Enhancing Competitiveness of Classification Bodies through OGS Digital Governance and Technological Development Challenges

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Abstract

This research assesses PT's OGS digital governance system, aiming to address its performance, technology development obstacles, and pursuit of IACS membership recognition. Objectives involve analyzing OGS performance, identifying development challenges, and proposing policy recommendations aligned with the "Road to IACS" policy. Insights from interviews highlight digital strategy alignment with organizational goals, decision-making processes, value delivery, risk and resource management, and performance measurement. PT. BKI (Persero) targets IACS membership by 2024, necessitating internal understanding, commitment, and capability enhancement, alongside external support. Internal support focuses on resource allocation, with 70% to resources and 30% to technology. Digitalization is vital for meeting targets and enhancing service delivery, with strategies spanning various operational aspects and full-circle integration efforts underway. OGS technology development faces challenges such as aligning with IACS standards, identifying assessment findings, and overcoming technical complexities. Strategic plans, resource evaluations, and continuous reviews are vital for overcoming obstacles. Policy recommendations include structured frameworks for assessments, comprehensive barrier assessments, and consistent review mechanisms. Collaboration, training programs, and risk management strategies are advised for effective digital governance and meeting IACS standards.

Keywords: Digital Governance, Technological Development, Competitiveness, IACS Membership Recognition

1 INTRODUCTION

1.1 Background of the Problem

Indonesia is an archipelagic state located in the tropical region and crossed by the equator. It is one of the largest maritime countries globally, spanning approximately 6.4 million square kilometers, with 3.4 million square kilometers as territorial waters and 3.0 million square kilometers as the Exclusive Economic Zone (EEZ). The country's maritime territory constitutes over 77% of its total area, with around 17,504 islands, making it the world's largest archipelagic state (NSOC, 2018). Indonesia has an extensive sea area, including its Exclusive Economic Zone (EEZ), which is approximately 5.8 million square kilometers, around three-quarters of its total area (Oegroseno, 2009).

Geographically situated between two continents and two major oceans, Indonesia holds a strategic position at the crossroads of global maritime traffic. Recognizing this strategic position, Indonesia aims to become a global maritime axis,

as outlined in Presidential Regulation Number 18 of 2020 concerning the National Medium-Term Development Plan for 2020-2024. The plan includes the vision and mission of the President and Vice President, emphasizing five key pillars: rebuilding Indonesia's maritime culture, committing to the sustainable management of marine resources, promoting maritime infrastructure and connectivity, maritime diplomacy, and building maritime defense capabilities.

The shipping industry in Indonesia plays a crucial role in the development of maritime infrastructure and connectivity, aligning with the third pillar (Alda As'ad & Nafilah, 2022). To ensure the safe operation of Indonesian-flagged vessels and compliance with classification certificates, a Classification Society is essential. This society sets standards, guidelines, and rules for the planning, construction, and periodic survey of commercial vessels and other marine structures. The Classification Society also contributes to safety, security, and quality assurance in the maritime industry, ensuring sustainable growth and safety (BKI, 2022b).

In the era of advanced globalization and digitalization, the shipping and classification industry, including Classification Societies, is undergoing profound transformations (Ichimura et al., 2022). Digital technology offers new opportunities for efficiency and effectiveness in ship inspection processes through the implementation of efficient and integrated digital systems (Iwańkowicz & Rutkowski, 2023). This advancement enhances the accuracy and speed of business processes, contributing to international recognition and trust in the Classification Society. Furthermore, digital tools provide better insights into vessel conditions and performance, aiding stakeholders, including governments and the maritime industry, in strategic decision-making (Ahi et al., 2022).

PT. Biro Klasifikasi Indonesia (Persero), established in 1964, is a state-owned enterprise engaged in survey services. Initially focusing on ship classification, it expanded its role to conduct statutory surveys on behalf of the Republic of Indonesia. Since 2006, PT. BKI (Persero) initiated its digital transformation, developing operational software to support technical survey processes (BKI, 2021; Mangifera & Mawardi, 2022; Morakanyane et al., 2017; Osmundsen et al., 2018)

In this research, we focus on PT. BKI's digital transformation journey, particularly the implementation of the Classification Operating System (COP), Finance Operating System (FINOP'S), Personnel Operating System (PERSOSYS), and ONE GATE SYSTEM (OGS). These systems aim to streamline operations, enhance efficiency, and align with the strategic goals of becoming a member of the International Association of Classification Societies (IACS) by 2024.

In 2021, the Indonesian government, particularly the Ministry of State-Owned Enterprises, initiated a restructuring process, forming the ID-Survey holding company (Borowiec, 2022; GGI, 2022; Matt et al., 2015). PT. BKI (Persero) was appointed as the Lead Company in ID-Survey. The restructuring aimed to create a World Class Integrated Assurance group, empowering the nation by building trust, with three main missions: providing comprehensive and reliable services, adding

value to stakeholders, and building a strong network and reputation in the Asia-Pacific region (BKI, 2022a).

They are aligned with the strategic directions of the Ministry of State-Owned Enterprises, PT. BKI (Persero) identified challenges for 2023, including debt resolution, IACS submission, business optimization, adherence to government programs, and digitalization of processes. A qualitative goal set for the period from 2020 to 2024 is achieving recognition as an IACS member by 2024.

To attain IACS membership, PT. BKI (Persero) initiated the "Road to IACS" policy, focusing on meeting the stringent standards and requirements of IACS. This involves enhancing the quality and credibility of PT. BKI (Persero) internationally. By optimizing digital systems, transparency and accountability in the certification process can be improved, positively impacting the reputation of PT. BKI (Persero) on a global scale.

1.2 Problem Statement

Despite PT. BKI's digital transformation efforts, there are identified weaknesses in the implementation of the One Gate System (OGS). Users within the organization have reported integration issues, performance concerns, and user interface difficulties. Addressing these challenges is crucial to achieving effective digital governance and optimal business processes.

1.3 Research Questions

The study aims to answer the following questions:

1. How is the performance of the digital governance system (OGS) at PT. BKI (Persero)?
2. What are the obstacles and challenges in the development of OGS technology?
3. In the pursuit of recognition as an IACS member, what policy recommendations or programs should PT BKI adopt to create effective digital governance?

1.4 Objectives of the Research

Based on the identified problems, the objectives of this research are:

1. Analyze the performance of the digital governance system (OGS) at PT. BKI (Persero).
2. Identify obstacles and challenges in the development of OGS technology.
3. Propose policy recommendations or programs for effective digital governance in line with the "Road to IACS" policy.

1.5 Significance of the Research

This research holds significance for various stakeholders, including PT. BKI (Persero), the Ministry of State-Owned Enterprises, the shipping industry, and the academic community. Findings from this study can guide PT. BKI (Persero) in addressing OGS issues and contributing to the broader discourse on digital governance in the maritime sector.

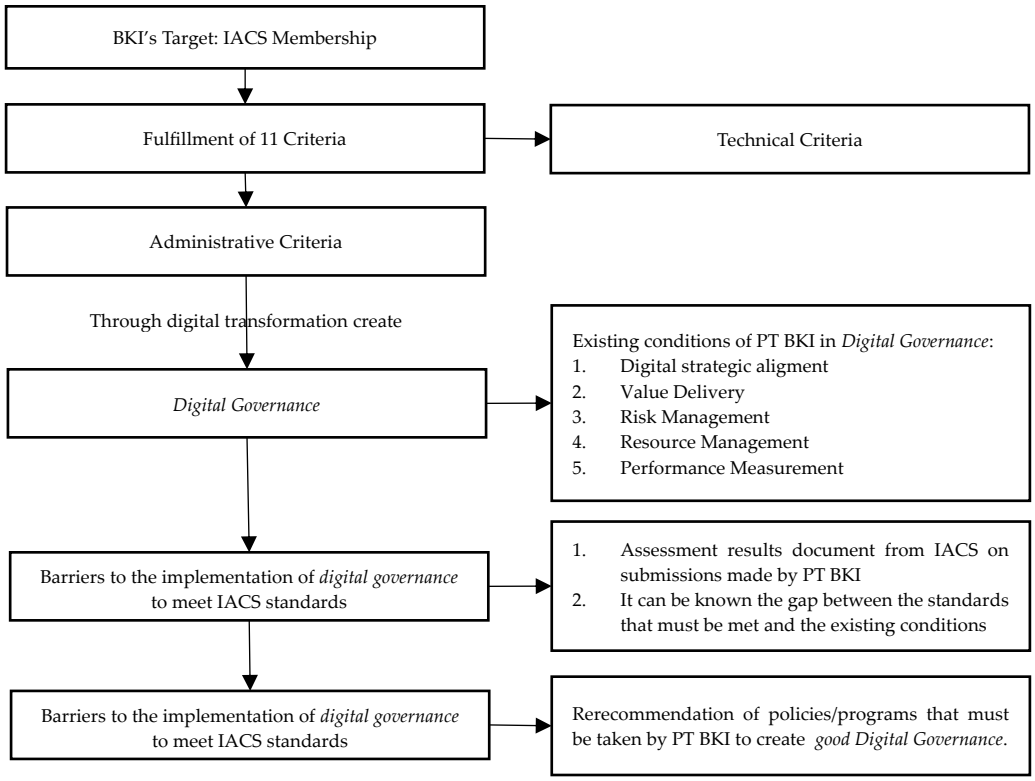


Figure 1 Conceptual Framework of Research

The conceptual framework articulated here delineates the strategic trajectory of PT BKI (Biro Klasifikasi Indonesia), underscoring its ambitious objective of attaining IACS (International Association of Classification Societies) membership. The pathway towards this goal involves the meticulous fulfillment of 11 criteria, which are systematically categorized into Technical and Administrative Criteria. To actualize this endeavor, PT BKI envisions leveraging digital transformation as the primary catalyst for establishing a robust framework of Digital Governance within the organization.

Within the realm of Digital Governance, PT BKI's existing conditions are appraised across five critical dimensions. Firstly, the evaluation encompasses Digital Strategic Alignment, scrutinizing the coherence of digital strategies with the overarching mission and objectives of PT BKI. Secondly, the focus extends to Value Delivery, examining the capacity of the digital transformation initiatives to yield tangible benefits for the organization, its stakeholders, and its clientele. Thirdly, Risk Management is evaluated, encompassing the identification, assessment, and mitigation of digital risks to fortify the security and resilience of PT BKI's digital infrastructure. Additionally, Resource Management gauges the efficiency with which digital resources, spanning technology, data, and human resources, are harnessed to support organizational objectives. Finally, Performance Measurement mechanisms are established to systematically gauge and appraise the efficacy of digital

transformation initiatives against predetermined goals and benchmarks (Al-Juburi, 2010).

However, the implementation of Digital Governance to meet IACS standards encounters certain impediments. These barriers are discerned through two key channels: firstly, the evaluation of Assessment Results documents from IACS, offering insights into the alignment of PT BKI's current practices with the stringent standards set forth by IACS. Secondly, the identification of Gaps between the prescribed standards and the existing conditions of PT BKI serves as a crucial diagnostic tool, elucidating areas that demand enhancement.

To surmount these barriers and pave the way for effective Digital Governance in alignment with IACS standards, PT BKI is advised to consider a set of meticulously crafted policies and programs. These recommendations are designed to bridge the identified gaps and foster a harmonious integration of PT BKI's digital practices with the exacting standards mandated by IACS. Through this comprehensive conceptual framework, PT BKI endeavors not only to secure IACS membership but also to fortify its organizational efficacy, positioning itself at the vanguard of the maritime classification industry.

2 RESEARCH METHODOLOGY

In this chapter, the researcher will elucidate the methodology employed in conducting this research, covering the research locus, paradigm, data collection techniques, data processing techniques, and data analysis techniques.

2.1 Research Locus

The research locus denotes the location where the study is conducted. For this research, the locus is PT. BKI (Persero), is a state-owned enterprise and a prominent Survey Service Company. PT. BKI was chosen due to its status as a state-owned entity, the sole classification body owned by Indonesia, and as the parent company of the State-Owned Survey Service holding. The effective digital governance in PT. BKI is crucial for enhancing competitiveness and directly impacting its position as the parent entity of the State-Owned Survey Service holding.

2.2 Research Paradigm

Research is defined as an effort to discover, develop, and test the truth of knowledge, undertaken through scientific methods (Patel, M., & Patel, 2019). This research adopts an interpretative paradigm, focusing on a profound understanding of the meaning, experiences, and interpretations of human phenomena. In qualitative research, the researcher aims to unearth and describe the complexity of the human world through rich and descriptive data analysis (Majeed, 2020).

2.3 Data Collection Techniques

1. The data collection techniques employed in this research are (Kabir, 2016):
2. In-depth Interviews: Conduct in-depth interviews with stakeholders at PT. BKI is involved in Digital Governance and policymaking. Interviews will not only include internal stakeholders but also customers, represented by the IPERINDO association

and the researcher's academic counterparts. These interviews are expected to provide deep insights into the steps taken, challenges faced, and recommendations proposed.

3. Document Analysis: Collecting and analyzing documents related to digital transformation, Digital Governance implementation, and PT. BKI's strategic plans concerning IACS membership. Documents include activity reports, work plans, policy documents, and evaluation results from IACS.
4. Participatory Observation: Directly observing the implementation process of Digital Governance at PT. BKI. By actively engaging, the researcher can observe in-depth how the steps are implemented, identify emerging challenges, and observe actions taken to address issues.

2.4 Data Analysis Techniques

The data analysis technique utilized in this research is qualitative data analysis based on the concepts proposed by Miles et al. (2014).

1. Data Collection Data collection involves activities to obtain the necessary data for the research. The data collection techniques include interviews with written and recording tools, observation with documentation through cameras, and library research to obtain necessary references and theories.
2. Data Condensation Data condensation is the process of selecting, focusing, simplifying, extracting the essence, and transforming data obtained from data collection. Relevant data for addressing research problems are derived from this data condensation process.
3. Data Display Data display is the process of depicting the data generated from the research. In data display, readers can understand the key points produced in the research. Data display can be presented in the form of tables, descriptions, or images.
4. Conclusion Drawing/Verification The final stage in this research is conclusion drawing or making conclusions based on key points. The analysis is conducted based on the following steps:
5. Digital Governance Performance (Ahmad et al., 2021; Algazo et al., 2021; Almeida et al., 2020; Díaz et al., 2023; Sivaraman, 2020):

a. Digital Strategic Alignment

1) Identify patterns of digital strategy alignment with company goals.
2) Categorize digital strategy decision-making processes.

b. Value Delivery

1) Identify the added value of the digital system through qualitative analysis.
2) Compare the added value with initial digital system goals.
3) Identify user feedback for improvement.

c. Risk Management

1) Identify the main risks through response analysis.
2) Evaluate data security measures and identify gaps.
3) Review the effectiveness of disaster recovery plans.

d. Resource Management

1) Evaluate resource allocation through analysis.

2) Review the effectiveness of human resource training.
3) Identify organizational change impacts on digital transformation.
e. Performance Measurement
1) Evaluate performance indicators through KPI analysis.
2) Track measurement results for improvement.
3) Identify the competitive impact of the digital system.
6. Constraints, Challenges, and Solutions
a. IACS Assessment Result Documents
1) Identify main findings and recommendations.
2) Compare findings with digital system conditions.
b. Gap Between Standards and Existing Conditions
1) Calculate the difference between IACS standards and PT. BKI conditions.
2) Identify factors causing the gap.
3) Review compliance plans to address the gap.
c. Constraints and Challenges in Meeting IACS Standards
1) Identify the main barriers through analysis.
2) Review technical and non-technical complexities.
3) Evaluate the difficulty of digital system integration.
d. Strategies to Overcome Barriers
1) Review strategic plans to overcome barriers.
2) Evaluate resource allocation.
3) Review the effectiveness of strategies in meeting standards.
e. Impact of Meeting IACS Standards
1) Review operational impacts.
2) Evaluate impacts on reputation.
3) Review communication of impacts to stakeholders.
7. Recommendations
a. PT. BKI's Efforts in Creating Digital Governance
1) Review the evolution of digital governance efforts.
2) Evaluate support for becoming an IACS member.
b. Policy/Program Recommendations
1) PT. BKI's Efforts in Creating Digital Governance
2) Evaluate policy recommendations and their impact.
3) Review the implementation of recommendations for meeting standards.
c. Impact of Digital Governance Implementation
1) Evaluate projections of positive impacts.
2) Identify monitoring performance indicators.

3 RESULTS AND DISCUSSION

3.1 Result

The section explores "Optimizing Digital Governance of OGS and Technological Development Challenges for Classification Bodies' Competitiveness: Study Towards IACS Membership Recognition." It utilizes a multifaceted approach to data collection

based on Kabir (2016). Primary techniques include in-depth interviews, document analysis, and participatory observation. These methods engage internal stakeholders, IPERINDO association customers and academic counterparts to reveal insights into PT. BKI's digital governance, challenges, and strategies. Document analysis supplements this, examining digital transformation documents, governance implementation, and IACS-related plans. Additionally, participatory observation allows firsthand insight into PT. BKI's digital governance implementation. This hands-on approach identifies challenges, observes execution steps, and notes proactive measures. The ensuing section discusses outcomes from these methods, revealing insights into optimizing digital governance and addressing technological challenges for classification bodies' competitiveness.

Table 1 Results of an interview with the Chairman of IPERINDO

Informant	Anita Puji Utami
Position	Chairman of the Association of Indonesian Ship Industry and Offshore Facilities Companies (IPERINDO) &; President Director of PT. Adiluhung Saranasegara Indonesia
Interview Focus	Gain an in-depth perspective on how digitalization and digital governance can improve competitiveness and efficiency in the shipping industry, as well as challenges and solutions in its implementation
Key Points	Benefits and impacts of BKI (Indonesian Classification Agency) being a member of IACS (International Association of Classification Societies) on the shipyard industry in Indonesia, including PT. Adiluhung Evaluate BKI performance from the perspective of BKI service users, including speed, effectiveness, and efficiency of services Experience and challenges in carrying out digital transformation at PT. Fairness, including a change in mindset from manual to digital work systems Discussion on how digitalization has become a necessity in the industry and how PT. Adiluhung strives to adapt and optimize the use of digital technology in its operations

Table 1 presents interview results with Anita Puji Utami, Chairman of IPERINDO and President Director of PT. Adiluhung Saranasegara Indonesia. The interview focused on digitalization's impact on industry competitiveness and efficiency, addressing challenges and proposing solutions. Topics included IACS membership benefits for BKI and Indonesian shipyards, BKI's service performance evaluation, and PT. Adiluhung's digital transformation challenges and strategies. Discussions emphasized shifting from manual to digital systems and adapting to industry digitalization trends.

Table 2 Results of an interview with the Academic

Informant	Santhi Wilastari, ST., MT
Position	Secretary of Study Program & Lecturer
Interview Focus	Gain a deeper understanding of the importance of digitalization and technology in improving the competitiveness of ship classification bodies, especially the Indonesian Classification Bureau (BKI)
Key Points	The role and function of ship classification bodies, especially BKI, in the maritime industry. The importance of BKI being a member of the International Association Classification Society (IACS) to improve its competitiveness in national and global markets. The positive impact of digital transformation in BKI, including increased efficiency and productivity, improved customer experience, increased competitiveness, reduced operational costs, increased transparency, improved collaboration, and increased security. How digitalization and technology can increase the competitiveness of companies from the economic side, including increasing revenue due to the convenience received by customers

Table 2 summarizes an interview with Santhi Wilastari, ST., MT, focusing on digitalization's role in enhancing ship classification bodies' competitiveness, notably BKI. Insights included the function of classification bodies, BKI's IACS membership

significance, and positive impacts of digital transformation. Benefits discussed ranged from increased efficiency and customer experience to cost reduction and heightened security. The interview highlighted digitalization's strategic advantages for ship classification bodies.

Table 3 Results of an interview with the Daily Executor Head of the Classification Operations Department

Informant	Hardika Raditya Ardyanto, ST, MSc
Position	Daily Executor Head of Classification Operations Department
Interview Focus	Achieving IACS membership by 2024, digital strategy alignment, and implementation
Key Points	1. Aim to achieve IACS membership by 2024. 2. Digital strategy alignment with company goals emphasized. 3. Decision-making involves task forces, PMO, and enhancing capabilities. 4. Qualitative analysis for added value, user-centric approach. 5. Risks identified; data security measures evaluated. 6. Resource allocation and human resource training reviewed. 7. Performance indicators tracked; competitive impact considered. 8. Strategies include PMO, task forces, and full-circle integration.
Main Findings	Positive impacts of digitalization in the maritime industry. BKI is in the process of achieving IACS standards and modernizing its operations through digitalization, but still faces challenges in strategy, system integration, and decision-making
Recommendations	Continued efforts toward digitalization are crucial for maritime industry competitiveness. A clear roadmap, communication, and incentives are recommended.

The insights from Table 3, extracted from an interview with Hardika Raditya Ardyanto, ST, MSc, Daily Executor Head of Classification Operations Department, provide valuable perspectives on strategies and challenges regarding IACS membership attainment by 2024 and aligning digital initiatives with company objectives. Emphasizing the goal of achieving IACS membership by 2024 and aligning digital strategy with overall company goals, the interview outlined decision-making processes involving task forces and a Project Management Office (PMO) to enhance operational capabilities. Key points highlighted include qualitative analysis incorporation, user-centric decision-making, data security measures, resource allocation review, and human resource training. Performance indicators are deemed crucial, with strategies focusing on PMO utilization, task forces, and full-circle integration. While acknowledging the positive impacts of digitalization in the maritime sector, challenges such as strategy formulation, system integration, and decision-making processes were identified. Recommendations stress ongoing digitalization efforts to sustain competitiveness, advocating for a clear roadmap, effective communication, and incentivization to overcome challenges and ensure successful alignment of digital strategies with organizational goals.

Table 4 Results of an interview with HR Planning & Development Manager

Informant	Ridwan Arifin, ST
Position	HR Planning & Development Manager
Interview Focus	Planning and development of human resources at BKI, digital governance, and alignment with IACS standards
Key Points	1. Importance of aligning digital strategy with company goals. 2. Assessment of added value, risk management, and resource allocation. 3. Constraints, challenges, and solutions in meeting IACS standards.

Informant	Ridwan Arifin, ST
	4. Efforts in creating digital governance since 2012. 5. Ongoing development of One Gate System (OGS) and HR Management System (HRMS). 6. Challenges include integration between operational and HR systems. 7. Lack of a clear digitalization blueprint identified.
Conclusion	Insights into challenges and recommendations for enhancing digital governance and meeting IACS standards at PT. BKI. Improved integration and user-friendly tools are highlighted.

Insights from Table 4, obtained through an interview with Ridwan Arifin, ST, HR Planning & Development Manager, offer a comprehensive view of human resource planning and development at PT. BKI, with a focus on digital governance and IACS standards alignment. Arifin stressed the importance of aligning digital strategy with company goals, highlighting its role in HR planning. The interview covered value assessment, risk management, and resource allocation, emphasizing the complexity of this strategic endeavor. Discussion centered on constraints, challenges, and solutions for meeting IACS standards, highlighting BKI's digital governance efforts since 2012. Initiatives like the One Gate System (OGS) and HR Management System (HRMS) showcased BKI's commitment to digital technology for efficiency. Challenges included system integration issues and a lack of a clear digitalization blueprint, indicating areas for improvement in planning. Recommendations include improving system integration and developing user-friendly tools to enhance digital initiatives' effectiveness. The interview findings offer insights for refining strategies and advancing BKI's digital governance efforts in line with industry standards.

Table 5 Results of an interview with Belawan Branch Manager

Informant	Adi Kurniawan, ST
Position	Belawan Branch Manager
Interview Focus	Planning and development of digital governance, and alignment with IACS standards
Key Points	The setting of BKI's target to become a member of IACS by the Ministry of SOEs is the need to face future challenges and requests from shipping company stakeholders. Integrated IT system support is critical to support business processes at BKI, including surveyor processes. Currently, BKI's IT system has drawbacks, such as a lack of integration between various platforms and databases. Digitalization is considered important to make business processes more effective and efficient. There are gaps in BKI, such as surveyor competence and IT systems that have not been integrated, which need to be improved to meet IACS requirements
Conclusion	Increasing surveyor competency and IT system integration are two key aspects that need to be improved to achieve the target of becoming an IACS member

Insights from Table 5, gleaned from an interview with Adi Kurniawan, ST, Belawan Branch Manager, reveal the planning and development of digital governance at BKI, with a focus on aligning with IACS standards. Kurniawan emphasized BKI's strategic response to future challenges by targeting IACS membership. Integrated IT system support's critical role in BKI's business processes, particularly surveyor operations, was highlighted. Current drawbacks in BKI's IT system, including lack of integration, were acknowledged, stressing the importance of addressing these limitations for enhanced effectiveness and efficiency. Gaps in surveyor competence and IT system integration were identified as areas needing improvement to meet IACS requirements. Key areas for improvement, as highlighted in the interview, include increasing surveyor competency and enhancing IT system integration, essential for

regulatory compliance and operational efficiency in the maritime industry's evolving landscape.

Table 6 Results of an interview with the Senior Manager Audit System QHSE

Informant	Syafiuddin, ST, MSc
Position	Senior Manager Audit System QHSE
Interview Focus	Planning and development of digital governance, and alignment with IACS standards
Key Points	Data Quality and Accuracy: There are issues with the quality and accuracy of existing data, including registered vessel data. Inaccurate or incomplete data can be an obstacle in the audit process and meet IACS membership requirements. For example, ship data registered with BKI does not always match data from the Ministry of Transportation or data from IHS Markit System Integration: The existing One Gate System (OGS) system is not yet fully integrated with other business processes in BKI, which causes difficulties in accessing and managing information efficiently. For example, data from AS400 and COPS systems is not fully integrated with OGS, so the data displayed in OGS may not be accurate or complete Digitalization: Digitization is considered an important step to improve data integration and quality issues. However, the current digitization process is still a "transition digitization", which means that the data in the digital system is still based on old data that may not be accurate or complete. In addition, the digitization process has not yet fully begun, although this is one of the requirements to become a member of IACS
Conclusion	BKI needs to accelerate the digitalization process and improve system integration and data quality to support its strategic goals, including efforts to become an IACS member

Findings from Table 6, based on an interview with Syafiuddin, ST, MSc, Senior Manager Audit System QHSE, offer vital insights into BKI's digital governance planning, particularly regarding IACS standards alignment. Key issues highlighted include data quality challenges, especially with registered vessel data, hindering audit processes, and IACS membership eligibility. Incomplete system integration, notably with the One Gate System (OGS), leads to inefficiencies in information access and management. Transition digitization status and incomplete integration of AS400 and COPS systems with OGS further compound challenges. Urgent acceleration of digitalization is stressed, with emphasis on addressing system integration, enhancing data quality, and commencing digitization processes for IACS membership prerequisites. Overall, these insights underscore the importance of digitalization for BKI's strategic objectives and meeting IACS standards.

3.2 Discussion

This section discusses the research "Optimizing Digital Governance of OGS and Challenges in Technological Development for Classification Bodies' Competitiveness: Study Towards IACS Membership Recognition." It addresses three objectives: 1) evaluating PT. BKI's OGS performance, 2) identifying technology development obstacles, and 3) formulating policy recommendations aligned with the "Road to IACS" policy. These objectives aim to analyse OGS's strengths and weaknesses, uncover technological hurdles, and propose policies for effective digital governance in line with IACS membership goals. The discussion integrates these objectives to unravel complexities in digital governance optimization and technological advancement within the IACS membership framework.

1. The Performance of The Digital Governance System (OGS) At PT. BKI (Persero)

a. Digital Strategic Alignment:
1) Patterns of Alignment: Across interviews, alignment patterns involve the strategic goal of achieving IACS membership, emphasizing the need for industry competitiveness.
2) Decision-Making Processes: Decision-making includes the involvement of task forces, PMO, and capability enhancement to ensure effective digital strategy alignment.
b. Value Delivery:
1) Added Value Identification: Qualitative analysis highlights added value, addressing efficiency, productivity, customer experience, cost reduction, transparency, collaboration, and security.
2) Comparison with Goals: Added value aligns with initial digital system goals, showcasing successful integration.
3) User Feedback: Identifying and incorporating user feedback is crucial for continuous improvement.
c. Risk Management:
1) Risk Identification: Response analysis identifies risks, emphasizing the importance of data security measures and disaster recovery plans.
2) Data Security Evaluation: Evaluation of existing data security measures is essential, along with identifying and addressing any identified gaps.
3) Disaster Recovery Plans: Regular review of disaster recovery plans ensures preparedness for potential disruptions.
d. Resource Management:
1) Resource Allocation Evaluation: Effective resource allocation is crucial, and regular analysis is essential for optimization.
2) Human Resource Training: Regular reviews of human resource training programs ensure alignment with digital goals.
3) Organizational Change Impact: Identifying and managing the impact of organizational change on digital transformation is necessary.
e. Performance Measurement:
1) KPI Evaluation: Regular evaluation of performance indicators through Key Performance Indicator (KPI) analysis is essential.
2) Results Tracking: Consistent tracking of measurement results ensures continuous improvement.
3) Competitive Impact Assessment: Understanding the competitive impact of the digital system aids in refining strategies.
f. Important point
1) The organization is aiming to become an IACS member by 2024.
2) The IACS target involves internal understanding, commitment, and capability enhancement, as well as external support from the government and other entities.
3) Internal support is considered crucial, with a ratio of 70% resource to 30% technology importance.
4) Digitalization is deemed essential for meeting targets and improving services.

5) Digitalization strategies are implemented across operational aspects, integrating services from the headquarters to branches.
6) Full-circle integration, including ERP integration with Oracle and SAP, is being pursued.
7) The progress of digital integration is estimated to be around 60-65%.

The evaluation of PT. BKI's OGS Digital Governance System reveals strategic alignment, value delivery, risk management, resource allocation, and performance measurement (Castrillón, 2021; Díaz et al., 2023; IFC, 2014). Aligned with the goal of attaining IACS membership, decision-making involves task forces, PMO, and capability enhancement (Ghonim et al., 2022). Value analysis demonstrates added value in efficiency, productivity, customer experience, cost reduction, transparency, collaboration, and security (Ehiane et al., 2019). Proactive risk management focuses on data security and disaster recovery, while resource management emphasizes effective allocation and workforce training (Hebbar et al., 2023). Performance measurement utilizes KPIs for improvement and informed decision-making. Understanding the system's competitive impact aids strategy refinement for industry competitiveness. BKI targets IACS membership by 2024, prioritizing internal support with a 70%-30% resource-to-technology ratio. Digitalization progress, integrating services and ERP systems, stands at 60-65%, advancing steadily toward objectives.

2. Obstacles And Challenges In The Development Of OGS Technology

a. IACS Assessment Result Documents:
1) Main Findings Identification: Recognizing the main findings and recommendations from IACS assessments is crucial.
2) Comparison with Digital System Conditions: Comparing IACS findings with digital system conditions highlights areas for improvement.

b. Gap Between Standards and Existing Conditions:
1) Difference Calculation: Calculating the gap between IACS standards and BKI conditions is crucial.
2) Factors Identification: Identifying factors causing the gap informs targeted improvement efforts.
3) Compliance Plan Review: Regularly reviewing compliance plans ensures ongoing alignment with standards.

c. Constraints and Challenges in Meeting IACS Standards:
1) Barrier Identification: In-depth analysis identifies main barriers, distinguishing between technical and non-technical complexities.
2) Technical and Non-Technical Complexity Review: Evaluating technical and non-technical complexities provides insights for overcoming challenges.
3) Integration Difficulty Assessment: Assessing the difficulty of digital system integration informs strategic planning.

d. Strategies to Overcome Barriers:
1) Strategic Plan Review: Regularly reviewing strategic plans ensures adaptability to

evolving challenges.

2) Resource Allocation Evaluation: Evaluating resource allocation effectiveness is crucial for successful strategy implementation.
3) Effectiveness Review: Regularly reviewing the effectiveness of strategies aids in continuous improvement.

e. Impact of Meeting IACS Standards:

1) Operational Impact Review: Understanding the operational impacts of meeting IACS standards is crucial.
2) Reputation Impact Evaluation: Evaluating the impact on reputation informs communication strategies.
3) Stakeholder Communication: Clear communication of impacts to stakeholders ensures transparency.

The discussion on obstacles in developing OGS technology at PT. BKI emphasizes addressing hurdles in meeting IACS standards. It starts with identifying findings and recommendations from IACS assessments to pinpoint areas for improvement. Analysing the gap between IACS standards and BKI conditions aids in understanding areas needing enhancement (Hebbar et al., 2023). Regular reviews of compliance plans ensure ongoing alignment with standards (Mustapha et al., 2020). Identifying technical and non-technical barriers informs targeted improvement efforts and strategic planning. Overcoming barriers involves adapting strategic plans and optimizing resource allocation (Cvitanovic et al., 2014). Regular reviews of strategy effectiveness foster continuous improvement. Meeting IACS standards impacts operations, reputation, and stakeholder communication. Understanding operational impacts guides effective navigation of changes. Clear and transparent communication with stakeholders maintains trust and confidence throughout OGS technology development.

3. Recommendations For Effective Digital Governance In Line With The "Road To IACS" Policy

In the examination of key issues related to the One Gate System (OGS) at PT. BKI, a comprehensive root cause analysis has been conducted to unveil the underlying factors influencing the positive transformation in OGS performance, challenges encountered in OGS technology development, and the formulation of policy recommendations for International Association of Classification Societies (IACS) recognition. The identified root causes shed light on critical aspects, including the need for continuous improvement in OGS optimization, cultural reluctance affecting technology development, and deficiencies in planning and implementation processes influencing policy recommendations (Pineda, 2014). The subsequent table, labeled Table 7, delineates these root causes, providing a structured overview of the factors contributing to the observed issues. This root cause analysis aims to guide strategic initiatives for enhancing digital governance and ensuring alignment with the stringent standards set for IACS recognition.

Table 7 Root cause analysis

Root Cause Analysis	Root Cause Type	Impact on PT BKI
Positive Aspects of Digital Governance System Performance	Positive	These root causes contribute to the effectiveness of PT BKI's digital governance system, leading to enhanced strategic alignment, value delivery, and risk management.
1. Digital Strategic Alignment:	Positive	Strategic alignment to achieve IACS membership enhances industry competitiveness and guides decision-making processes effectively.
2. Value Delivery:	Positive	Successful integration of added value with system goals and incorporation of user feedback ensures continuous improvement and fulfillment of organizational objectives.
3. Risk Management:	Positive	Proactive risk identification and regular review of disaster recovery plans ensure the resilience of the digital infrastructure, reducing the impact of potential disruptions.
4. Resource Management:	Positive	Effective resource allocation and human resource training optimize operations and facilitate organizational change, driving digital transformation initiatives forward.
5. Performance Measurement:	Positive	Regular evaluation of KPIs and understanding of competitive impact enable informed decision-making and maintain a competitive edge in the industry.
Stagnant Aspects in OGS Technology Development	Negative	These root causes hinder progress in the development of OGS technology, resulting in challenges in meeting IACS standards and potential setbacks in organizational objectives.
1. Failure to Recognize IACS Assessment Findings:	Negative	Lack of recognition and comparison of IACS findings with digital system conditions hinders improvement efforts, potentially delaying the achievement of IACS membership.
2. Inadequate Identification of Barriers and Complexities:	Negative	Ineffective analysis of barriers and complexities impedes targeted improvement efforts and strategic planning, prolonging challenges in meeting IACS standards.
3. Inconsistent Strategy Review and Resource Allocation:	Negative	Inconsistent review of strategies and resource allocation effectiveness leads to inefficiencies, hindering successful strategy implementation and continuous improvement.
4. Inadequate Understanding of Operational and Reputation Impacts:	Negative	Lack of understanding of operational and reputation impacts results in ineffective communication strategies, potentially damaging stakeholder trust and confidence.

The table offers a Root Cause Analysis (RCA) of the Digital Governance System's (OGS) performance at PT BKI. It categorizes root causes as positive or stagnant and outlines their impacts. Positive aspects include strategic alignment towards IACS membership, value delivery, proactive risk management, effective resource

management, and performance measurement. These contribute to BKI's effectiveness, enhancing industry competitiveness and guiding decision-making. However, stagnant aspects hinder progress, posing challenges in meeting IACS standards. Failure to recognize IACS assessment findings, inadequate identification of barriers, inconsistent strategy review, and resource allocation, and insufficient understanding of operational and reputation impacts are identified as root causes. These delays and inefficiencies impede progress towards organizational objectives and risk stakeholder trust.

Overall, the RCA underscores the importance of addressing both positive and stagnant aspects to optimize the digital governance system at PT BKI and achieve organizational objectives effectively. To achieve recognition as an IACS member, PT. BKI is advised to consider the following policy recommendations and programs:

a. Comprehensive Utilization of IACS Assessment Findings:

1) Establish a structured framework for capturing and analyzing findings from IACS assessments, including recommendations for improvement.
2) Create a dedicated task force responsible for reviewing and interpreting assessment findings, and identifying priority areas for enhancement.
3) Develop clear action plans to address each identified area of improvement, setting specific goals, timelines, and responsible parties.
4) Implement regular progress tracking mechanisms to monitor the implementation of improvement initiatives and measure their effectiveness.
5) Foster a culture of continuous learning and adaptation, encouraging feedback from stakeholders and incorporating lessons learned into future assessments and improvement efforts.

b. In-Depth Analysis of Barriers and Complexities:

1) Conduct a comprehensive assessment of existing barriers and complexities hindering OGS technology development, involving both technical experts and stakeholders from relevant departments.
2) Utilize methodologies such as root cause analysis and impact assessment to identify the underlying causes of barriers and complexities.
3) Prioritize barriers based on their severity and potential impact on meeting IACS standards and organizational objectives.
4) Develop targeted strategies and action plans to address each identified barrier, focusing on mitigating risks, enhancing capabilities, and optimizing processes.
5) Implement a feedback loop to continuously assess the effectiveness of barrier mitigation efforts and make adjustments as necessary.

c. Consistent Review and Optimization of Strategies and Resource Allocation:

1) Establish a regular cadence for reviewing digital governance strategies, ensuring alignment with organizational goals and evolving industry standards.
2) Conduct periodic evaluations of resource allocation effectiveness, considering factors such as budget utilization, workforce allocation, and technology investments.
3) Utilize performance metrics and key performance indicators (KPIs) to assess the

impact of digital governance strategies on organizational performance and efficiency.
4) Foster collaboration between different departments and teams involved in digital governance initiatives, promoting knowledge sharing and best practices exchange.
5) Invest in training and development programs to enhance the digital capabilities of staff members, ensuring they have the necessary skills to support digital transformation initiatives effectively.

d. Proactive Management of Operational and Reputation Impacts:

1) Conduct thorough risk assessments to identify potential operational and reputation impacts associated with meeting IACS standards.
2) Develop contingency plans and mitigation strategies to address identified risks, including measures to minimize operational disruptions and protect the organization's reputation.
3) Implement robust communication plans to keep stakeholders informed about the potential impacts of digital governance initiatives, fostering transparency and trust.
4) Establish channels for stakeholders to provide feedback and raise concerns regarding operational changes or reputation risks, ensuring their voices are heard and addressed.
5) Continuously monitor and evaluate the effectiveness of risk mitigation and communication strategies, making adjustments as necessary to adapt to changing circumstances.

By implementing these detailed recommendations, PT BKI can strengthen its digital governance capabilities, accelerate progress towards meeting IACS standards, and enhance its competitiveness in the classification industry.

4 CONCLUSION

The conclusions that can be drawn from this study are:

1. PT BKI aims to join the International Association of Classification Societies (IACS) by 2024, emphasizing internal support, resource allocation, and technology integration to meet targets. Digitalization across operational aspects, including ERP integration, shows progress at 60-65%, indicating strides toward objectives.
2. The development of One Gate System (OGS) technology faces obstacles: recognizing IACS assessment findings, comparing them with existing conditions, and addressing disparities. Identifying barriers, both technical and non-technical, informs targeted improvement efforts. Regular reviews ensure adaptability and effective resource allocation. Understanding operational impacts and communicating with stakeholders are crucial.
3. PT BKI is advised to establish structured frameworks for assessing IACS findings, develop action plans, and track progress. Comprehensive assessment of barriers, prioritization based on severity, and continuous improvement through feedback loops are recommended. Regular review of digital governance strategies, resource allocation, and investment in staff training are vital. Proactive risk assessment, contingency planning, and robust communication channels ensure effective management of operational and reputation impacts.

Based on the conclusions drawn from this study, it is recommended that PT. BKI (Persero) takes the following actions to achieve its objective of becoming an IACS member by 2024. Firstly, the company should continue prioritizing internal understanding, commitment, and capability enhancement, while seeking external support for achieving its goals. Embracing digitalization and ensuring effective resource allocation, with a focus on integrating services and pursuing full-circle integration, are crucial steps. Additionally, PT. BKI should establish a structured framework for analyzing IACS assessment findings, develop clear action plans, and implement regular progress tracking mechanisms. Furthermore, conducting comprehensive assessments of existing barriers to OGS technology development and prioritizing mitigation strategies are essential. Regular reviews of digital governance strategies, resource allocation, and performance metrics are recommended for ongoing improvement. Lastly, proactive risk management, robust communication strategies, and stakeholder engagement are vital for navigating operational and reputational impacts associated with meeting IACS standards. For future research, further investigation into the effectiveness of these recommendations and their long-term impacts on organizational performance could provide valuable insights into best practices for achieving membership in international classification societies.

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