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USE AND IMPACT OF INFORMATION TECHNOLOGY IN THE INDIAN NAVY

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Abstract
The important influence of information technology (IT) on many sectors is examined in this study paper, with special attention to the Indian setting and its use in the Indian Navy. It examines the ways that IT has improved government, healthcare, education, and business processes. Highlighting significant milestones like the founding of Tata Consultancy Services (TCS) and the Santacruz Electronics Export Processing Zone (SEEPZ), the paper charts the development of India's IT sector starting in the 1960s. Additionally assessed are the effects of the IT industry on the Indian economy and government programmes promoting its expansion. Moreover, it looks at the Indian Navy's technical developments during the 1970s, the effects of significant IT projects like the Navy Enterprise Wide Network (NEWN) and the Integrated Logistics Management System (ILMS). The paper also discusses moral issues with using AI in naval security and combat, illustrating how the Navy has evolved into a network-centric, technologically sophisticated force that can successfully tackle modern issues.
Keywords- Information Technology (IT), Indian Navy, Integrated Logistics Management System (ILMS)

INTRODUCTION

This research study investigates the transformative journey of Information Technology (IT) across multiple industries, focusing specifically on the Indian context and the Indian Navy's history. IT has played a crucial role in boosting operational efficiency, strategic decision-making, and overall productivity in industries such as business, healthcare, education, and government. In India, the IT sector has grown dramatically since the 1960s, marked by notable milestones like the formation of Tata Consultancy Services (TCS) and the Santacruz Electronics Export Processing Zone (SEEPZ).

The Indian Navy, with its historic maritime legacy, has undergone major modernization, integrating new IT technologies to increase its operational capabilities. This study covers the historical evolution of IT in India, the Navy's IT activities, and the strategic significance of these technologies. By assessing important initiatives and developments, the report illustrates how IT has been instrumental in converting the Indian Navy into a network-centric force, capable of solving contemporary marine challenges with innovative solutions.

PURPOSE OF STUDY

Understand IT Evolution in India: Trace the historical development and major milestones of the IT sector in India, highlighting its contribution to the national economy and diverse industries.

Examine the Indian Navy's IT Integration: Investigate the Indian Navy's journey towards modernization, focusing on the integration of IT systems and their influence on operational efficiency and strategic capabilities.

Analyze Key IT Projects: Provide an in-depth study of important IT initiatives within the Indian Navy, such as the Integrated Logistics Management System (ILMS), Ships Logistics Management System (SLMS), and the Navy Enterprise Wide Network (NEWN).

Assess Technological Advancements: Evaluate the role of emerging technologies including cloud computing, artificial intelligence (AI), machine learning (ML), and cybersecurity in boosting the Navy's operational and strategic functions.

Highlight Ethical Considerations: Discuss the ethical implications of utilising AI and other modern technologies in maritime security and conflict.

LITERATURE REVIEW

1. Big Data Analytics in Indian Navy (Kulshrestha, 2017) - Discusses the application and potential of Big Data Analytics in the Indian Navy, highlighting its usefulness in several operational elements like intelligence, logistics, and cybersecurity.

2. Blue Waters Ahoy! The Indian Navy 2001-2010 (Singh, 2018) - Chronicles the history of the Logistics cadre in the Indian Navy, stressing the change from manual processes to modern technologies like the Integrated Logistics Management System (ILMS).

3. AI & Machine Learning for The Indian Navy (Godbole, 2020) - Explores the integration of AI and ML in boosting the Indian Navy's capabilities in areas such as target recognition, threat appraisal, and autonomous systems.

4. Significance of AI in Indian Navy (Jeevanandam, 2023) - Highlights the strategic advantages of AI in naval operations, including logistics, maintenance, and combat scenarios, while addressing ethical problems.

5. Technology Requirements for the Indian Navy (Vice Admiral Satish Soni, 2017) - Outlines the technology developments necessary for the Indian Navy, emphasising on areas like cyber warfare, space exploration, and sophisticated weaponry.

6. Transition to Guardianship (Vice Admiral GM Hiranandani, 2010) -Discusses the historical development of logistics management in the Indian Navy, including the deployment of the Ship Logistics Management System (SLMS) and Integrated Logistics Management System (ILMS).

7. Harnessing the Power of Information Technology (Indian Navy, 2016) - Details the Indian Naval headquarters' directorate (DIT) dealing with information technology in both operational and administrative tasks. It discusses desk-to-desk connectivity across all geographical locations, security mechanisms, benefits of IT, state-of-the-art data and operational centers, coordination of training opportunities with institutions like IITs, enabling the Navy to achieve state-of-the-art networks, integration of legacy applications, creation of in-house applications, and more.

RESEARCH METHODOLOGY

The study focuses on the Indian Navy's information technology, notably the in-house created software Inventory Logistics Management System (ILMS). The study intends to assess the system's performance and usability, as well as its impact on the quality of life for logistics staff.

Primary Data

- Data was collected through a survey of ILMS personnel.

- The survey consists of both open-ended and closed-ended questions and is delivered online via email.

Secondary data - includes existing studies, articles, and publications about the Indian Navy's IT and inventory management systems.

Data Collection Method: - Questionnaire

Sampling Unit: - Officers from the ILMS front end, both naval and civilian.

The questionnaire aims to survey 100 officers and staff working in inventory management.
Location: Material Organisation in Ghattopar, Mumbai.

Need of Study

The importance of this study originates from the crucial role IT systems play in modernising naval operations and logistical management. Given the rapid pace of technology improvements, it is critical to assess the performance of the current IT infrastructure, particularly the ILMS, to ensure that it meets the Indian Navy's increasing needs. This study aims to identify areas for improvement and ensure that workers are effectively taught and supported by the existing IT systems.

Research Objectives

1. Conduct a comprehensive assessment of the Indian Navy's IT and information security environment.
2. Analyse personalised policies and evaluate staff experiences and IT views.
3. Identify opportunities for improvement in IT asset performance and effectiveness.
4. Evaluate the effectiveness of IT training programmes.
5. Determine the impact of ILMS deployment on workplace productivity and transparency.
6. Identify and suggest solutions to the issues involved with employing IT systems.

DATA ANALYSIS

1. IT Asset Quality : - A general satisfaction with the calibre and operation of IT assets is shown by the largely good ratings. It is evident from the high percentage of excellent to very good evaluations that the assets are meeting customer expectations. A little portion of people judging them as below average suggests some unhappiness

2. The Adequacy of Specifications Most people think the requirements are adequate, which suggests that the IT resources are enough for everyday operations. Still, the 25% who are unhappy indicates that a sizable minority is experiencing problems, underscoring the necessity of review and future modifications.

3. Daily Online Activity : - High scores indicate a significant dependence on online activities, which emphasises the need of having sufficient IT infrastructure to support these activities.

4. Awareness of Pre-ILMS Logistics procedures: - Pre-ILMS procedures are not all that well known, however many people do know something theoretically or practically. This displays a combination of experiences that could be used for comparative study and more system enhancements.

5. ILMS Experience : - Most ILMS users have extensive implementation and familiarity, which is helpful for consistent system use. The thirty percent of the population without experience indicates a group that can benefit from specialised training.

6. Training Adequacy : - Although a large portion feels that they have received adequate training, the significant proportions that feel that training time or technique need to be improved point to areas where training programmes need to be enhanced to ensure that all users are competent.

7. User-Friendliness of ILMS Interface: - There is general satisfaction shown by the majority rating the interface as satisfactory or very user-friendly; yet, the minority rating it as hostile implies that improvements to the interface could improve user experience overall.
8. Transparency via ILMS : - High degrees of agreement on ILMS improving transparency demonstrate that it successfully provides precise status updates, which results in operational clarity. Even if the small rate of disagreement indicates minimal dissatisfaction, there is still need to guarantee uniform satisfaction.

These results and interpretations offer important new information about the current status of IT systems and assets in the Indian Navy, pointing up areas for development and strengths to increase user happiness and general efficiency.

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