

Research Article

Analysis of Ship Docking Guidance Services at PT. Krakatau Bandar Samudera Pier

Ahmad Alfiyan Awwali ^{1*}, FX. Adi Purwanto ², and Carlos L. Prawirosastro ³

- 1 Universitas Hang Tuah, Surabaya, Indonesia, ahmadalfiyan074@gmail.com
- 2 Universitas Hang Tuah, Surabaya, Indonesia, adi.purwanto@hangtuah.ac.id.
- 3 Universitas Hang Tuah, Surabaya, Indonesia, carlos.prawirosastro@hangtuah.ac.id

* Corresponding Author : Ahmad Alfiyan Awwali

Abstract: A Ports are anchorages and/or mooring places for ships and other water vehicles, loading and unloading passengers, loading and unloading goods and animals, as well as a meeting place for an economic activity. The definition of a port is a place consisting of land and/or waters with certain boundaries as a place for government activities and business activities that are used as a place for ships to dock, board and disembark passengers, and/or load and unload goods, in the form of terminals and ship berths that are equipped with shipping safety and security facilities and port supporting activities as well as a place for intra and inter-mode of transportation. This uses a qualitative research data collection method that explains the ship docking guidance service system at the PT. Krakatoa, the ocean city is ongoing, starting from the way of inputting data on ship documents to be served to the procedures or SOPs that must be applied in ship docking services that have been listed in the operational provisions of PT Krakatoa, the ocean port. The researcher analyzes the impact of these steps on the performance of ship docking services, as well as identifies the challenges and opportunities faced in the process of ship docking services Based on the results of the discussion on the analysis of ship docking services at the PT Krakatau Bandar Samudera pier, the following conclusions can be drawn: Although the service is effective, there are several obstacles that can hinder the boat guidance service As mentioned above, the server is often down or maintenance and the network is unstable or slow, and the following are the efforts that can be made to improve the quality of guidance services, such as improving port facilities, facilities and infrastructure and technology, and by being able to continue to improve the quality of ship guidance services.

Keywords: Guidance Services, Port; Service, Ship Docking

Received: date

Revised: date

Accepted: date

Published: date

Curr. Ver.: date



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1. Introduction

Ports are a place to dock and/or moored ships and other water vehicles, to pick up and drop off passengers, to load and unload goods and animals, and to meet economic activities (Heikkilä et al., 2022). The definition of a port is a place consisting of land and/or waters with certain boundaries as a place for government activities and business activities that are used as a place for ships to dock, board and unload passengers, and or unload goods, in the form of terminals and ship berths equipped with shipping safety and security facilities and port supporting activities as well as as a place for intra and intermodal transportation transfers (Plangiten et al., 2019). (Law of the Republic of Indonesia no. 17 of 2008) According to Government Regulation of the Republic of Indonesia number 61 of 2009 concerning ports in Chapter I article 1 paragraph 29, Port Business Entities are business entities whose business activities are specialized in the field of terminal business and other port facilities (Government Regulation No. 69 of 2009). PT. Krakatau Bandar Samudera which is better known in international shipping maps as Cigading Port is a company that manages Cigading Port and is

engaged in port services and services related to port services (M. A. N. Basori et al., 2017). Currently, PT Krakatau Bandar Samudera also manages other ports outside the Cilegon area. Cigading Port is a special port owned by PT Krakatau Steel which was built in 1974 (Maulidyyah et al., 2017).

Since February 28, 1996, it has become a separate business unit, namely PT Krakatau Bandar Samudera which not only serves PT Krakatau Steel cargoes but also other industrial cargoes in the Banten, Jakarta and western West Java areas (M. A. Basori et al., 2017). Cigading Port is located in a strategic location in the Sunda Strait with direct access to the Merak Jakarta Toll Road so it has great potential to support industrial growth in the surrounding area. PT Krakatau Bandar Samudera which is located at Jl Mayjend S. Parman KM-13 Cilegon, Banten is a subsidiary of PT Krakatau Steel Tbk (Persero) which is engaged in the port industry has received a renewal of license as a Port Business Entity from the Ministry of Transportation with the number: KP.309 of 2010 dated June 18, 2010 concerning the Granting of Business Licenses as Port Business Entities, The scope of work is as follows: Dock services for ship mooring, refueling and clean water services, warehousing services, goods stacking, ship delay services. PT. Krakatau Bandar Samudera (PT. KBS) as a company engaged in special port services for bulk goods (bulk port operator) grows and develops from only serving PT. Krakatau Steel as the parent company is a company that serves third parties who carry out the process of shipping bulk goods via sea transportation (Subhan, 2018).

One of the port services that has a vital role in ship activities at the port is guidance services. Guidance Services is a guidance activity service carried out by Pandu in assisting the Captain so that the movement of the ship can be carried out safely, orderly and smoothly (Ship and Goods Service System and Procedures within PT. Krakatau Town of Smaudera. So that the readiness of facilities and infrastructure, namely guide and tugboats, which are operational tools for guidance, must be adequate both in the amount and power capacity adjusted to the needs in the field. The faster the ship guidance service activities at the port of Cigading, it is necessary to optimize the quality of ship guidance services, especially in order to anticipate the number of ship visits which are increasing every year. The operation of guide and towing vessels is the main element of the guidance service, which is the beginning and end of the entire series of activities entering and exiting the ship. In the service of ship awareness at the PT. Krakatau Bandar Samudera has its own procedure, namely from the relevant agency to submit a project number (PPJ Number) to the marketing division to make payment after it has been completed for administrative payments in the marketing division then the relevant agency confirms to the service division to determine the ship that will dock at the pier of PT. Krakatau Bandar Samudera in accordance with the line up that has been made by the service services division and then the relevant agencies confirm to the Port regarding the docking permit if it is completed, the relevant agency submits a request for guidance and delay services for the docking process at the jetty in accordance with the line up of PT. Krakatau Ocean City. Problems such as delays in the service of inputting ship document data used in ship docking activities due to these problems that can potentially affect customer trust in ship guidance services at the PT Krakatau Bandar Samudera pier. If the guidance service is not effective, it can have a negative impact on the customer experience or the customer experience as a whole while interacting with the Company, which has the potential to reduce the trust and satisfaction of the customers who have been served and the prospective customers who will be served. Problems that often occur are caused by systems or servers that are maintenance or down.

During practice, the author also inputs ship data such as BAPP (Ship Guidance and Delay Minutes) and makes a Ship Service Plan and Operation Plan (RPK-RO) as well as making a Work Order (SPK) for the input of ship data including arrival time, maximum ship draft and ship load on the Krakatau international port solution (KIPOS) website. This kijos web is a company-specific application to accommodate ship guidance and delay service activities in this practical activity ship data is checked which aims to find out the arrival time of the ship. For work on the input of the ship's data, it is waiting for confirmation from the relevant ship agency.

3. Proposed Method

The research method used in this final project is qualitative research. This qualitative research aims to explain in depth the system of ship docking guidance services at the pier of PT. Krakatau is the city of the ocean. The researcher collected data through direct observation

of the service process, interviews with related parties, and documentation studies on the procedures and operational standards that apply in the company. With this approach, the researcher can describe in detail the stages of service starting from the input of ship document data to the implementation of SOPs in ship docking services, as well as identifying the challenges and opportunities that exist in the process. The data analysis technique used is qualitative descriptive analysis, where the data that has been collected is analyzed to understand the impact of each service step on the performance of ship docking guidance services. The researcher also identifies the obstacles faced, such as server or network disruptions, and formulates improvement efforts that can be made to improve the quality of service. Thus, this research method emphasizes on understanding the processes and dynamics that occur in the field, not on statistical hypothesis testing.

4. Results and Discussion

PT. Krakatau Bandar Samudera (KBS) is a company operating in the logistics and transportation sector, with a main focus on port service services and goods distribution. Founded with the aim of supporting the growth of trade and industry in Indonesia, the company takes its name from the famous Mount Krakatau as a symbol of Indonesia's natural power. Since its establishment, PT. Krakatau Bandar Samudera has gone through a long journey in developing and improving its logistics services to meet the needs of the growing market.

PT. Krakatau Bandar Samudera was established in 1996 as a company engaged in the logistics and port services sector in Indonesia. The company was formed with the aim of supporting national economic growth through efficient and integrative logistics services. Over time, PT. Krakatau Bandar Samudera has grown to become one of the major players in the logistics and port industry in Indonesia. As part of the logistics industry, PT. Krakatau Bandar Samudera provides a variety of services that include port management, loading and unloading of goods, storage, distribution, and logistics consulting services. The company holds high principles of safety and security in every aspect of its operations, making it a trusted partner for customers in ensuring their goods are properly managed during the logistics process.

The advantages of PT. KBS is located in its strategic location, close to major trade routes and industrial centers in Indonesia. This enables companies to provide efficient and integrated logistics solutions, minimizing time and costs in the customer's supply chain. With modern facilities, advanced technology, and a team of experienced professionals, PT. KBS is able to accommodate a wide range of goods, ranging from general cargo to heavy and dangerous cargo. In addition to focusing on operational excellence, PT. Krakatau Bandar Samudera is also committed to sustainable and friendly practices. environment in each of its activities. The company actively integrates sustainable measures in its operations, including waste management, emission reduction, and the adoption of green technologies.

4.1. Vision and mission of PT Krakatau Bandar Samudera

4.1.1. Visi

Providing Value-Added Services in the Port and Logistics Sector Based on the Environmentally Friendly Smart Port Concept.

4.1.2. Misi

Providing Value-Added Services in the Port and Logistics Sector Based on the Environmentally Friendly Smart Port Concept.

4.2. Corporate Cultural Values

Cultural values at PT. Krakatau Bandar Samudera is "Action". Action is one of the main pillars that directs every aspect of operations and interactions in the company. This value is reflected in the company's commitment to take tangible and proactive action in everything it does. Here are some aspects of the cultural value of "Action" at PT. Krakatau Ocean City:

4.2.1. Agile: Employees in this company are aware of the importance of quick and efficient action. They are ready to take the necessary steps to address challenges and opportunities in a short period of time, keeping the company's operations running smoothly.

4.2.2. Customer Focus: Customer needs are the main focus at PT. Krakatau is the city of the ocean. The value of Action's culture teaches employees to respond quickly and responsively to customer requests, ensuring that customer requests and issues are resolved promptly.

- 4.2.3. Technology: Companies use technology to improve operational efficiency. This can include using software and hardware to manage logistics processes, monitor inventory, or track the flow of goods.
- 4.2.4. Integrity: Individuals who are in PT. Krakatau Bandar Samudera is expected to adhere to high ethical values, upholding honesty, justice, and morality in every action and decision taken.
- 4.2.5. Ownership: The concept of ownership is to encourage individuals to pursue superior quality and performance in their work. They strive to deliver the best results and are committed to achieving high standards.
- 4.2.6. Newness: PT. Krakatau Bandar Samudera encourages employees to find innovative solutions in the face of market changes and customer demands. Action values motivate them to not only respond to change, but also take the initiative in planning for the necessary changes.

Overall, the cultural value of "Action" at PT. Krakatau Bandar Samudera is not only the motto, but also the foundation for every action and decision taken by employees in order to achieve the company's vision and mission.

4.3. Company Structure of PT. Krakatau Ocean City

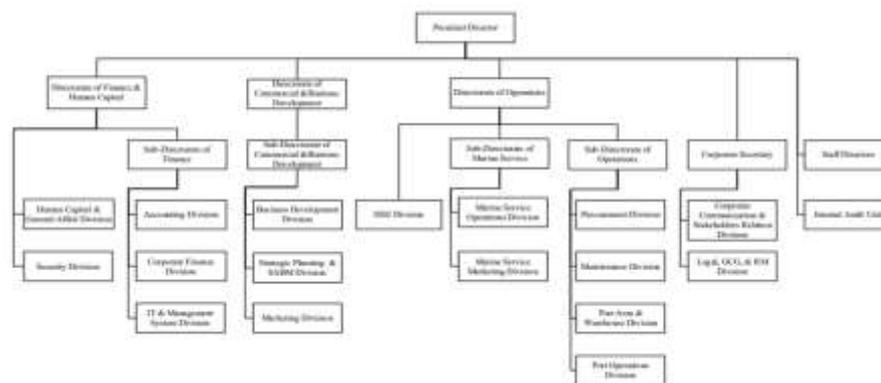


Figure 1. Organizational structure

In the corporate structure, KBS (PT Krakatau Bandar Samudera) has a President Director, Mr. Muhammad Akbar, followed by 3 Directors under him, namely Mr. Noor Fuad as Director of Finance and Human Resources, then Mr. Dazul Herman as Director of Commercial and Business Development, and finally Mr. Cahyo Antarikso as Director of Operations. The writer is placed in the Marketing Marine Service division which is part of the Marine Service division with Mr. Aep Dedi as the Sub-Directorate of Marine Service.

4.4. Operating Marine Division Operating Hours

In the implementation of the work applied to all employees in the operational Marine service division of PT Krakatau Bandar Samudera every day is based on a predetermined schedule.

Table 1. Operating Marine Division Operating Hours

Day	Come	Go home
Monday	08:00	16.30
Tuesday	08:00	16.30
Wednesday	08:00	16.30
Thursday	08:00	16.30
Friday	08:00	17:00

With the title "ANALYSIS OF SHIP DOCKING GUIDANCE SERVICES AT THE PIER OF PT. KRAKATAU BANDAR SAMUDERA", the author will explain everything related to the research collected by the author based on internship activities, articles, journals, and literature obtained on internet media. So with this description, the author hopes that the results of his research will provide insight for the readers. The following will be described about the research data collected by the author.

4.5. Data Analysis

The researcher analyzes the impact of these measures on the performance of ship docking guidance services, as well as identifying challenges and opportunities faced in the ship guidance service process. The research is expected to provide valuable insights for the development of guidance services in Indonesia and other ports in the world. Based on the results of the author's interview with Mr. Faisal Rizky as a radio operator regarding the factors that affect the delay of the ship docking guidance service as follows:

"Delays in ship docking guidance services can be influenced by various factors, namely bad weather such as strong winds, heavy rain, or thick fog can reduce visibility and make navigation very difficult. This reduction in visibility forces boat guides to move slower and more carefully because they cannot clearly see the dock boundaries or navigation signs. Strong winds also make the boat difficult to control, so the guide needs to maneuver more carefully to ensure the boat can be leaned safely.

Based on the above explanation from the results of the interview by Mr. Faisal Rizky Radio Operator, errors in planning and coordination between the guidance team, crane operators, and dock personnel can cause schedule mismatches, resulting in queues and delays. Limitations of dock facilities, such as inadequate space or faulty equipment, also contributed to the delay. Breakdowns of critical equipment, administrative problems such as delays in documents, and operational constraints such as staff shortages or inefficient division of tasks have exacerbated the situation. Interference from other ships docked in the same area, sudden changes in ship schedules, as well as inadequate physical conditions of the dock, can add to the delays. Ineffective communication between various parties and changes in sea conditions such as strong currents or high waves also play a role in slowing down the process of guiding the ship. Effectively addressing these factors is key to improving the efficiency of ship docking guidance services and minimizing delays.

Then continued based on the results of interviews about common problems that often occur in ship docking guidance as follows: Equipment damage is also a significant problem, such as damage to the tugboat or navigation system that interferes with the smooth navigation. In addition, schedule mismatches between ships and dock facilities are common, resulting in queues and delays. Based on the explanation above from the results of the Radio Operator interview. Communication issues between the guide team, the boat captain, and the dock operator can also lead to errors in coordination, which impacts the efficiency of the docking process. Finally, the limitations of dock facilities, such as inadequate space or suboptimal equipment, can hinder the docking process of the ship and increase the time needed. Effectively addressing these issues is critical to improving efficiency and safety in vessel docking guidance. Then it was followed based on the results of the Radio Operator interview What changes have been made to improve the quality of ship guidance services at the pier as follows: To improve the quality of ship guidance services at the pier, various changes have been made. Facility updates and improvements, additional training and certifications, improved coordination and communication, adoption of new technologies, improvement of operational procedures. Based on the above explanation from the results of an interview by the radio operator. The dock facilities were updated with the addition of modern equipment and structural improvements. Ship guidance personnel get additional training and certifications to improve their skills. Coordination and communication are improved by adopting more efficient communication systems and integrated management software. New technologies such as weather radar and ship tracking systems are applied to deal with adverse weather conditions. Standard operating procedures (SOPs) are revised to speed up the backing up process and reduce frequent issues.

Then continued based on the results of the author's interview with the staff of Captain Pandu, Mr. Zulkifli regarding what needs to be improved in the service of guiding ship mooring at the pier of PT. Krakatau Bandar Samudera as follows: "In the latest interview, we delved deeper into the ship docking guidance service at the pier of PT. Krakatau is the city of the ocean. While the current service has shown solid performance, there are several areas identified for improvement to ensure better efficiency and security." Based on the above explanation from the results of the interview by the captain of the guide above, In this interview, we explore in depth the aspects of the ship docking guide service at the pier of PT. Krakatau is the city of the ocean. While the service has shown satisfactory and solid performance, the interview results reveal that there are still some areas that need more attention to achieve optimal levels of efficiency and safety." Then continued based on the results of the interview regarding the biggest challenges

faced in carrying out the task of guiding the docking of the ship as follows: "In this in-depth interview that we conducted, the main focus was to identify the biggest challenges faced in carrying out the task of guiding the docking of the ship. According to the source, the main challenges often faced are factors such as changing weather conditions and the diversity of sizes and types of ships that are docked." Based on the above explanation of the results of the interview by the captain of the guide above, the response to this interview provides valuable insight into the significant challenges faced in the task of guiding the docking of the ship. According to the source, one of the biggest challenges is adapting to weather conditions that are often unpredictable. Changing weather can affect visibility and operational conditions at the pier, requiring extra vigilance and quick adjustments from the guide team. In addition, the diversity of sizes and types of ships that are leaning is also a major challenge. Each ship has different needs and characteristics, so the guiding process must be tailored to the specifications of each ship. This requires specialized expertise and an in-depth understanding of the different types of vessels as well as proper docking techniques. This response underscores the importance of flexibility and readiness in the face of unexpected variables in the field. To address these challenges, there may be a need for improvements in ship guide training as well as the development of more adaptive procedures for different weather conditions and types of vessels. With a more structured and responsive approach, it is hoped that these challenges can be better managed, improving safety and efficiency in the process of guiding ship docking.

The port not only functions as a place to dock ships, but also as a meeting point for various modes of transportation and loading and unloading activities for goods and passengers. In this context, the ship docking guidance service is one of the important aspects that determine the smooth operation of the port. This study uses a qualitative method with data collection techniques through observation, interviews, and documentation studies. The main focus of the research is to analyze the ship guidance service system implemented at the PT. Krakatau Bandar Samudera, starting from the stage of inputting ship document data to the implementation of standard operating procedures (SOPs) that apply in the company.

The results of the study show that the process of ship docking guidance services at PT. Krakatau Bandar Samudera has been running effectively and in accordance with the set SOPs. Every stage of service, starting from document preparation, coordination between divisions, to the implementation of guidance in the field, is carried out systematically and well coordinated. This has a positive impact on the efficiency of ship docking time and the satisfaction of port service users (Thai, 2016).

However, the study also found that there are several technical obstacles that still often occur in the service process (BIN ZAKI, 2018). One of the main obstacles is the disruption to the servers and networks used for ship data input and processing (Chang & Thai, 2016). This condition causes delays in the administrative and communication process between related parts, so that it can hinder the smooth running of ship guidance services (Phan et al., 2021). In addition to technical constraints, there are also challenges in terms of the availability and readiness of supporting facilities and infrastructure, such as navigation aids and communication facilities (Chiou et al., 2021). Some existing facilities are considered to still need to be improved in order to support guidance services optimally, especially in the face of the increasing volume of ship traffic at the port (Esmacilpour & Ranjbar, 2018).

This research also highlights the importance of improving the competence and professionalism of human resources involved in guidance services (Rizal et al., 2022). Periodic training and strengthening coordination between teams are one of the recommendations so that the quality of service can continue to be improved and able to adapt to technological developments and the needs of the port industry (Pantouvakis & Bouranta, 2013). In an effort to improve, the researcher recommends updating the information technology system used to support the service process (Batubara et al., 2023). The modernization of server and network systems, as well as real-time data integration, is expected to reduce the potential for technical disruptions and speed up administrative and communication processes between divisions (Noorlitaria Achmad & Hudayah, 2020).

In addition, strengthening physical infrastructure such as piers, navigation aids, and other supporting facilities is also a priority so that guidance services can run more effi-

ciently and safely (Pöyhönen & Lehto, 2023). Investment in these facilities and infrastructure will have a long-term impact on the port's competitiveness in serving domestic and international ships (Makarova et al., 2023).

This study emphasizes that effective and efficient ship docking guidance services greatly affect the smooth operation of the port as a whole. By overcoming various obstacles and continuing to innovate, PT. Krakatau Bandar Samudera can improve the quality of port services and provide added value for service users.

Overall, this study provides a comprehensive overview of the actual condition of ship docking guidance services at the pier of PT. Krakatau Bandar Samudera, as well as offering concrete solutions to improve the quality of service in the future. The findings and recommendations from this study are expected to be a reference for port managers and other related parties in developing a better and highly competitive service system.

6. Conclusions

Based on the results of the discussion on the analysis of ship docking services at the pier of PT Krakatau Bandar Samudera, the following conclusions can be drawn: Even though the service is effective, there are several obstacles that can hinder the guidance service such as the information above under the server is often down or maintenance and the network is unstable or slow and the following are efforts that can be made to improve the quality of guidance services, such as improving port facilities and infrastructure and technology, as well as being able to continue to improve the quality of ship guidance services. Based on this research, suggestions that can be conveyed: 1. It is recommended to conduct an in-depth evaluation of the existing system to identify problems and prepare a backup plan or temporary manual procedure if a system error occurs, to avoid losing important data. 2. Bad weather such as heavy rain, strong winds, or fog can affect visibility and safety during the 61 ship towing process therefore Provide regular training to ensure everyone involved in the ship towing service process understands and follows the procedures on how to deal with extreme weather conditions and Create clear emergency procedures for severe weather conditions and Conduct regular internal audits to assess compliance with the procedures that have been made.

References

- Basori, M. A. N., Wawan Prahawan, & Daenulhay. (2017). Pengaruh Kompetensi Karyawan dan Lingkungan Kerja Terhadap Kinerja Karyawan Melalui Motivasi Kerja Sebagai Variabel Intervening (Studi Pada PT. Krakatau Bandar Samudera). *Jurnal Riset Bisnis Dan Manajemen Tirtayasa*, Vol. 1(No. 2).
- Basori, M. A., Prahawan, W., & Daenulhay. (2017). Pengaruh Kompetensi Karyawan Dan Lingkungan Kerja Dan Terhadap Kinerja Karyawan Melalui Motivasi Kerja Sebagai Variabel Intervening. *Jurnal Ekonomi*, 1(2).
- Batubara, U. S., Ricardianto, P., Pahala, Y., Malisan, J., & Sonny, I. (2023). Loyalitas dan Kepuasan Pelanggan Kapal pada Perusahaan Peti Kemas di Indonesia. *Jurnal Manajemen Transportasi & Logistik (JMTRANSLOG)*, 9(2). <https://doi.org/10.54324/j.mtl.v9i2.988>
- BIN ZAKI, N. E. (2018). IMPACT OF SERVICE QUALITY OF LAND TRANSPORTATION ON CUSTOMER SATISFACTION AT JOHOR PORT LOGISTICS. *Journal of Public Value and Administration Insights*, 1(1). <https://doi.org/10.31580/jpvai.v1i1.137>
- Chang, C. H., & Thai, V. V. (2016). Do port security quality and service quality influence customer satisfaction and loyalty? *Maritime Policy and Management*, 43(6). <https://doi.org/10.1080/03088839.2016.1151086>
- Chiou, M. R., Chao, S. L., & Hsieh, H. Y. (2021). The Moderating Role of Service Recovery on Customer Loyalty in the Context of Cruise Passengers. *Maritime Policy and Management*, 48(2). <https://doi.org/10.1080/03088839.2020.1742396>
- Esmaeilpour, M., & Ranjbar, M. (2018). Investigating the impact of commitment, satisfaction, and loyalty of employees on providing high-quality service to customer. *Studies in Business and Economics*, 13(1). <https://doi.org/10.2478/sbe-2018-0004>
- Heikkilä, M., Saarni, J., & Saurama, A. (2022). Innovation in Smart Ports: Future Directions of Digitalization in Container Ports. *Journal of Marine Science and Engineering*, 10(12). <https://doi.org/10.3390/jmse10121925>

- Makarova, I., Buyvol, P., Mukhametdinov, E., & Boyko, A. (2023). The Construction of Seaports in the Arctic: Prospects and Environmental Consequences. *Journal of Marine Science and Engineering*, 11(10). <https://doi.org/10.3390/jmse11101902>
- Maulidyyah, N., Dwiatmanto, D., & NP, M. (2017). ANALISIS PERAN AUDIT INTERNAL SEBAGAI PENUNJANG PENERAPAN GOOD CORPORATE GOVERNANCE (GCG) (Studi pada PT. Krakatau Bandar Samudera (KBS) Cilegon-Banten). *Jurnal Administrasi Bisnis S1 Universitas Brawijaya*, 47(1).
- Noorlitaria Achmad, G., & Hudayah, S. (2020). Effect of Internal Service Quality on Employee Satisfaction Division Port Bontang Coal Terminal PT Indominco Mandiri. *Peer Reviewed-International Journal of Economics, Bussiness and Accounting Research (IJEBAR)*, 4(4).
- Pantouvakis, A., & Bouranta, N. (2013). The interrelationship between service features, job satisfaction and customer satisfaction: Evidence from the transport sector. *TQM Journal*, 25(2). <https://doi.org/10.1108/17542731311299618>
- Phan, T. M., Thai, V. V., & Vu, T. P. (2021). Port service quality (PSQ) and customer satisfaction: an exploratory study of container ports in Vietnam. *Maritime Business Review*, 6(1). <https://doi.org/10.1108/MABR-01-2020-0003>
- Plangiten, R. R., Pandey, S. V, & Lalamentik, L. G. J. (2019). Evaluasi Kinerja Operasional Pelabuhan ASDP Indonesia Ferry Bitung. *Sipil Statik*, 7(2).
- Pöyhönen, J., & Lehto, M. (2023). Comprehensive cyber security for port and harbor ecosystems. *Frontiers in Computer Science*, 5. <https://doi.org/10.3389/fcomp.2023.1154069>
- Rizal, S. R., Rivai, A. K., & Rahmi, R. (2022). Merak Port Customer Loyalty. *Jambura Science of Management*, 4(1). <https://doi.org/10.37479/jsm.v4i1.11444>
- Subhan, A. (2018). ANALISIS DIMENSI KUALITAS PELAYANAN PADA PERUSAHAAN JASA PELABUHAN CURAH PT. KRAKATAU BANDAR SAMUDERA CILEGON MENGGUNAKAN METODA SERVQUAL. *Jurnal Media Teknik Dan Sistem Industri*, 2(2). <https://doi.org/10.35194/jmtsi.v2i2.401>
- Thai, V. V. (2016). The impact of port service quality on customer satisfaction: The case of Singapore. *Maritime Economics and Logistics*, 18(4). <https://doi.org/10.1057/mel.2015.19>