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Article

Knowledge Management and Digital Transformation in Decision-Making of the Navy

Gestión del Conocimiento y Transformación Digital en la Toma de Decisiones de la Armada

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Abstract: This study examined the importance of implementing a knowledge management and digital transformation program in the National Navy, focusing on observing historical traceability and optimization for the decision-making process. The main objective was based on the analysis of digital platforms that contribute to knowledge management within the institution. Using a descriptive methodological approach, document analysis, interviews, and surveys were combined to collect data, which allowed an evaluation of current tools and processes. The results indicated that, although digital transformation has begun in the Navy, and the support of platforms improves efficiency and decision-making, significant challenges related to system and process integration persist, as well as resistance to change by the staff. In conclusion, the research confirmed the crucial importance of advancing digitalization and establishing ERP (Enterprise Resource Planning) solutions that strengthen military decision-making, highlighting the need to continue initiatives that improve staff training in this area.

Keywords: Knowledge Management; Historical Traceability; Digital Transformation; ERP Solutions; Decision-Making.

Resumen: Este estudio examinó la importancia en la implementación de un programa de gestión del conocimiento y transformación digital en la Armada Nacional, enfocado en observar la trazabilidad histórica y la optimización para la toma de decisiones. El objetivo principal se basó en el análisis de plataformas digitales que coadyuvan a la gestión del conocimiento dentro de la institución. Utilizando un enfoque metodológico descriptivo, se combinaron análisis documental, entrevistas y encuestas para recopilar datos, lo cual permitió una evaluación de las herramientas y procesos actuales. Los resultados indicaron que, aunque la transformación digital ha comenzado en la Armada, y el apoyo de plataformas mejoran la eficiencia y la toma de decisiones, persisten desafíos significativos relacionados con la integración de sistemas y procesos, así como una resistencia al cambio por parte del personal. En conclusión, la investigación confirmó la importancia crucial de avanzar en la digitalización y en el establecimiento de soluciones ERP (Enterprise Resource Planning, por sus siglas en inglés) que fortalezcan la toma de decisiones militares, destacando la necesidad de continuar con las iniciativas de que mejoren la capacitación del personal en este ámbito.

Palabras clave: Gestión del Conocimiento; Trazabilidad Histórica; Transformación Digital; Soluciones ERP; Toma de Decisiones.

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1. Introduction

In the era of digital transformation, the effectiveness of decision-making within military organizations has become a crucial factor in maintaining and improving operational and strategic capability. In a world full of innovations and constant changes, the connections between people have intensified more than ever in history, due to the benefits brought by digital interconnectivity. Thus, for success, digital transformation requires a commitment to digital leadership based on rigor, transparency, agility, and the responsibility of all actors impacting organizations (Leal Rodríguez et al. 2023). It is at this point that developing leadership and teamwork collaboration skills becomes highly important, contributing to the progress of organizational areas by using dynamic scenarios of new methodologies.

Dalkir (2005) defines the concept of "Knowledge Management" as the process in which a systematic approach is applied to the capture, structure, management, and dissemination of knowledge throughout an organization to work faster, reuse best practices, and reduce costly repeated tasks from one project to another. Many documents tend to be stored, then sophisticated search engines are used to attempt to retrieve some of this content, and costly and large-scale knowledge management systems are built.

Regarding the theoretical foundations, DeLone and McLean (1992) information systems success model states that the success of a system depends on the interrelationship between system quality, information quality, its use, user satisfaction, and both individual and organizational impact. This model was updated in 2002, incorporating service quality as an additional dimension of success and transforming the notions of net individual and organizational benefits. Furthermore, Davis (1989) Technology Acceptance Model (TAM) highlights how external variables, perceived usefulness, and perceived ease of use influence attitude and intention to use technological systems (Varela and Antonio 2004). In decision-making, the Decision Support Systems (DSS) model provides tools for data analysis, enabling more informed decisions in dynamic organizational environments (Rodriguez 2023). Finally, the concept of Big Data and the Data-Driven Decision Making (DDDM) methodology emphasize the importance of analyzing large volumes of data to make accurate decisions aligned with institutional objectives, which is crucial for the digital evolution in the National Navy (Hernández Leal et al. 2017).

In this sense, this study focuses on the Armada Nacional de Colombia, where knowledge management and process digitization still face significant challenges in handling historical and operational information. It is common to have large amounts of stored information, which are piled up in an unstructured folder repository that, unfortunately, adds little or nothing to an appropriate structural order. Knowledge management for such a document repository becomes limiting, a situation common in organizations, and is commonly referred to as Unstructured Data Management. Despite previous digitization efforts, the effective integration of technologies and knowledge management has not been fully optimized, thus limiting leaders' ability to make quick and data-driven decisions.

This research, therefore, addresses the research question: How can the implementation of digital platforms improve knowledge management and historical traceability to strengthen the decision-making process in the Armada Nacional de Colombia? It demonstrates how digital technology can be the key to optimizing knowledge management, using historical traceability to make more informed and effective decisions, utilizing descriptive and analytical analysis, shedding light on gaps in current processes, and the need for innovative digital solution proposals to overcome the identified obstacles. Thus, it is not just about improving decision-making, but contributing to digital transformation and knowledge management within the National Navy.

This document is divided into several sections that address different aspects of knowledge management and digital transformation within the Armada Nacional de Colombia. First, the section 1 provides the context and main objectives of the study, highlighting

the relevance of these areas in the decision-making process. Next, the section 2 outlines how this research contributes to the advancement of digital platforms and their impact on knowledge management. The section 3 describes the approach used for data collection, including document analysis and interviews with relevant personnel. In the section 4, the findings regarding existing digital solutions and their application in similar contexts are presented. The Case Studies section delves into the implementation of digital solutions within the National Navy, evaluating their impact on strategic decision-making. In the Recommendations, lines of action are proposed to enhance the integration of digital solutions within the institution. The Discussion section 5 analyzes the results, comparing them with existing theories and highlighting the implications of digitalization. Finally, the Conclusions section 6 summarizes the key findings and suggests areas for future research.

2. Contributions

As mentioned above, among the issues addressed by this research, the proposed solution aims to improve the use and optimization of aspects that directly affect the quality of services in Wi-Fi networks, however, this solution is not limited to this alone, more precisely, it is to be understood that by using the analysis of previous research on the subject, the strategy is adapted, taking aspects used in previous projects and adding touches that give a reinforcement to the methods already implemented, thus bringing an innovative solution that improves the quality of services, however, this solution is not limited to this alone. More precisely, we want to understand that, using the analysis of previous research on the subject, the strategy is adapted, taking aspects used in previous projects and adding touches that give reinforcement to the methods already implemented, thus bringing an innovative solution that contributes to the implementation of new solutions in the field. Here are some of the best aspects that have been salvaged:

1. This research proposes a solution based on SDN to optimize both QoS and load balancing in Wi-Fi networks an increasingly critical challenge due to the exponential growth in data traffic and the number of connected devices. The integration of emerging technologies such as the Internet of Things (IoT) and 5G has further exposed the limitations of traditional network architectures, which often lack the adaptability required to meet these evolving demands. In contrast, SDN offers efficiency, versatility, and ease of deployment, making it an increasingly dominant alternative to conventional network models.
2. A key differentiator of this work lies in its algorithmic approach. Unlike previous studies limited to traditional traffic control methods, this research incorporates Machine Learning (ML) models capable of predicting congestion, classifying traffic types, and dynamically optimizing traffic distribution. This marks a substantial advancement in the intelligent management of network resources.
3. Furthermore, the implementation leverages the Ryu controller, chosen for its programmability and flexibility, which make it particularly suitable for environments such as smart homes, corporate systems, and educational institutions. Ryu's simplicity and effectiveness surpass the complexity of other controllers like OpenDaylight, facilitating the integration of advanced optimization algorithms while ensuring scalability and adaptability.
4. Overall, this research contributes to the state of the art by addressing critical limitations observed in prior work. It integrates artificial intelligence to enhance network performance and introduces a hybrid methodology that reinforces and extends existing strategies opening pathways for more robust, innovative, and scalable solutions in the field of wireless network optimization.

3. Methodology

This study was conducted as a descriptive type of research, which according to Alban et al. (2020) aims to describe some fundamental characteristics of homogeneous sets of phenomena, using systematic criteria that allow establishing the structure or behavior of the

phenomena under study, providing systematic information that is comparable to that from other sources. The objective was to describe the perception of the current situation occurring in the National Navy, the impact that a digital transformation would generate, and the application of knowledge management in historical traceability and decision-making based on data analysis.

The method employed was deductive (Aspasia 2024), with a mixed approach that combined documentary analysis of academic literature and a bibliographic review of specialized sources. This approach allowed for the analysis of the impacts of digital transformation and knowledge management on the historical traceability of the National Navy's processes and on data-driven decision-making.

In addition, questionnaires were used to obtain qualitative information on the perceptions of personnel involved in processes related to decision-making, as well as digital transformation and knowledge management. The study population consisted of National Navy personnel, selected through non-probability sampling. Participants were chosen based on their direct experience with knowledge management and digital transformation processes within the institution. Informed consent was obtained from all participants, ensuring compliance with ethical standards for human research.

The research was structured in three main phases:

1. Initial data collection through documentary analysis to understand existing systems and knowledge management policies.
2. Surveys and interviews to collect qualitative and quantitative perceptions from technology users and processes.
3. Analysis of the collected data to identify patterns, issues, and areas for improvement. Data were collected using semi-structured questionnaires and surveys designed specifically for this study. Qualitative responses were analyzed using thematic content analysis, while quantitative data were processed using statistical software for descriptive and inferential analysis (Figure 1).

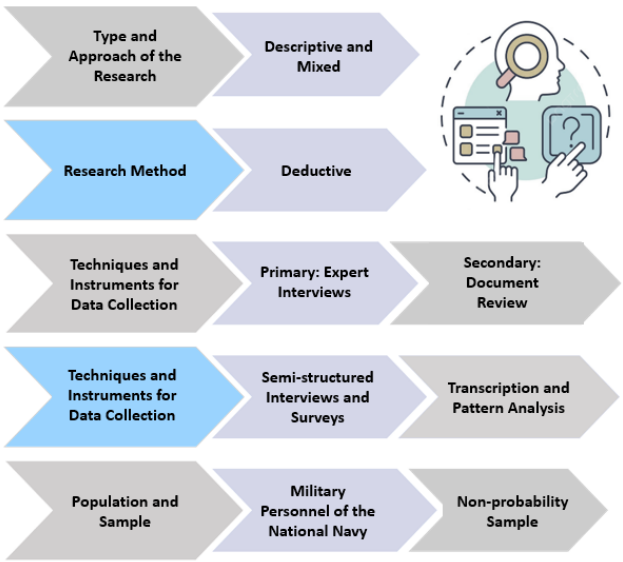

Figure 1. Methodological framework diagram of the research.

4. Results

Presenting existing digital solutions in similar contexts, as well as the analysis of case studies where the mentioned tools or others have been focused, with the purpose of impacting decision-making based on data analysis, the following is outlined as input for the present study, which was researched according to secondary sources consisting of academic documents, articles, books, and others that addressed the topic of digital transformation and knowledge management.

4.1. Existing digital solutions in similar contexts, focused on information management platforms, to determine their applicability and benefits in the National Navy

ADA Initiative (AI and Data Acceleration Initiative) of the U.S. Department of Defense

The ADA initiative, implemented by the U.S. Department of Defense since 2021, aims to optimize operational decision-making through process digitization and the use of artificial intelligence (AI). This program allows efficient access to real-time data, facilitating smart decisions on the ground. Through operational teams composed of data analysis experts, AI-based tools have been developed to improve the planning and execution of military operations, streamlining tasks that were previously manual. Furthermore, ADA has created a joint operating system that allows command centers to integrate and quickly deploy AI algorithms to optimize logistics, troop management, and tactical decision-making. The success of the initiative has been widely recognized, as highlighted by Deputy Secretary of Defense Kathleen Hicks, who praised the progress made one year after its implementation (Gill 2022).

Digital Transformation Implementation by the Australian Defence Force (By Ernst & Young Global Limited)

According to Johnson and Fox (2020), the Australian Defence Force is undergoing a digital transformation of all its military support operations. This change aims to improve the functioning of its armed forces by optimizing their mission of safeguarding Australia's national interests. The initiative is based on the results of the "first principles" review conducted by the Australian Government, which has highlighted that the systems, organizational model, and existing processes of its Forces exhibit complexities, delays, and inefficiencies. As previously mentioned in the introduction, and in the context of the National Navy, these characteristics are counterproductive when evaluating operational speed and flexibility.

As a result, the Australian Defence Force adopted the "One Defence" philosophy as its cornerstone. At the heart of this transformation is the upgrade to a next-level Enterprise Resource Planning (ERP) solution, which replaces hundreds of disparate software applications along with thousands of related support processes. The vision seeks to involve and empower its personnel to be constantly able to change, adapting to technological challenges and software updates. To achieve this, the SAP ERP platform was implemented as its Enterprise Resource Planning (ERP). Specifically, SAP S/4HANA Defence and Security (D&S) is used as its digital solution (Figure 2).

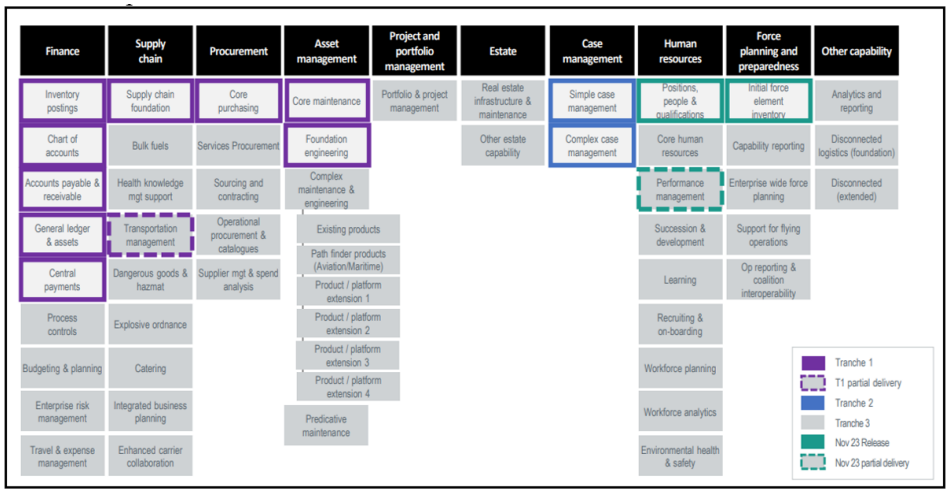

Figure 2. SAP S/4HANA Capability Roadmap.
Note: The figure shows the different modules included in the SAP ERP platform. Adapted from ERP Capability Roadmap, by Defence (2023)

Technical Unification of ERP Solutions – Case Study of GEMSO Company

The company GEMSO (a multifaceted Mexican organization), despite not being involved in the defense context and being distant from decision-making processes, becomes a significant reference for this work, considering that its objective aligns with the analysis topic addressed in this research. According to Centers (2023), GEMSO faced the challenge of unifying the various ERP solutions it managed in its systems. Due to its multifaceted nature, the company dealt with different processes across platforms dedicated to logistics, management, technical matters, support, among others. Supported by technical consultancy, they conducted a review aimed at evaluating the ease of business decision-making, based on filtered and timely information. Additionally, the review of the organizational structure and the homogenization of the ERP sought to optimize their processes (Table 1).

	**US Department of Defense**	Iniciativa ADA - AI and Data Acceleration Initiative, with technical expert teams in data analysis and AI tools that accelerate decision-making.
	**Australian Defence Force**	Implementation of an ERP to replace various disparate software applications, along with thousands of related support processes.
	**GEMSO Company**	Unify various ERP solutions to manage different processes that are carried out through different platforms for logistics, management, technical, support, among others.

Table 1. Digital solutions application cases for knowledge management in an international context.

4.2. *Case Studies of Digital Solution Implementation and Their Impact on Strategic Decision-Making through Data Analysis in the Armada Nacional de Colombia.*

SAP-SILOG Modules – Case Study of the National Navy

The National Navy has made significant efforts in managing some of the modules offered by the SAP-SILOG platform, with the maintenance process being particularly pioneering and essential. According to the Nacional (2023), the complete and correct registration of information that must be entered into the platform by operators and maintainers is critical when updating counters and reporting breakdowns. Additionally, it allows for

evaluating financial and operational performance in accordance with operation times and costs, generating reports on equipment reliability and maintainability. These inputs are crucial for more informed decision-making, aligned with the fulfillment of institutional objectives (Figure 3).

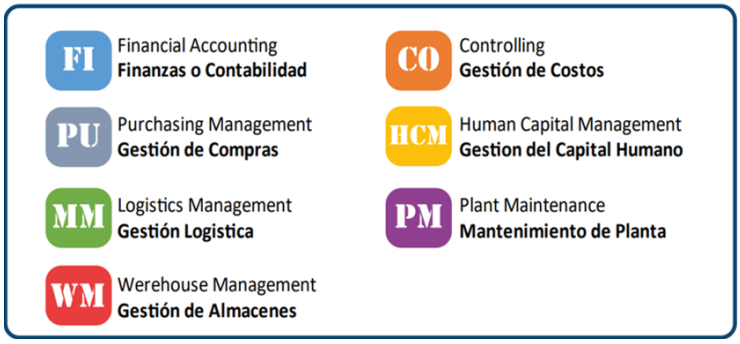

Figure 3. SAP-SILOG ARC Modules.
Note: The figure shows the SAP-SILOG modules enabled for the National Navy. Adapted from SAP-SILOG ARC Modules, by the Nacional (2023)

According to Chaparro (2024), SAP-SILOG acts as a process integrator in the National Navy, prioritizing the maintenance module, followed by the financial, logistics, and warehouse modules, respectively. The implementation began with the maintenance module and gradually expanded to integrate costs and manage various processes. The financial module, for example, was designed to manage assets and calculate depreciation linked to maintenance.

The warehouse and logistics modules, implemented to control incoming and outgoing assets, faced challenges with the recording of downloads, often resulting in discrepancies in expense records. The introduction of a unique NATO (North Atlantic Treaty Organization) code in warehouse management improved asset tracking, although the process has not yet reached perfection due to the lack of virtual warehouses in all Navy units. The Human Capital Management (HCM) module still presents significant challenges, mainly being used for maintenance tasks rather than broader institutional functions. More effective management of this module could facilitate automation and improve personnel management, which currently relies on outdated tools.

Knowledge Management Program Implementation – Pilot Model Case Study at the Academic Dean's Office of the Escuela Naval de Cadetess "Almirante Padilla"

In 2021, the institution launched a pilot knowledge management program at the Academic Dean's Office, following the guidelines of the National Navy. According to Motta (2024), the project, designed to foster technological independence and support naval development, is implemented in three phases. Despite delays due to administrative complications, the project is still in its second phase. The project uses Microsoft 365 to facilitate digital content creation, communication, and collaboration, leveraging tools such as Microsoft Planner and Microsoft To Do to organize activities and schedules, which are then synced with Teams, Outlook, Calendar, and more. This setup helps establish deadlines, track progress on different tasks in group projects or individual activities for each user. Additionally, all this information regarding activities, projects, and others is stored in the cloud, ensuring traceability and documentation of all activities, preserving knowledge within the institution despite personnel rotations. Although the program has shown potential to transform knowledge management, it faces resistance to change from

some employees, who prefer traditional working methods. This resistance has been a significant obstacle to fully realizing the benefits anticipated by the project (Figure 4).

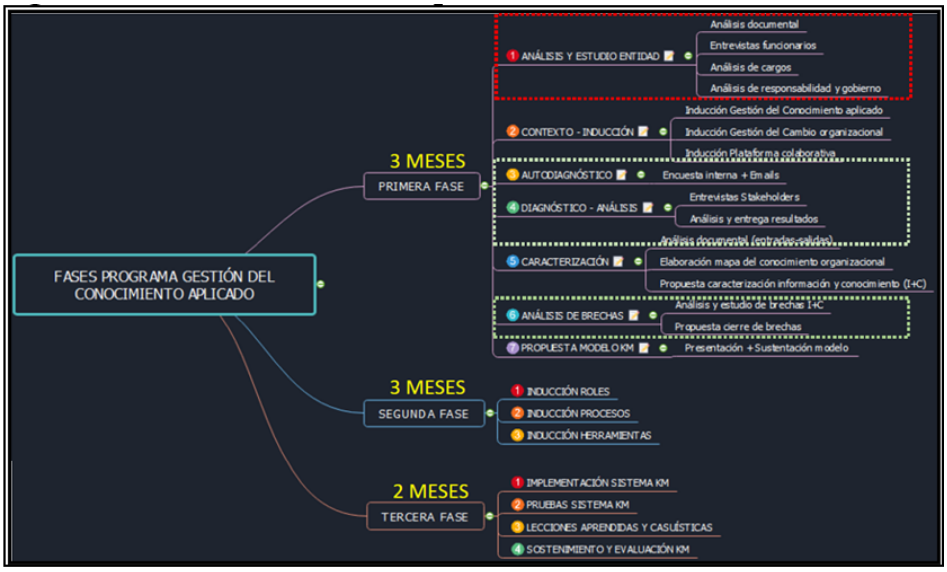

Figure 4. Phases of the ENAP applied knowledge management program.
Note: The figure shows the phases of the knowledge management program being implemented at the Escuela Naval de Cadetes "Almirante Padilla". Adapted from "Applied Knowledge Management Model," Ortíz (2024), Mentoring & Empresas.

Notion Platform Implementation – Case Study of the Multipurpose Hydrographic Vessel ARC "Roncador" from the General Maritime Directorate.

According to Aguirre (2020), "Notion is a collaboration platform, also described as a virtual workspace for teams. This software aims to bring clarity to all processes and strengthen project management." This platform offers great flexibility and ease of use, providing a wide range of functions that allow it to adapt to the various activities, projects, and operations required by entities or companies for their functioning.

The Notion platform has been adopted by the ARC "Roncador" to improve project management and internal collaboration. Since mid-2022, the platform has been initially used in the Operations Department, and since January 2023, it has been expanded to the entire unit, covering various departments such as operations, deck, engineering, and logistics.

Notion offers great flexibility and a wide range of functions, which allows effective adaptation to the specific needs of the vessel. The implementation process began with the registration of all operational and administrative activities. The initial data collected included details about the staff of each department and the equipment used on board, enabling more efficient and transparent resource management. The ship's systems and equipment are organized by department, facilitating the assignment and monitoring of responsible personnel and their technical characteristics.

In addition, inventory management has been improved, allowing precise tracking of items in both the ship's fiscal and internal inventories. This has improved the clarity of available material on board and facilitated the completion of monthly audits. The platform has also been essential for recording and managing operations, detailing aspects such as the operation number, start and end dates, nautical miles traveled, and fuel used. This information is crucial for analysis and operational decision-making.

Notion has enabled the integration and efficient management of a variety of activities, from equipment and systems maintenance to document management, including the preparation of reports and personnel management. The platform facilitates the creation of agendas and the management of life files, physical tests, and vacations, significantly contributing to the optimization of the vessel's administrative and operational processes.

Despite the observed benefits, implementation has faced challenges, mainly resistance to change from some staff members, who prefer more traditional working methods. This aspect has limited Notion's ability to demonstrate its full potential in improving the vessel's operational outcomes. However, the gradual adoption of the platform has begun to show improvements in efficiency and decision-making, highlighting the importance of continuing training and support for staff to overcome these barriers (Figure 5).

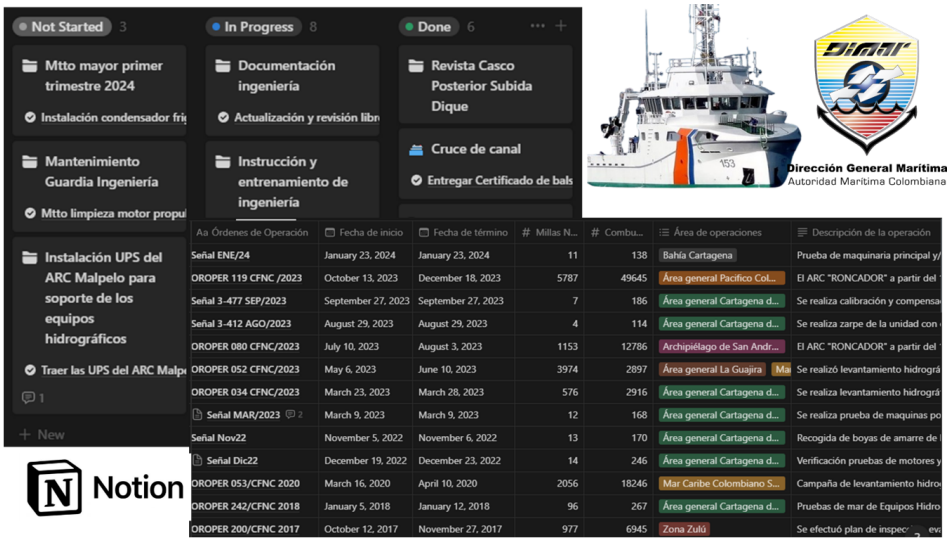

Figure 5. Viewing activities on the Notion ARC Roncador platform.
Note: The figure shows the visualization of the unit's operations on the collaborative platform. Adapted from Quintero (2024).

4.3. Recommendations for the Implementation of Digital Solutions in the National Navy, Including Digital Transformation and Knowledge Management Approaches.

Based on the analysis of the results and the research conducted, the following recommendations are presented for the implementation of digital solutions in the National Navy, with a focus on digital transformation and knowledge management for the institution:

1. According to Digital (2019), each employee spends an average of 67 minutes a day searching for documents. Additionally, the storage of documents alone occupies nearly 15% of the physical space in an office. With the support of technology, savings in time, costs, and efficiency are a guarantee that cannot be ignored today. In light of this, the digital transformation should be a priority for the National Navy when implementing knowledge management, and the correct use and maximization of various digital solution systems is essential.
2. In order to apply the correct use of knowledge management in the National Navy, it is essential to strengthen processes to comply with Directive No. 20200042661553393/MDN-COGFM-COARC-SECAR-JINEN-OPLANED-DICPLAE-40.9, through which orders are given for the implementation of Knowledge Management and Innovation in the ARC. This directive establishes the guidelines for the implementation, articulation, planning, development, monitoring, and evaluation of the sixth dimension of the Integrated Planning and Management Model – MIPG, Knowledge Management and

Innovation, with the purpose of ensuring technological independence that contributes to the development of naval power, obtaining operational advantages, and contributing to the progress of the country.
3. Based on the presented case studies, where difficulties were encountered in managing various ERP solutions designed to manage variable and multifaceted processes, it is recommended that the solutions mentioned each time be integrated and/or the standardization of a macro ERP or another type of platform that facilitates knowledge management be considered.

Additionally, it is important to point out that this can also be achieved with information systems that integrate application programming interfaces (APIs), which develop and integrate institutional software and facilitate expedited information for decision-making based on data analysis. Currently, some of these systems use different platforms that are not integrated, which hinders and lacks agility in this process.

1. A commander, when making decisions, generally relies on their experience, knowledge, and their staff; however, when considering case studies such as the ADA initiative, where the integration of management platforms with AI on-site has facilitated the success of military operations, it is important to take into account how doctrinally the review of commanders' decision-making can be evaluated.
2. The digital transformation process within the institution should bring organizational changes that could assign specific functions to the potential officer in charge of analyzing and providing information. Alternatively, adopting the approach applied by the U.S. Department of Defense, the role could be carried out by an AI that can be easily consulted.

5. Discussion

The results obtained in this study on the analysis of the impact of knowledge management and digital transformation on historical traceability and decision-making in the National Navy provide valuable insight into how effective knowledge management through digital platforms, coupled with proper institutional handling, can significantly contribute to a deep understanding of the various variables that the commander must observe when making a well-considered decision in favor of institutional interests. It also highlights the current challenges, opening opportunities for improvement or institutional reengineering policies regarding the use of ERP solutions managed by the National Navy.

The results of this study are consistent with the fundamental principles that support the research. The implementation of digital platforms in the National Navy would represent a significant improvement in military decision-making; to achieve this, it is crucial to support it with knowledge management and historical traceability. This effectiveness aligns with the Success Model presented by DeLone and McLean (1992, 2002), which emphasizes the quality of systems and information as fundamental elements for success.

Furthermore, the study reveals that digital technologies have provided significant solutions to challenges associated with the storage, retrieval, and analysis of data. These findings align with Davis (1989) Technology Acceptance Model (TAM), which predicts the acceptance and use of technology based on users' perceptions of usefulness and ease of use.

Regarding the Decision Support Systems (DSS) and Big Data platforms mentioned in this study, it can be observed in the case analysis results that they facilitate a rigorous and efficient observation of large blocks of data, which is essential in an environment that requires speed and precision in decision-making. This result reflects theoretical discussions

on how digital platforms can transform organizational processes and improve decision-making.

Regarding the case study of the ADA initiative from the U.S. Department of Defense, it can be understood how the implementation of artificial intelligence tools and data analysis platforms can significantly expedite real-time decision-making. While the National Navy could benefit significantly from the implementation of automated and efficient access based on the analysis of critical data, it is essential to recognize and adhere to the current regulations governing the use of such data in military contexts. The automation proposal should be carefully designed to ensure that the use of critical data in operational situations is handled with the utmost integrity and responsibility, respecting legal restrictions and ethical principles of information. Therefore, any initiative of this type must include robust data protection mechanisms, continuous auditing, and transparency to ensure regulatory compliance and build trust among the involved stakeholders.

Implementing these measures would not only strengthen operational effectiveness but also support ethical consistency in knowledge management and strategic decision-making in the Navy. The success of the ADA program highlights the importance of digitizing various processes by utilizing artificial intelligence, which is set to become a transformative tool in the global landscape in the coming years.

Considering the case of the Australian Defence Force's digital transformation, the adoption of an Enterprise Resource Planning (ERP) digital solution is an example of how centralizing processes and integrating systems can lead to more efficient operations and better decision-making. This is similar to the case presented by GEMSO, a company that integrated disparate platforms, aiming for better information management and facilitating decision-making based on accurate and updated data. Similarly, the National Navy could benefit from the implementation of ERP systems that integrate various functions and data into a single platform. It could also opt to use application programming interface (API) information systems, integrating the institutional software it currently uses.

Regarding the SAP-SILOG modules in the National Navy, it can be observed that these modules have been used to improve maintenance management, applying various tools for this purpose, which is crucial for the operational functioning and strategic planning of the National Navy's assets. Proper implementation and use of these modules have facilitated traceability and real-time access to information. However, it is also true that failures have been detected in the management of other modules, indicating that their focus has mainly been on maintenance, and not on the function leading its own process. The lack of exploitation in the use of HCM (Human Capital Management), improper warehouse management, and the lack of integrated module use to automate tasks reflects a missed opportunity for the National Navy with SAP-SILOG.

Considering the case study of the Escuela Naval de Cadetes "Almirante Padilla" with the implementation of the knowledge management program through the Microsoft 365 platform, it was detailed that although this project was based on the current needs of the ENAP, there is still resistance to change from many users. For several people who have been working the same way for many years, adapting to the change is challenging, as seen in other contexts. Therefore, a process of awareness and incentives is needed to help the institution's human resources understand the benefits this digital transformation and knowledge management can bring and encourage them to contribute to its successful development.

Analyzing the case study with the use of the Notion platform, it was observed how the integration of the platform with different APIs and even the use of artificial intelligence allow the intertwining of various operational and administrative processes, ensuring that all recorded activities link personnel, equipment, projects, operations, and any other aspect

that needs to be considered. As the platform is designed for collaborative spaces, it provides different tools to achieve this. With this synchronization provided by the system, knowledge management and, of course, historical traceability can be generated, considering that all data is stored in the cloud and easily accessible to authorized individuals through current technologies, thus facilitating the decision-making process based on data analysis.

For example, in the case of the Personnel General Staff of the ARC, which is responsible for the process of selecting transfers for members of the National Navy, the implementation of a unified tool that streamlines the transfer selection process would facilitate the analysis of operational data in which an individual has participated, certifications obtained in different units or positions, number of activities, and types of activities they have performed, among many other data that can be constantly updated in an agile and effective manner.

In the case of equipment or systems, there could be direct and quick access not only to technical specifications and manuals but also to the history of the equipment, including the various maintenance activities performed, organized and categorized by type, with the values of resources invested, times, and many other data points that would allow for analysis to aid in decision-making. Furthermore, considering technological advancements, artificial intelligence itself could make suggestions based on the manuals and what is registered in the equipment histories.

Finally, in the case of operational decisions, managing these types of platforms ensures historical traceability, with digital data readily available, easy to search or link, which for example, would provide a Naval Force Commander or Operations Chief with the necessary inputs to make decisions regarding the development of an operation. This would be based on the analysis of all the information loaded, such as fuel consumption, operational results, areas of operation development, where historical analyses could be conducted for planning future operations, such as those developed against drug trafficking, among others.

Despite the positive findings and the information obtained, it is important to recognize the limitations of this study. First, the sample was limited to some officers with experience in digital transformation and knowledge management based on certain implemented platforms, as well as senior and junior officers who participate in decision-making and have interacted with some of the platforms used both internally and externally in other contexts, which may limit the generalization of the results to other populations.

6. Conclusions

The results obtained in this study have revealed how the incorporation of digital technologies and systematic knowledge management can significantly improve operational and administrative processes for decision-making based on data analysis. The study also highlights both the opportunities and challenges that arise from the interaction between technology and organizational practices, emphasizing the fundamental role of digital solutions in optimizing strategic and operational decision-making.

The research results show that the implementation of digital platforms optimizes historical traceability and the decision-making process based on data analysis. This digital transformation not only improves operational efficiency but also facilitates more effective knowledge management, allowing for quick and organized access to relevant data for strategic, operational, and tactical decisions.

The findings corroborate theories such as the DeLone and McLean Information Systems Success Model, highlighting the quality of systems and information as crucial elements for success in decision-making processes. They also reinforce the Technology Acceptance

Model (TAM), as the perceived usefulness and ease of use positively influence the adoption of new technologies in military contexts.

Despite the observed benefits, challenges were identified, such as the heterogeneity in the integration of platforms and the need for an organizational culture that supports technological adoption. These aspects point to important areas for future research and adjustments in the implementation of digital solutions.

This study contributes significantly to understanding how knowledge management and digital transformation can support efficiency and effectiveness in military decision-making based on data analysis, providing a framework for other military institutions interested in similar transformation. It is crucial to continue exploring the integration of different digital platforms to create a more cohesive system that effectively supports decision-making. Additionally, it is suggested to evaluate the effectiveness of interventions in different Navy units to ensure that the implemented solutions are scalable and tailored to the specific needs of each unit and process. Expanding the research on the process and training in the use of relevant digital platforms is also recommended, along with the development of initiatives that promote a shift in cultural and organizational awareness within the National Navy.

Active collaboration from naval leadership is essential for the practical implementation of the proposals outlined in this study, which will be crucial for their effective realization. It is important to recognize that the success of the application for optimization significantly depends on the willingness led by senior leadership, as the process requires guidelines that must be established from the top.

Author Contributions: The authors' contributions to this work are detailed in Table 2.

Table 2. Author contributions.

Contribution	Pino, J	Victoria, C	Quintero, J
Conceptualization/Methodology		X	
Software/Visualization			X
Validation/Formal analysis		X	
Investigation/Resources			X
Data curation		X	
Writing - original draft			X
Writing - review / Editing	X		
Supervision/Project administration	X		
Funding acquisition	X		

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Conflicts of Interest: Under the authorship of this research, it is declared that there is no conflict of interest with the present research.

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