulting in faster production timelines.

The book also presents case studies and real-world applications in the Indonesian shipyard industry, emphasizing the importance of risk management, strategic procurement, warehousing efficiency, and supply chain integration to ensure the smooth flow of materials. Drawing insights from academics, researchers, and industry experts, this book serves as a valuable reference for professionals, academics, and policymakers involved in the shipbuilding sector.

By providing practical strategies and innovative approaches, this book aims to support the growth of the Indonesian shipping industry and enhance the competitiveness of national shipyards in the global market.



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