Inovbiz: Jurnal Inovasi Bisnis VI (2026) 24-30
Seri Manajemen Investasi dan Kewirausahaan
INOVBIZ
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# Comparative Analysis of Marketing Strategies of Ship Repair Yards Using Docking Facilities (Floating Dock, Airbag, and Cradle): A Case Study of PT.XYZ

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ARTICLE INFO

**Received : 01 April 2026**
**Received in revision: 22 April 2026**
**Accepted: 25 May 2026**
**Published: 15 June 2026**

**Open Access**

ABSTRACT

This study aims to analyze the comparative marketing strategies of three Docking facilities operated by PT. XYZ, namely Floating Dock, Airbag Docking, and Cradle Docking, to increase the company's competitiveness in the national ship repair industry. The background of the study is based on the increasing number of registered vessels in Indonesia, which reached 72,313 units in 2021, while the national ship repair capacity has only reached around 150,000 DWT per year, far below the estimated need of more than 500,000 DWT per year. This condition requires optimization of Docking facilities and the development of appropriate marketing strategies. The study was conducted from August to October 2025 using qualitative descriptive methods through field observations, in-depth interviews, and analysis of PT. XYZ's internal documentation. The results of the study indicate that each Docking facility has different market segmentation and levels of marketing effectiveness. Airbag Docking is the most effective facility in terms of volume because the majority of repair demand comes from small to medium-sized vessels that dominate the East Java market. Floating Dock, despite handling fewer vessels, provides higher project value because it is used for certified work and meets high safety standards. Cradle Docking plays a role in retaining local customers through stable and low-cost services. These findings indicate that the combination of the three Docking facilities provides a strong competitive advantage for PT. XYZ in reaching various market segments. The study concluded that the effectiveness of marketing strategies is greatly influenced by the alignment between the technical characteristics of the Docking facilities, market needs, and the implementation of the marketing mix. These findings are expected to form the basis for developing more adaptive marketing strategies for shipyards in Indonesia.

***Keywords:*** **Airbag Docking, Cradle Docking, Floating Dock, Marketing Mix, Marketing Strategy.**

## 1. Introduction

The shipbuilding industry plays a strategic role in supporting the resilience and sustainability of the national maritime sector. In addition to new ship construction, ship maintenance and repair activities are crucial for maintaining seaworthiness and the operational efficiency of the maritime fleet (Kusnadi, 2020). According to the Ministry of Transportation (2021), the number of registered vessels in Indonesia has reached more than 72,000 units, indicating a growing need for ship maintenance and repair services. Unfortunately, this number is not matched by the availability of adequate docking facilities, both in terms of capacity and service quality (Jones & Lee, 2019). Therefore, optimizing docking facilities is crucial for the sustainability of the national shipping industry.

Docking facilities are key infrastructure in the ship repair process, as they lift vessels from the water to land for inspection and repair of the hull's undercarriage (Harsono & Widodo, 2022). Three systems commonly used in the shipbuilding industry are floating docks, airbag docking, and cradle docking. Each system has its own technical advantages and limitations, which impact a shipyard's operational efficiency and marketing strategy. Floating docks, for example, excel in capacity and flexibility for large vessels, but require high investment and maintenance. Conversely, airbag docking offers cost efficiency and location

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flexibility (Chang et al., 2021), while cradle docking is known for its stability and low operational costs, despite its lack of flexibility (Gunawan & Prasetyo, 2020).

The existence of these diverse docking facilities requires shipyards to develop marketing strategies tailored to the characteristics of each system. According to Hendrawan (2020), marketing strategies in the ship repair industry focus not only on service promotion but also on customer relationship management, efficient turnaround times, and quality of work. An effective strategy must highlight service excellence that meets customer needs and builds the company's reputation as a trustworthy service provider.

In the context of PT. XYZ, the company, has a competitive advantage because it operates all three types of docking facilities simultaneously in the East Java maritime industrial area. Floating Docks are used for large-scale projects with high safety standards. Airbag Docking services small to medium-sized vessels with a fast process, while Cradle Docking services local and regular vessels with efficient costs. This allows PT. XYZ to reach diverse market segments, but also requires a differentiated marketing strategy to optimize the utilization of each facility (Wahyudi et al., 2021).

The Marketing Mix (4Ps) concept, encompassing product, price, place, and promotion, is a crucial foundation for developing marketing strategies in shipyards (Kotler & Armstrong, 2020). In this context, products include ship repair and maintenance services; price reflects cost efficiency based on the complexity of the work; place refers to the strategic location and ease of access to facilities; and promotion relates to efforts to build the company's image through communication and digital media. Furthermore, a Segmentation, Targeting, and Positioning (STP) approach is also necessary to ensure each Docking facility has a clear target market and relevant selling points (Kotler & Keller, 2016). By implementing these two approaches, PT. XYZ can build a strong value proposition as a fast, efficient, and high-quality shipyard (Zeithaml et al. 2020).

Several studies support the importance of integrating technical excellence and marketing strategy in enhancing the competitiveness of the shipbuilding industry. Rahman and Putri (2021) highlight that the implementation of digital marketing and Customer Relationship Management (CRM) can expand market reach and increase customer loyalty. Meanwhile, Park et al. (2019) emphasize the need for flexibility in marketing strategies to address seasonal demand fluctuations. By combining traditional and digital approaches, shipyards can be more adaptive to market dynamics and maintain revenue stability.

Overall, optimizing docking facilities and implementing a marketing strategy based on STP and 4Ps is a crucial combination to strengthen PT. XYZ's position in the national ship repair industry. Through service differentiation, customer relationship management, and promotional innovation, PT. XYZ is expected to maintain its competitive advantage and make a significant contribution to the development of the Indonesian shipbuilding industry. This template, created in MS Word, provides authors with most of the formatting specifications needed for preparing electronic versions of their papers. All standard paper components have been specified for three reasons: 1) ease of use when formatting individual papers, 2) automatic compliance with electronic requirements that facilitate the concurrent or later production of electronic products, and 3) conformity of style throughout a journal paper. Margins, column widths, line spacing, and type styles are built-in; examples of the type styles are provided throughout this document and are identified in italic type, within parents, following the example. Some components, such as multi-leveled equations, graphics, and tables, are not prescribed, although various table text styles are provided. The formatter will need to create these components, incorporating the applicable criteria that follow. The book size will be A4. Please make sure that you do not exceed the indicated type area.

**The Development of the Shipbuilding Industry and the Role of Ship Repair in Indonesia**

The shipyard industry is a key component of the national maritime ecosystem. Its function extends beyond the construction of new vessels (shipbuilding) to include ship maintenance and repair activities, which are strategically important for maintaining the sustainability of the national maritime fleet. Within the context of the maritime economy, shipyards play a vital role in supporting the operations of maritime transportation, the fishing industry, offshore energy, and national defense and security. Therefore, the capacity and quality of the shipyard industry reflect the level of independence and competitiveness of a nation's maritime sector (Kusnadi, 2020). According to data from the Ministry of Transportation (2021), the number of registered Indonesian-flagged vessels reached 72,313, a 13.9% increase compared to the previous year. This fleet growth demonstrates a significant expansion of the national maritime transportation sector, in line with increasing domestic and international logistics flows. However, this increase in the number of vessels has not been accompanied by a commensurate increase in national shipyard capacity.

According to data from the Indonesian National Shipowners' Association (INSA, 2023), Indonesia has approximately 250 shipyards, spread across strategic areas such as Batam, Surabaya, Makassar, and Bitung. Of these, only around 30% have ship repair capabilities for vessels over 5,000 DWT, while the remainder focuses on maintaining small to medium-sized vessels. Indonesia's total ship repair capacity is estimated at 150,000 DWT per year, a figure that falls far short of actual national needs, given that the estimated demand for repair services exceeds 500,000 DWT per year (Ministry of Industry, 2022).

Given the potential growth of the national fleet and increasing maritime trade activity, the ship repair sector in Indonesia offers significant expansion opportunities. The Maritime Highway program launched by the government in 2015 has increased the frequency of inter-island shipping, which directly increases the need for regular maintenance. The Ministry of Industry (2023) projects that domestic demand for ship repair services will increase by an average of 7-8% per year until 2030, with the greatest opportunities in small-to-medium cargo vessels, fishing vessels, and port service vessels (tugboats and barges).

**Docking Systems in the Shipbuilding Industry**

Docking systems are a key infrastructure in shipyard activities, serving to lift ships from the water to a dry position for inspection, maintenance, and repair of the underwater hull. The existence of a docking system is a determining factor in the productivity, efficiency, and quality of ship repair services. According to the International Maritime Organization (IMO, 2022), approximately 70% of the total cost and time of ship repairs occurs during the docking and undocking phases. Therefore, the selection of a docking system must consider technical aspects, capacity, efficiency, and the shipyard's business strategy.

**Table 1.** Comparative Analysis of *Docking Systems*

| Aspect | ***Floating Dock*** | ***Airbag Docking*** | ***Cradle Docking*** |
|---|---|---|---|
| Ship Capacity | >10,000 DWT | <5,000 DWT | <2,000 DWT |
| Investment Costs | Very high | Low | Low |
| Mobility | Tall | Very high | Low |
| Time Efficiency | Fast | Very fast | Currently |
| Location Flexibility | Currently | Tall | Low |
| Security & Stability | Very good | Depends on the technician | Good |
| Market Segmentation | Large & institutional ships | Small-medium ships | Local boats/ *fishermen* |
| *Examples of Users* in Indonesia | PT PAL, PT DKB, PT XYZ | PT XYZ, PT Dumas | Regional small shipyard |

In general, the Indonesian shipyard industry uses three main types of docking systems: floating docks, airbag docking, and cradle docking (slipway systems). Each has its own distinct characteristics, advantages, and operational challenges.

## 2. Literature Review

**Marketing Strategy Based on STP and the Marketing Mix (4Ps) in the Shipbuilding Industry**

Marketing strategy is a key component in managing the competitiveness of the shipbuilding industry, particularly in the ship repair sector, which has specific market characteristics focused on service reliability, turnaround time, and cost efficiency. Marketing in the maritime industry context aims not only to attract new customers but also to build long-term relationships with shipowners through technical reputation and service quality (Kotler & Keller, 2016).

The most relevant strategic approach in this context is through Segmentation, Targeting, and Positioning (STP) analysis, which is then implemented through the marketing mix (4Ps) of Product, Price, Place, and Promotion.

According to data from the Indonesian Shipyard Association (ASPERINDO, 2023), the ship repair market in Indonesia can be divided into four main segments:

1. Large merchant vessels (tankers, cargo, passenger ships) requiring internationally certified services and large facilities such as Floating Docks (>10,000 DWT).
2. Medium-sized industrial vessels (tugboats, barges, and large fishing vessels) require cost efficiency with fast turnaround times, suitable for the Airbag Docking system (2,000-5,000 DWT).
3. Small vessels and regional vessels (patrol boats, inter-island passenger ships) generally rely on small shipyards with simple Cradle Docking or Slipway systems.
4. Institutional or military vessels require high security, compliance with defense standards, and operational data confidentiality.

Promotional activities in the ship repair industry have B2B (business-to-business) characteristics that differ from consumer product marketing. Promotion places greater emphasis on reputation, trust, and proof of technical performance. The integration of the STP approach and the 4Ps Marketing Mix results in a comprehensive, customer-oriented marketing strategy. In the context of PT. XYZ, this strategy is realized through:

1. Appropriate segmentation and targeting, focusing on medium-sized vessels with high efficiency requirements.
2. Consistent positioning, emphasizing speed, safety, and flexibility.

3. Harmonious implementation of the 4Ps, where each element supports the company's competitive advantage.

This approach is in accordance with the value-driven marketing theory (Kotler & Keller, 2016), which states that sustainable competitive advantage is achieved when marketing strategies are able to provide superior value to customers compared to competitors.

## 3. Research Method

This research uses a qualitative descriptive approach with a case study method at PT. XYZ, a ship repair yard located in East Java that operates three types of docking facilities: Floating Dock, Airbag Dock, and Cradle Dock. This approach was chosen because it allows researchers to gain a deeper understanding of the marketing strategies implemented at each facility and compare their effectiveness in increasing the company's competitiveness in the ship repair industry.

The research process was conducted from August 2025 to October 2025 and included direct observation in the shipyard work area, in-depth interviews with management and technical staff, and the collection of internal company documents related to docking marketing and operational activities. Data collection was conducted qualitatively to gain a contextual understanding of the relationship between the technical characteristics of docking facilities and the marketing strategies implemented.

The data used in this study consists of primary and secondary data. Primary data was obtained through semi-structured interviews with informants, including marketing managers, docking facility coordinators, operational staff, and ship owners with direct experience in marketing and docking project implementation. Meanwhile, secondary data was obtained through a literature review, including books, scientific journals, industry reports, and internal company documents such as annual performance reports, facility utilization data, and shipyard service promotional materials.

Data analysis was conducted qualitatively using thematic analysis techniques. Data from interviews, observations, and documentation were reduced, categorized, and then synthesized to identify patterns and meanings relevant to the research focus. The analytical framework used integrated the concepts of Segmentation, Targeting, and Positioning (STP) and the Marketing Mix (4Ps), which encompasses Product, Price, Place, and Promotion. Through this framework, each docking facility was analyzed based on the market segment served, its competitive advantages, the promotional strategies implemented, and the suitability of the marketing approach to the characteristics of the ship repair services market.

To ensure the validity of the data, this study employed source and method triangulation techniques. Interview results were compared with field observation data and company documents, then confirmed with key informants (member checking) to ensure that the researcher's interpretations aligned with the reality experienced by the company. This approach was used to avoid bias and ensure the validity of the findings.

Overall, this study aims to produce a comparative analysis of the effectiveness of marketing strategies at three different docking facilities at PT. XYZ. The results of this analysis are expected to form the basis for formulating recommendations for developing more efficient marketing strategies aligned with the technical strengths of each facility, thereby strengthening the company's competitive position in the national shipbuilding industry. This study is limited by its focus on a single shipyard, PT. XYZ, making the results contextual and not broadly generalizable. Nevertheless, these findings provide an empirical contribution to the understanding of marketing strategies in the shipbuilding repair sector in Indonesia.

## 4. Results and Discussion

PT. XYZ is a ship repair yard in East Java that boasts a competitive advantage in the form of three types of docking facilities: Floating Dock, Airbag Dock, and Cradle Dock. These three facilities enable the company to reach the small, medium, and large ship market segments. Based on aggregate operational data from 2021 to 2025, the increase in ship repair demand is dominated by small and medium-sized vessels, which implies a high frequency of use of Airbag Dock and Cradle Dock. Floating Dock is used less frequently, but handles projects with a higher level of complexity. The way chapter titles and other headings are displayed in these instructions is meant to be followed in your manuscript.

**Table 2.** Number of Incoming Ships per Facility (2021 - 2025)

| Year | *Floating Dock* | *Airbag Docking* | *Cradle Docking* | Total Ships |
|---|---|---|---|---|
| 2021 | 74 | 15 | 19 | 108 |
| 2022 | 60 | 11 | 7 | 78 |
| 2023 | 48 | 13 | 12 | 73 |
| 2024 | 59 | 13 | 10 | 82 |
| 2025 | 33 | 13 | 16 | 62 |

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2021 to 2025, the increase in ship repair demand is dominated by small and medium-sized vessels, which implies a high frequency of use of Airbag Dock and Cradle Dock. Floating Dock is used less frequently, but handles projects with a higher level of complexity.

**Table 3.** General Comparison of PT. XYZ *Docking Facility Characteristics*

| Aspect | ***Floating Dock*** | ***Airbag Docking*** | ***Cradle Docking*** |
|---|---|---|---|
| Ship capacity | >10,000 DWT | <5,000 DWT | <2,000 DWT |
| Main advantages | Stable, safe, large capacity | Low cost, fast, flexible | Stable on land, low cost |
| Challenge | High investment and costs | Risk of gastric deformation | Not flexible, small capacity |
| Market segmentation | Large ships & institutions | Tugboats, barges, and local ships | Small/regular ships |

*Table adapted from sources: Chang et al. (2021); Gunawan & Prasetyo (2020); Harsono & Widodo (2022); Wahyudi et al. (2021).*

**Marketing Strategy Implemented by PT. XYZ**

Marketing strategy analysis was conducted using the Segmentation, Targeting, Positioning (STP) and Marketing Mix (4P) approaches. The results showed that differences in the technical characteristics of each docking facility directly influence the marketing strategy implemented. For Floating Dock, the company targets large vessels and institutional customers requiring internationally certified services and a high level of safety. This facility is positioned as a premium service offering faster, safer docking processes and the ability to handle complex repair work. The marketing strategy focuses on service quality, technical professionalism, and the shipyard's track record.

For Airbag Docking, the marketing strategy is directed at the small-to-medium ship customer segment requiring fast, cost-effective service. The advantage of lower operational costs compared to a floating dock is a key selling point. The company promotes this facility as a flexible and economical solution for daily-operating vessels such as tugboats, fishing vessels, and barges.

For Cradle Docking, the marketing strategy focuses on maintaining long-term relationships with local customers. This facility's positioning focuses on the stability of vessels' positions while ashore and lower repair costs. This segment is dominated by patrol boats, fishing vessels, and traditional vessels undergoing regular maintenance. To illustrate the marketing focus of each facility, the following table summarizes the results of the STP and Marketing Mix analysis.

**Table 4.** Synthesis of Marketing Strategy Based on the Type of *Docking Facilities* at PT. XYZ

| Facility | Product | Price | Place | Promotion | ***Positioning*** |
|---|---|---|---|---|---|
| *Floating Dock* | Complex repair, large project | Highest | Strategic location, large ship access | Track record, certification | Fast, safe, professional |
| *Airbag Docking* | Fast & economical repair | Affordable | Flexible for multiple vessels | Speed & efficiency | Fast *Docking* Solution |
| *Cradle Docking* | Stable and routine repairs | Low | Small boats only | Relational communication | Stable & cheap *docking* |

*Source: Researcher analysis based on internal documents of PT. XYZ.*

**Marketing Strategy Effectiveness**

The effectiveness of the marketing strategy is evaluated based on docking facility utilization, the match between the target market and facility characteristics, and customer perceptions of PT. XYZ's services. Based on docking activity data from 2021 to 2025, Airbag Docking demonstrated the highest level of effectiveness in terms of incoming vessel volume. This aligns with the small-to-medium vessel market, which operates predominantly in East Java and tends to undergo periodic maintenance at short intervals. The speed of the docking process and low operational costs are key factors in the success of Airbag Docking's marketing strategy. Meanwhile, Floating Docking demonstrated a different level of effectiveness. Despite its lower incoming vessel volume, this facility has a higher project value because the work handled is generally complex and requires international classification standards. The marketing strategy, which emphasizes

professionalism and safety, has proven effective, as customers at this facility are more sensitive to quality than price.

Cradle Docking demonstrated consistent effectiveness due to the support of local customers with routine maintenance needs. Although its economic value is not as high as that of Floating Dock, this facility makes a significant contribution to maintaining customer continuity and building long-term loyalty. Overall, these three facilities provide distinct marketing contributions: the Floating Dock reinforces the company's image as a high-standard shipyard, the Airbag Docking provides the largest customer volume, and the Cradle Docking maintains stable customer relationships. All three have proven to complement each other and strengthen PT. XYZ's competitive position in the national ship repair industry.

**PT. XYZ's Docking Service Development Plan**

The Docking facility development plan focuses on increasing service capacity, operational efficiency, and the company's competitive value. For the Floating Dock, development is directed at increasing lifting capacity and modernizing the ballast system to meet the future needs of large vessels. For the Airbag Docking, the company plans to increase the number of airbags and implement a pressure monitoring sensor system to improve operational safety and accuracy. For the Cradle Docking, development focuses on strengthening the slipway rail structure and upgrading the cradle to improve stability and handling capacity for small vessels. From a marketing perspective, these development plans align with market needs and changing industry trends. Increasing the capacity of the Floating Dock can expand opportunities to enter the large institutional vessel market, improvements to the Airbag Docking can strengthen its competitive advantage in the low-cost segment, and the development of the Cradle Docking can improve the convenience and accuracy of work for local customers.

## 5. Conclusion

This study concludes that the differences in technical characteristics of Floating Dock, Airbag Dock, and Cradle Dock facilities influence marketing strategies and the effectiveness of each facility in attracting customers. Airbag Dock proved to be the facility with the highest marketing effectiveness because it aligns with the dominant market for small to medium-sized vessels, has low operational costs, and offers a fast-docking process. Floating Dock, despite having fewer customers, still contributes significantly to project value because it is used for large-scale projects that require high quality and safety standards. Cradle Dock plays a role in maintaining local customer loyalty through stable service, low costs, and ease of routine maintenance. Overall, the combination of these three docking facilities enables PT. XYZ to serve diverse market segments and build strong competitiveness in the ship repair industry. The success of PT. XYZ's marketing strategy is also influenced by the implementation of the STP approach and Marketing Mix, which align with the technical strengths of each facility. The docking facility development plan is considered appropriate for strengthening the company's competitive position in the future.

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