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Fleet Management Systems 2024

An International Market Review of Current Software
Applications for Shipping Companies

Carlos Jahn | Ole John

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Fraunhofer Center for Maritime Logistics and Services CML

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Hamburg, May 2024

Foreword

Navigating the intricate waters of maritime logistics requires a keen understanding of the ever-evolving landscape. The Fraunhofer Center for Maritime Logistics is delighted to present this year's study on Fleet Management Systems, offering a pragmatic exploration into the current state and future trajectories of this vital sector.

In a world marked by rapid digitization, technological strides, environmental consciousness, and global challenges such as the COVID-19 pandemic or ongoing conflicts, efficient fleet management has transitioned from a competitive edge to a strategic necessity. It's a fundamental driver for resilience and success, especially in the face of these diverse challenges.

This study explores various aspects including the core and supplementary applications, market developments, and the providers offering these solutions. Our aim is to provide readers with a holistic view of the landscape, enabling them to navigate the vast ocean of possibilities and make well-informed decisions.

Fleet Management Systems encompass a diverse range of tools and technologies that are specifically designed to optimize the operational, financial, and regulatory aspects of fleet management. These solutions play a pivotal role in streamlining processes, ensuring compliance, and enhancing the overall efficiency of maritime operations, covering areas such as crewing, maintenance, procurement, and charter management. Our study offers valuable insights into the core ship management applications, as well as the increasingly significant supplementary applications that have emerged in response to the rapidly changing industry.

Market developments constitute another crucial focus of this study. Understanding the characteristics, size, and growth trajectory of the market is essential for stakeholders who seek to adapt and thrive in this dynamic environment.

I wish you an inspiring read.

Yours sincerely Carlos Jahn

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Head of Fraunhofer Center
for Maritime Logistics and
Services CML*



Introduction and executive summary

In maritime logistics, Fleet Management Systems (FMS) serve as the foundation for shipping companies. These systems, developed by specialized software providers, play a crucial role in streamlining operations and ensuring both efficiency and compliance. The FMS market is characterized by its diversity, with a multitude of providers offering a wide array of products with different functionalities and focal points. Within this issue, we delve into the latest trends within the FMS industry and acquaint you with the various providers, their products, and the key features they offer.

This study represents our sixth exploration into the realm of FMS. We will introduce you to 40 FMS providers, each offering a unique range of solutions. These solutions encompass specialized software developed by smaller companies, as well as comprehensive offerings provided by established industry giants.

The maritime industry has experienced substantial growth in FMS over the past years, with an impressive increase in the estimated market volume. The Compound Annual Growth Rate stands at 11.34%, showcasing the sector's robust upward trajectory. FMS providers expect continued expansion, driven by a rising number of deployable ships.

The surge in FMS adoption is fueled by the maritime industry's increasing digitization, accentuated by the transformative impact of digital solutions on operational efficiency, safety, and compliance. Improved global connectivity, the expansion of Artificial Intelligence (AI), and heightened awareness of data-driven decision-making have also played an important role.

Document & Data Management emerges as the most sought-after function, reflecting a shared pursuit of operational excellence, regulatory compliance, and the impactful presence of digitization and technological advancements. Operational efficiency, performance monitoring, and compliance requirements are major drivers behind the demand for robust data management practices.

The future of FMS faces diverse challenges, including intensified competition, interoperability concerns, cybersecurity, technological advancements, data accuracy, decarbonization targets, and the imperative for proactive digital transformation.

Technological innovations have ushered in a wave of change, with a focus on AI driven solutions, cloud-based offerings, and an increased emphasis on safety, compliance, and environmental sustainability. Despite significant advantages, the adoption of emerging technologies poses risks, including concerns about practical value limitations, data quality, and cybersecurity vulnerabilities.

Customer needs are evolving, prioritizing real-time data access, mobile accessibility, user-friendly interfaces, integration capabilities, customization, predictive analytics, cybersecurity and regulatory compliance.

In conclusion, the FMS landscape is evolving rapidly, driven by technological advancements, changing customer preferences, and a growing commitment to sustainability and compliance. Stakeholders must navigate challenges and seize opportunities to ensure the seamless integration of technology that propels the maritime industry forward in its continuous evolution.

About Fraunhofer CML



The Fraunhofer-Gesellschaft is the leading organization for applied research in Europe. 82 institutes and research facilities work under its roof at different locations throughout Germany. More than 30,000 employees achieve an annual research volume of 3.0 billion euros. Contract research accounts for around 2.6 billion euros. The Fraunhofer-Gesellschaft generates around 86% percent of this output through contracts from industry and publicly funded research projects. International collaborations with excellent research partners and innovative companies worldwide ensure direct access to the most important current and future scientific and economic areas.

The Fraunhofer Center for Maritime Logistics and Services CML (Fraunhofer CML), located in Hamburg, is part of the Fraunhofer-Gesellschaft. Fraunhofer CML conducts professional contract research for private and public sector clients with a focus on the maritime industry. Target customers include shipping companies, government agencies and authorities, ports and

port authorities, terminal operators and logistics service providers. For its clients Fraunhofer CML develops and implements innovative, customer focused problem solutions that span the entire maritime supply chain. The core activities in ship management are focused on innovative use of information and communication technologies, mathematical optimization for management decisions and development of decision support systems. Fraunhofer CML applies its detailed knowledge in the maritime domain to improve clients' procedures and prepares studies for private and public customers, providing them with reliable information on which to base strategic decisions.

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1 Fleet Management Systems

1.1 Ship Management

Ship management encompasses a wide spectrum of tasks involving a complex network of stakeholders, including charterers, ship agents, and freight forwarders. To efficiently navigate this domain, software solutions play a pivotal role by providing support to various actors. These comprehensive ship management software tools primarily strive to enhance ship management processes, aiming to boost overall efficiency and cut operational costs, all while ensuring strict compliance with both national and international regulations.

The maritime landscape's ever-growing complexity, driven by increasingly intricate components and systems, fuels the demand for innovative ship management products. Consequently, the adoption of FMS has surged as a solution to meet these evolving challenges. On the market, available solutions not only aid stakeholders in their day-to-day management tasks but also equip them to respond swiftly and effectively to unforeseen events. In general, ship management can be categorized into two main areas:

Management of Commercial Processes: Solutions designed for commercial purposes target cost optimization, revenue enhancement, and cash flow management for shipping companies. These applications cover areas such as chartering, finance, and voyage management.

Management of Operational Processes: Operational solutions, on the other hand, focus primarily on the seamless and continuous technical operation of vessels. They encompass vital aspects such as maintenance, crewing, and procurement.

Beyond these core areas, ship management also encompasses administrative responsibilities and the management of safety, quality, risk, and compliance.

In the following sections, we will delve deeper into the primary application areas within which Fleet Management Systems are categorized.

1.2 Core ship management applications

Within the realm of FMS, software solutions are tailored to meet the demands of ship management. These solutions are notably aligned with the core functions and tasks essential to this field, orchestrating both technical deployment and commercial oversight. In the context of this study, one focal point lies in what we refer to as core applications. These applications encompass:

Crewing: Handling the right people for the job, making sure they're available and skilled when needed.

Financial Management: Keeping a close eye on spending, income, and the essential flow of cash.

Maintenance Management: Safeguarding the ship's reliability by planning, tracking, and executing maintenance operations for smooth operations.

Procurement: The foundation of effective ship management, ensuring timely access to necessary supplies and equipment.

A distinguishing characteristic of the majority of available FMS products is their modular structure. This structure empowers customers with the choice between a ready-made, preconfigured system, and the capacity to craft a tailored solution. The latter option involves the integration of customizable modules, aligning the system precisely with individual operational needs.

For a visual representation of these core applications and their constituent modules, please refer to Figure 1. This study will further delve into the landscape of FMS core applications, offering comprehensive insights into the products and services that define this essential facet of ship management. Section 4.2 delves into a presentation of these critical components.

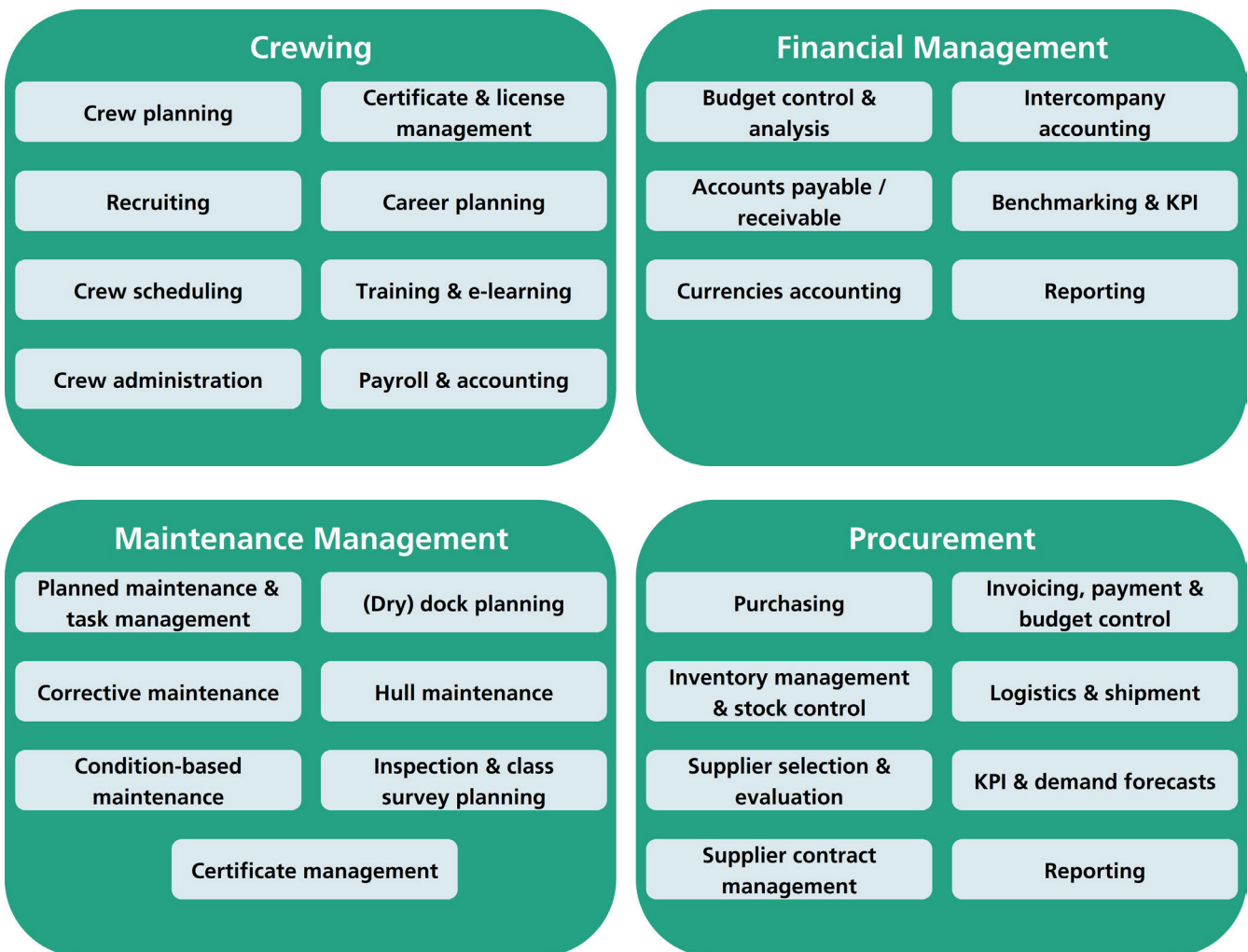


Figure 1: Overview of core ship management functions

1.3 Supplementary ship management applications

In addition to the core functions, ship management applications encompass supplementary functionalities that complement the primary aspects of ship management. These supplementary functions extend support to various administrative, safety-related tasks, and the implementation of measures aimed at enhancing performance and quality. These supplementary applications are categorized into the following domains:

Charter Management: This area focuses on managing charter agreements and associated logistics, ensuring smooth operations in charter-related activities.

Document & Data Management: Document and data management applications streamline the handling of vital paperwork and data, fostering efficiency in administrative tasks.

Performance Management: Performance management applications play a pivotal role in tracking and enhancing operational performance and efficiency.

Safety / Quality / Risk & Compliance: This domain is dedicated to safety, quality, risk, and compliance management, ensuring adherence to regulations and safety standards.

The supplementary ship management applications comprise an array of functionalities, contributing to the effectiveness of

ship management. Modules and tasks that are part of the supplementary ship management applications are shown in Figure 2. For a detailed overview of these supplementary applications and the vendors offering products in the FMS market, please refer to Section 4.3 of this study.

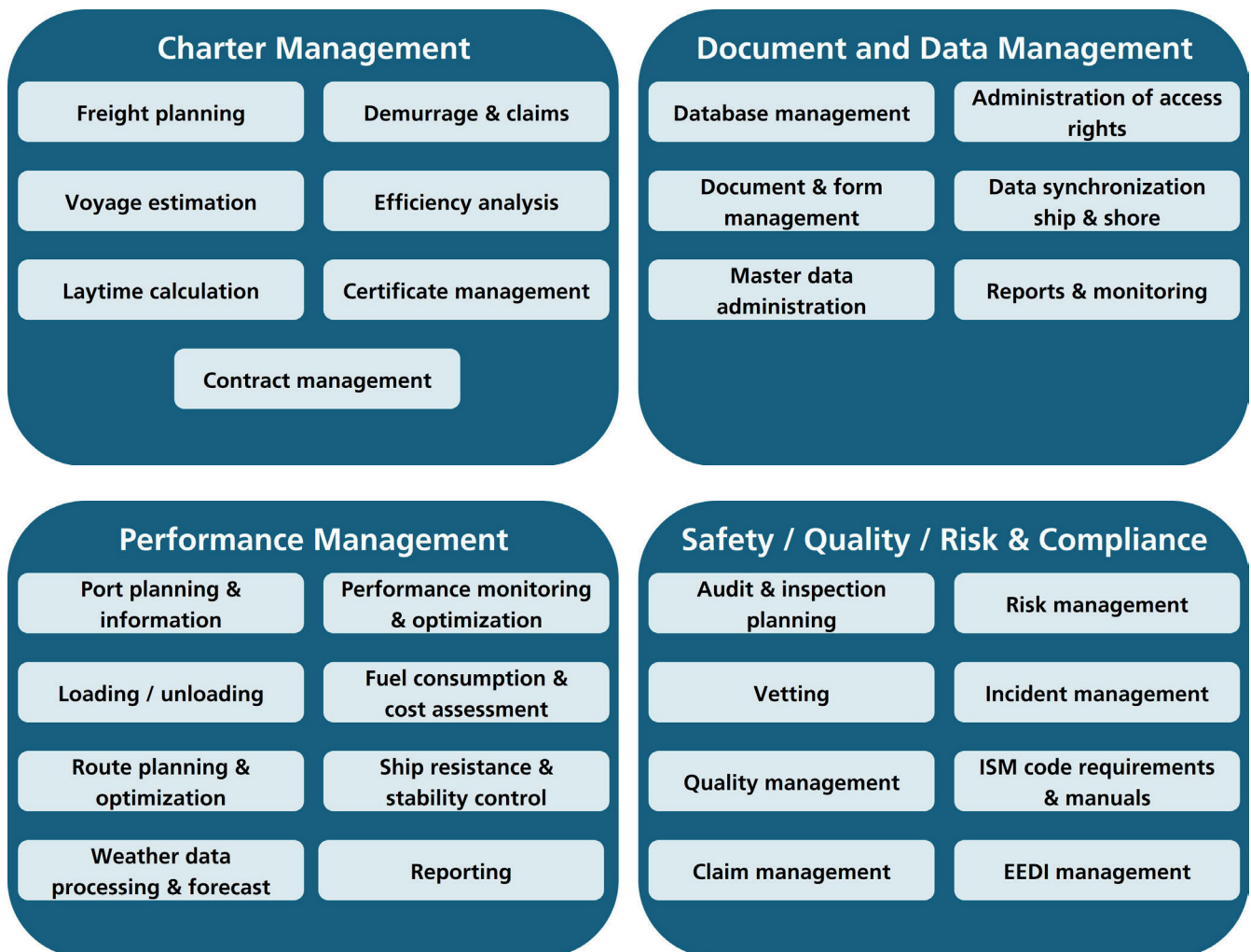


Figure 2: Overview of supplementary ship management functions

Fleet Management Systems (FMS) developed by maritime software specialists are powerful management tools for shipping companies. There is a great variety of providers and a wide range of different functionalities on the FMS market. This study provides an insight into the latest market developments and gives an overview of current vendors, products and their respective features.

The FMS study has already been published five times and most recently in 2021. This sixth edition is a comprehensive update of the previous versions and now considers 40 fleet management software providers. These vendors form a heterogeneous market, with some smaller companies offering highly specialized software solutions, while large vendors offer their products for all FMS planning tasks.