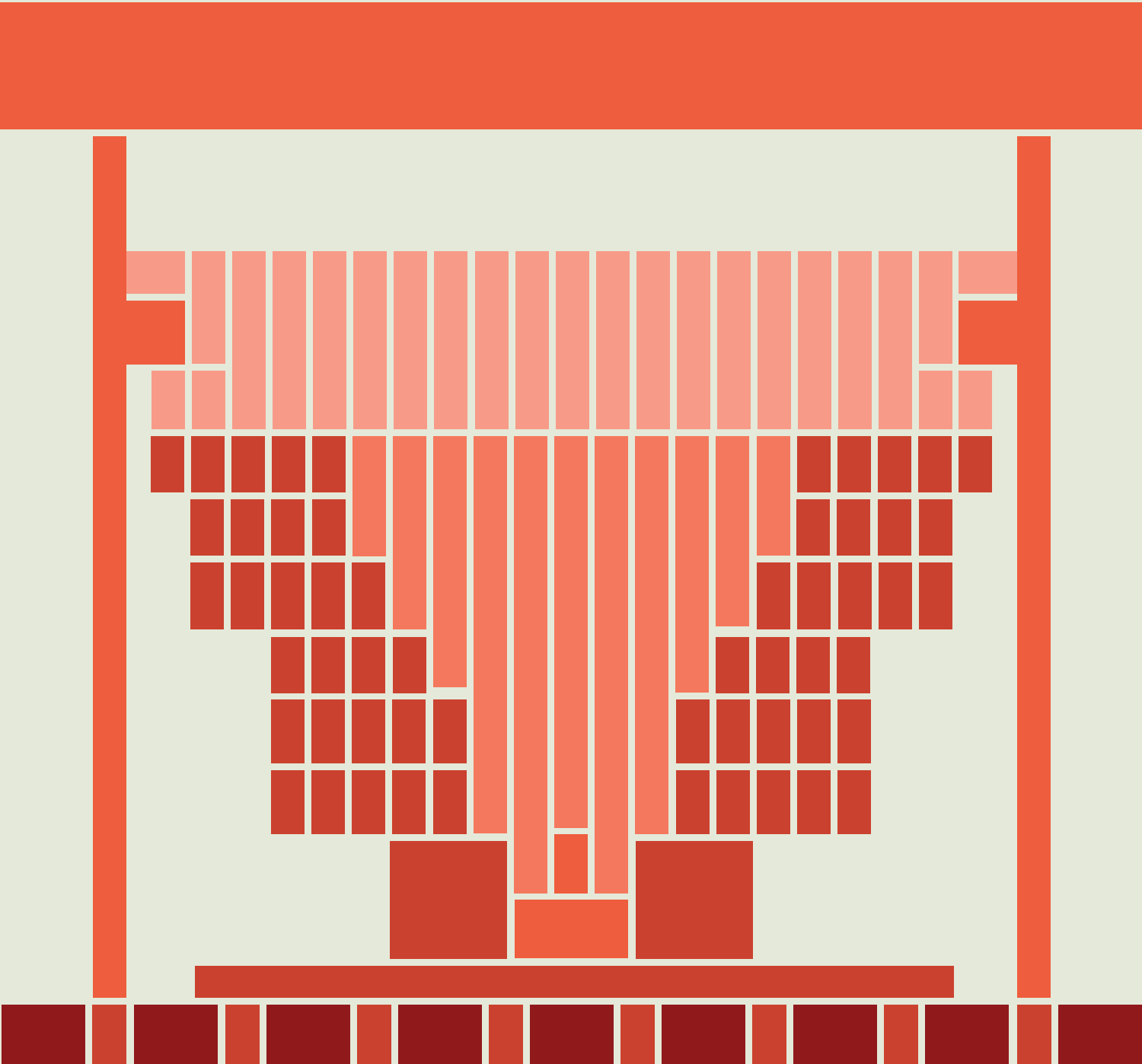




Research conducted by
Manos Charitos,
Konstantina Agrapidaki
and Giannis Theodoropoulos

SHIPYARD

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SELECTION CRITERIA

Shipping, more so in the past but still today, is considered a “perfectly competitive” market where the only hard-to-overcome barrier is the cost of acquiring a ship.

In light of this, acquiring a seaworthy merchant vessel is crucial to successfully operating in the highly competitive, global shipping arena. Therefore, shipping companies consider many criteria when purchasing a ship from the second-hand market, but even more so when placing a newbuild order.

The choice of shipbuilding country and specific shipyard is based on multiple factors. At the same time, shipping companies thoroughly consider and evaluate their available options when placing a new order but also when maintenance or retrofit work is involved, in which the choice of shipyard plays an equally critical role.

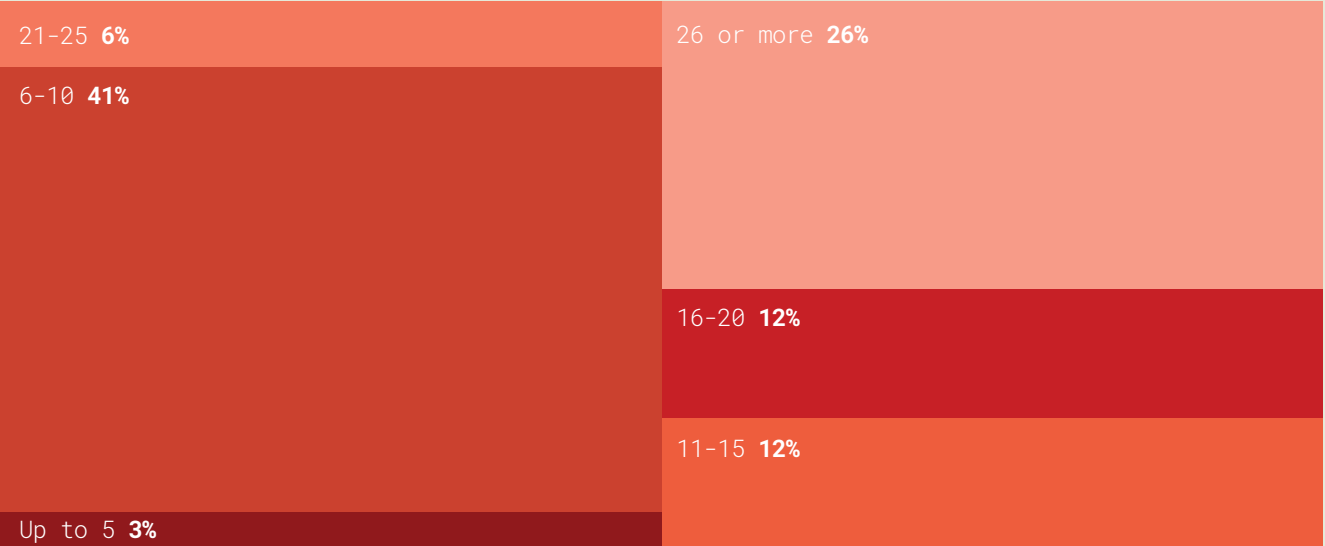
Achieving a successful partnership requires that the company include a comprehensive yard evaluation in its decision-making process. This process is driven by several key criteria, such as technological advancement, innovative capabilities, and diligence regarding safety and environmental standards. Furthermore, the shipyard’s alignment with the company’s organisational values, transparency, and commitment to fostering collaborative relationships influences the ultimate choice significantly.

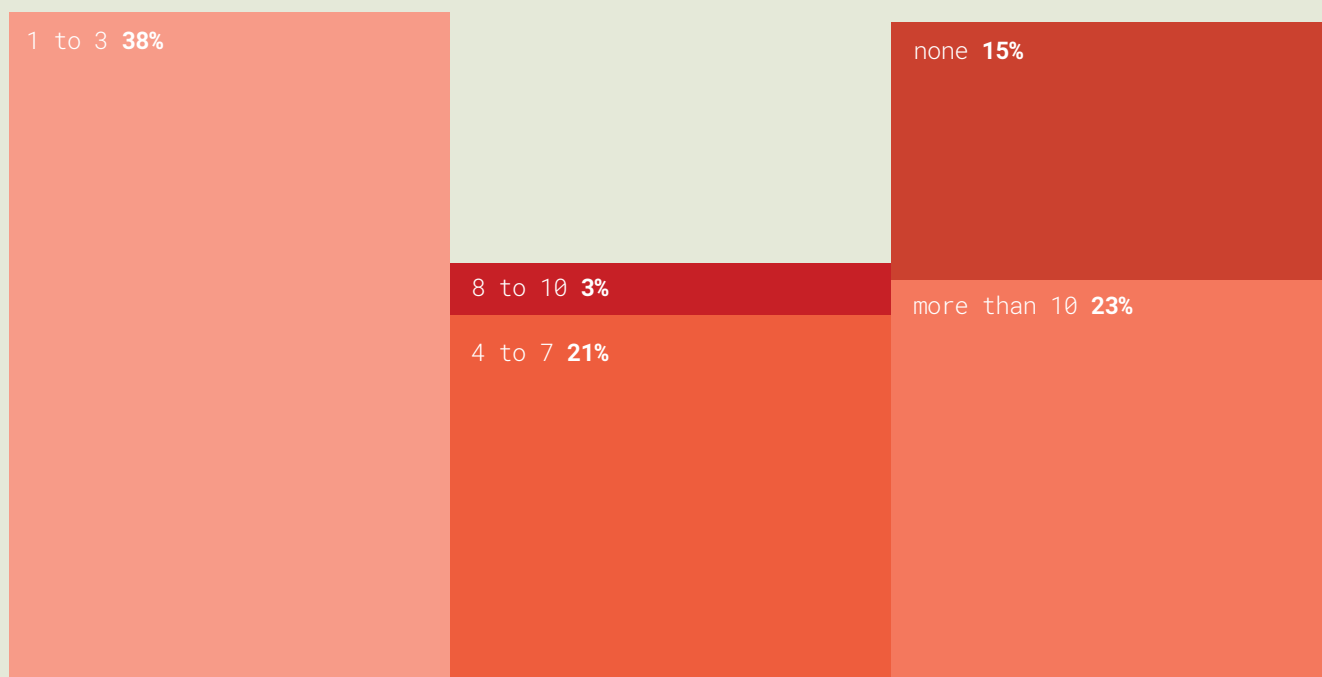
In this context, Naftika Chronika conducted a survey on the subject of “Shipyard selection criteria” based on the responses of representatives of various shipping companies to a relevant questionnaire. A total of 34 technical managers participated in this survey, contributing their insights and experience.

The primary aim of this research was to record expert opinions on the factors influencing the selection of a shipyard and to draw conclusions about their relative importance.

THE SIZE OF THE COMPANIES
As indicated in Graph 1, the vast majority (41%) of the companies represented in the survey manage fleets comprising 6

Graph 1
Distribution of participants based on the number of ships managed by the companies they represent





to 10 vessels, while a notable percentage (26%) operate 26 or more vessels. Additionally, 30% of the companies manage fleets of 11 to 25 vessels, while a mere 3% of the participants represent companies with fleets of up to 5 vessels.

THE TYPES OF VESSELS MANAGED BY THE COMPANIES

Besides fleet size, an additional axis of the survey's categorisation is the types of vessels these companies manage. The available answers included the main ship types: bulk carriers, tankers, containerships, LNG and LPG carriers, passenger ships, and specialised cargo vessels.

The first interesting finding is the number of participants employed by companies that exclusively manage one type of ship. Specifically, six survey participants represent companies exclusively managing bulk carriers, while nine represent companies exclusively managing tankers. Another nine participants represent companies that manage bulk carriers and tankers. Therefore, 24 of the 34 participants work in companies that operate exclusively in bulk shipping.

In addition to the above, there are four companies that manage two types of ships, three of which operate tankers and LPG carriers.

Moreover, there is one company that manages three types of ships, one that manages four types, and three companies that manage five types.

At the same time, there are also companies operating in markets other than the four main ones (i.e., the bulk carrier, tanker, containership, and gas carrier markets) that manage RoRo vessels. However, none of them exclusively manages the above vessel types.

Finally, one of the participants represents a company that exclusively manages containerships.

ORDERS IN THE PAST DECADE

One of the questions participants were asked to answer concerned the number of vessels their companies have ordered over the last 10 years.

Regarding vessel orders in the last 10 years, the responses exhibited a diverse distribution, as a significant proportion (38%) of participants answered that the company they represent had placed orders for 1 to 3 vessels. Additionally, 23% of the companies ordered more than 10 vessels, and 21% placed orders for 4 to 7 vessels. Notably, 15% of the participants work at companies that have ordered no vessels in the past ten years, potentially reflecting uncertainties regarding the future of ship propulsion or indicating a different approach to ship investments.

Graph 2
Distribution of participants based on the number of ships ordered in the last ten years by the companies they represent

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SHIPBUILDING



CHOICE OF SHIPBUILDING COUNTRY WHEN ORDERING A VESSEL

In the modern shipbuilding arena, three countries currently hold the reins. Specifically, China, South Korea, and Japan are the leading shipbuilding countries on a global scale, with the first two playing a more important role today.

The 34 survey participants were asked which country the company they represent chooses when it comes to ordering vessels.

Based on the representatives' replies, a substantial percentage of companies (41%) seem to prefer Chinese shipyards, closely followed by South Korean shipyards (38%), while 12% choose Japan and 9% "Other" countries.

This distribution accurately reflects the changes that have taken place in the shipbuilding industry. The presence of Japanese-built ships in the world fleet is declining as China and South Korea compete for a spot at the top.

Of the 9% of participants who chose the option "Other", one said that the choice of shipbuilding country depends on the type of vessel being ordered, another that he hoped to be able to use Greek shipyards in the near future; another stated that they are not ordering ships at this time.

FACTORS AFFECTING THE CHOICE OF SHIPBUILDING COUNTRY

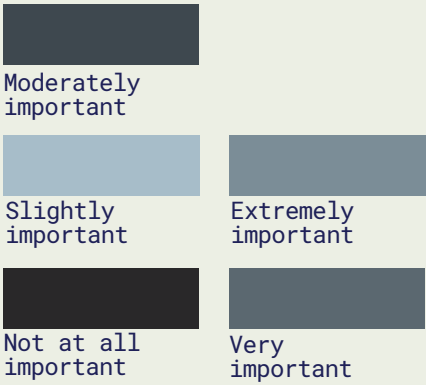
The participants were asked to express their opinion about the importance of various factors when choosing a shipbuilding country. The survey participants rated the factors on a scale of 1 to 5, with 1 being 'Not at important' and 5 being 'Extremely important.'

As regards the "Established relationships" and "Tradition" options, the majority of respondents, i.e., 85% and 59%, respectively, consider these two factors to be very or extremely important in their decision-making process. These findings highlight the significance of historical ties and long-standing relationships in influencing the choice of a shipbuilding country.

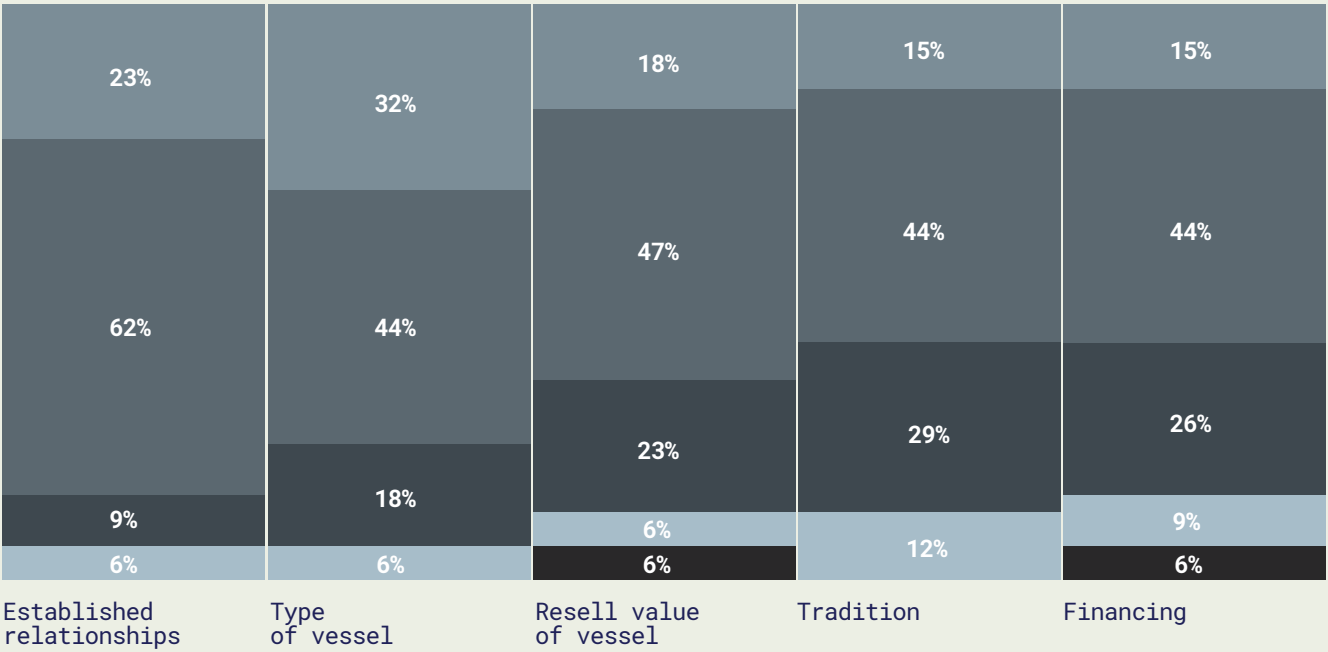
Shipping companies prefer yards they have collaborated with in the past that have delivered high-quality vessels on time and within budget. Effective communication during the shipbuilding process is considered of paramount importance. Moreover, established relationships help mitigate misunderstandings and facilitate the execution of shipbuilding projects.

The "Type of vessel" is another critical aspect companies weigh in when ordering new vessels. A remarkable

Graph 3
"Which country's shipyards do you usually choose when it comes to ordering a vessel?"



Graph 4
"How important do you consider each of the following factors in choosing a shipbuilding country?"



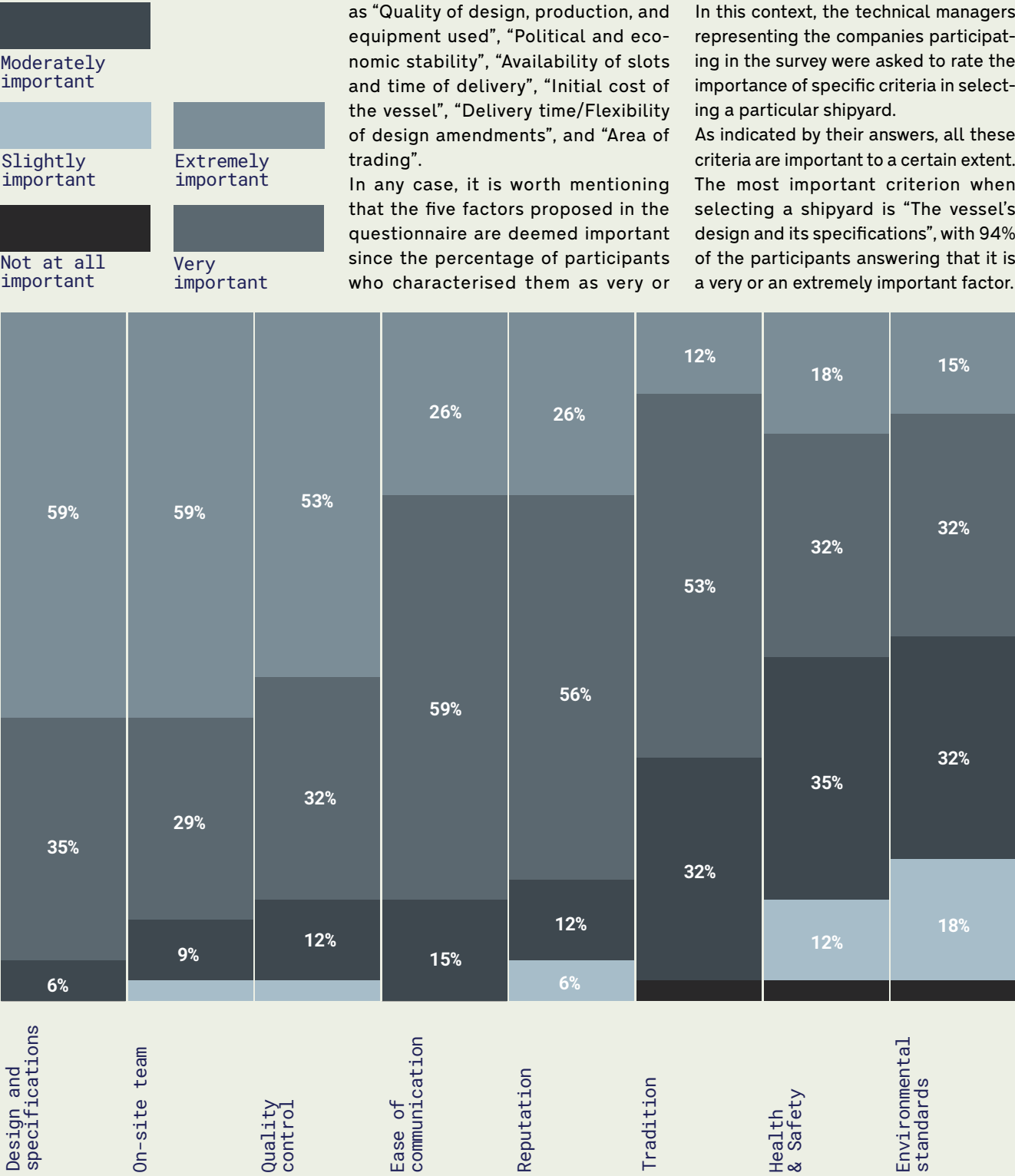
76% of the participants responded that their company rates it very or extremely important, which suggests that the vessel's specific characteristics and requirements significantly impact the choice of shipbuilding country. A type of vessel may require particular infrastructure and facilities during the construction process and may also affect the overall construction cost.

Regarding the "Resell value of vessel" and "Financing" options, approximately

half of the participants (47% and 44%, respectively) consider these factors as very important, while 18% and 15%, respectively, believe that they are extremely important. That indicates that shipping companies often seek to build vessels in countries with stable economies to reduce the risk of unexpected cost overruns or delays. Moreover, countries with advanced shipbuilding technologies and facilities often produce ships of greater efficiency and improved performance.



Graph 5
"How important do you consider each of the following factors regarding your choice of a specific shipyard?"



These vessels may have a competitive advantage in the market by enhancing their potential resale value and being more attractive to buyers in the second-hand market.

Last but not least, some participants consider other (not listed in the survey) factors influential in the choice of shipbuilding country, such as "Quality of design, production, and equipment used", "Political and economic stability", "Availability of slots and time of delivery", "Initial cost of the vessel", "Delivery time/Flexibility of design amendments", and "Area of trading".

In any case, it is worth mentioning that the five factors proposed in the questionnaire are deemed important since the percentage of participants who characterised them as very or

extremely important factors exceeds 50%.

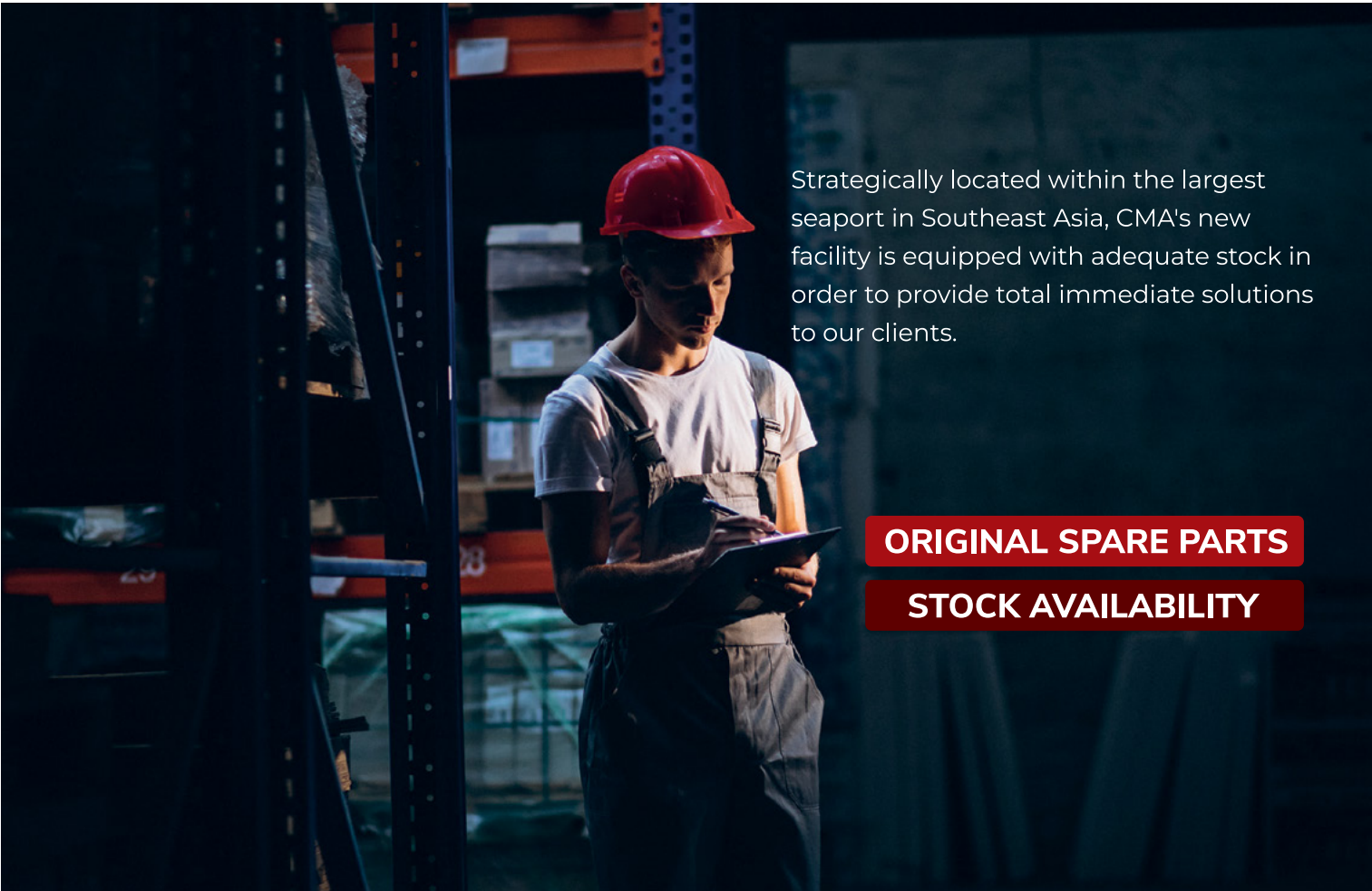
SHIPYARD SELECTION CRITERIA FOR ORDERING A SHIP

Companies use specific criteria when selecting the country in which to build a ship, but also regarding the choice of shipyard as such.

In this context, the technical managers representing the companies participating in the survey were asked to rate the importance of specific criteria in selecting a particular shipyard.

As indicated by their answers, all these criteria are important to a certain extent. The most important criterion when selecting a shipyard is "The vessel's design and its specifications", with 94% of the participants answering that it is a very or an extremely important factor.

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At the same time, no one rated it as slightly or not at all important. An equally important criterion is the availability of an “On-site team” with 88% of participants rating it as a very or extremely important criterion. “Quality control” is also a very important criterion, as 85% of the participants rated it as very or extremely important. These three criteria are the only ones at least one in two participants rated as extremely important. However, this fact does not imply that the remaining criteria were considered unimportant by the participants. Furthermore, the “ease of communication” and “reputation” criteria were characterised as very or extremely important by 85% and 82% of participants, respectively.

“Tradition” seems to play an important role, as 65% of participants rated it as very or extremely important. Strong, long-term collaborative ties between shipping companies and shipyards are common, especially in the case of large-scale companies.

An indicative example is the Angelicoussis Group, which maintains close long-term collaboration with the South Korean Daewoo Shipbuilding & Marine Engineering shipyard. According to information available on the Maran Gas Maritime website, more than 30 ships of the company’s fleet have been built in this shipyard’s facilities.

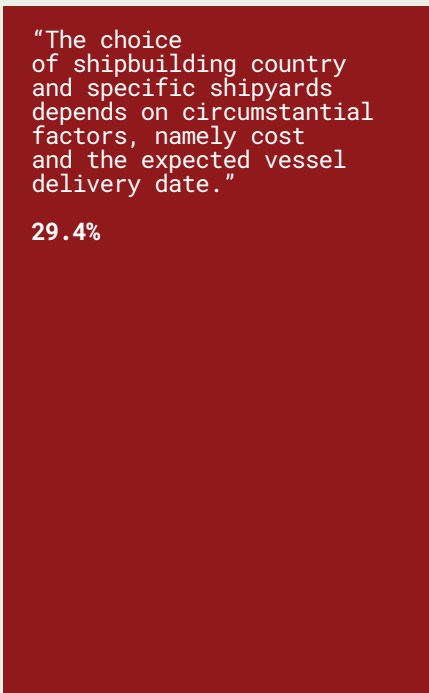
Moreover, “Health & safety” and “Environmental standards” criteria were characterised as very or extremely important by 50%, and 47% of the participants, respectively.

It is worth noting that some of the participants emphasised the importance of the availability of slots and time of delivery when selecting a shipyard.

THE STATEMENT THAT SUITS EACH COMPANY BEST

In the next question, the technical managers were asked to choose the statement they thought best describes the shipyard selection process of the company they represent when looking to place orders for newbuilds. There were three options available:

- “We return to the same shipyard if we are satisfied with the result, trying to build a long-term collaboration.”

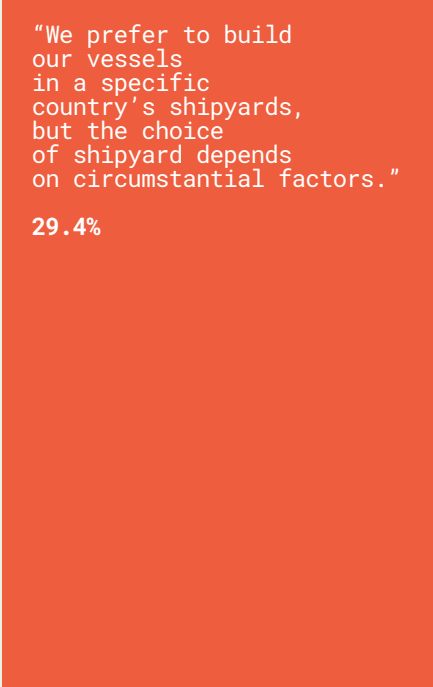


This statement was chosen by the majority of technical managers (41.2%), indicating that companies attach great importance to the quality of the ships delivered to them and the services provided by a shipyard throughout the construction of a newbuild. Therefore, if a company is satisfied with a shipyard’s services, it has no reason not to return to that shipyard and, by extension, build a stable and long-term collaboration with it. This finding confirms that long-term collaboration is of decisive importance for the choice of a shipyard.

- “The choice of shipbuilding country and specific shipyards depends on circumstantial factors, namely cost and the expected vessel delivery date.”

The choice of this particular statement by the participants indicates that the companies they represent take into account various situational factors before deciding in which country and which shipyard to build their ships, such as the cost of construction and the expected delivery of the vessels.

The fact that 29.4% of the participants chose this statement shows that some companies, in addition to certain fixed factors, also consider factors related to market volatility, shipping cycles, and the state of the economy.



Graph 6
“Which of the following fits your company best?”

- “We prefer to build our vessels in a specific country’s shipyards, but the choice of shipyard depends on circumstantial factors.”

The statement above was chosen by 29.4% of the technical managers, demonstrating that their companies place more emphasis on the country of construction than on the shipyard itself. The choice

of a shipyard is also determined by various other circumstantial factors related to the conditions prevailing during the period of making the decision.

In addition, this percentage indicates the existence of potential advantages or special capabilities in the particular area that make its shipyards attractive for shipbuilding.

THE SHIPBUILDING INDUSTRY’S OUTLOOK

POSSIBLE RELOCATION REGIONS FOR SHIPBUILDING FACILITIES

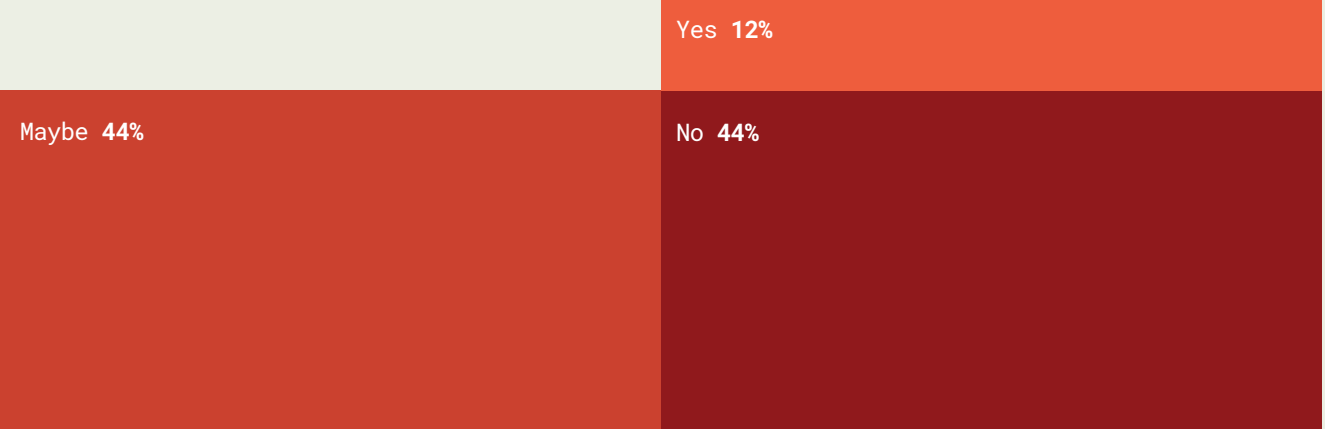
The opinions of the survey participants on the possibility of shipyard relocations are also of interest since the competitiveness of the shipbuilding industry is related to labour force availability, technological development, and environmental sensitivity.

The participants are equally divided between the “No” and “Maybe” answers. Specifically, 44% of the technical managers believe that shipyards will not change location, while 44% are unsure and do not have a clear opinion on this. These results indicate that despite successive changes on the demographic and environmental front, relocating shipbuilding facilities seems quite a difficult undertaking.

The choice of “No” may be because the respondents took into account the stability of the environment and factors affecting shipbuilding at the location. In contrast, the choice of “Maybe” indicates that the respondents believe that

a location change may occur because the development of new technologies requiring new shipbuilding facilities is uneven. At the same time, the workforce factor is also important. A case in point is South Korea, which is facing a severe shortage of shipyard workers and is therefore turning to workers from other Asian countries to meet its needs. At the same time, 12% of the technical managers stated that they are sure a future relocation of certain shipyard units to other countries will take place. Participants who considered a change of location of shipbuilding facilities possible were asked to specify the most likely location among “Africa,” “Other Asian countries (e.g., Vietnam),” “Middle East,” and “Other.” The majority of those who answered affirmatively to the question (i.e., 4 participants) ticked the “Other Asian countries (e.g., Vietnam)” option. This choice can be justified by the fact that these countries have cheaper labour compared to other regions, which contributes to reducing

Graph 7
“Given that competitiveness in the shipbuilding industry is correlated with labour availability, technological evolution, and environmental sensitivity, do you believe shipbuilding facilities will change locations?”



production costs. Another possible reason could be a better geographical location for shipbuilding and serving international shipping routes. Moreover, two participants believe that the Middle East is the likely new location for shipyards. This choice is of particular interest given that some countries in the Middle East, such as the UAE and Saudi Arabia, have invested significantly in developing their shipbuilding industry, creating modern high-tech shipbuilding facilities. One respondent chose Africa as a likely shipyard location in the future. Africa has yet to persuade the shipping industry about its ability to rise as a major shipbuilding continent, which could be explained by the political unrest in some

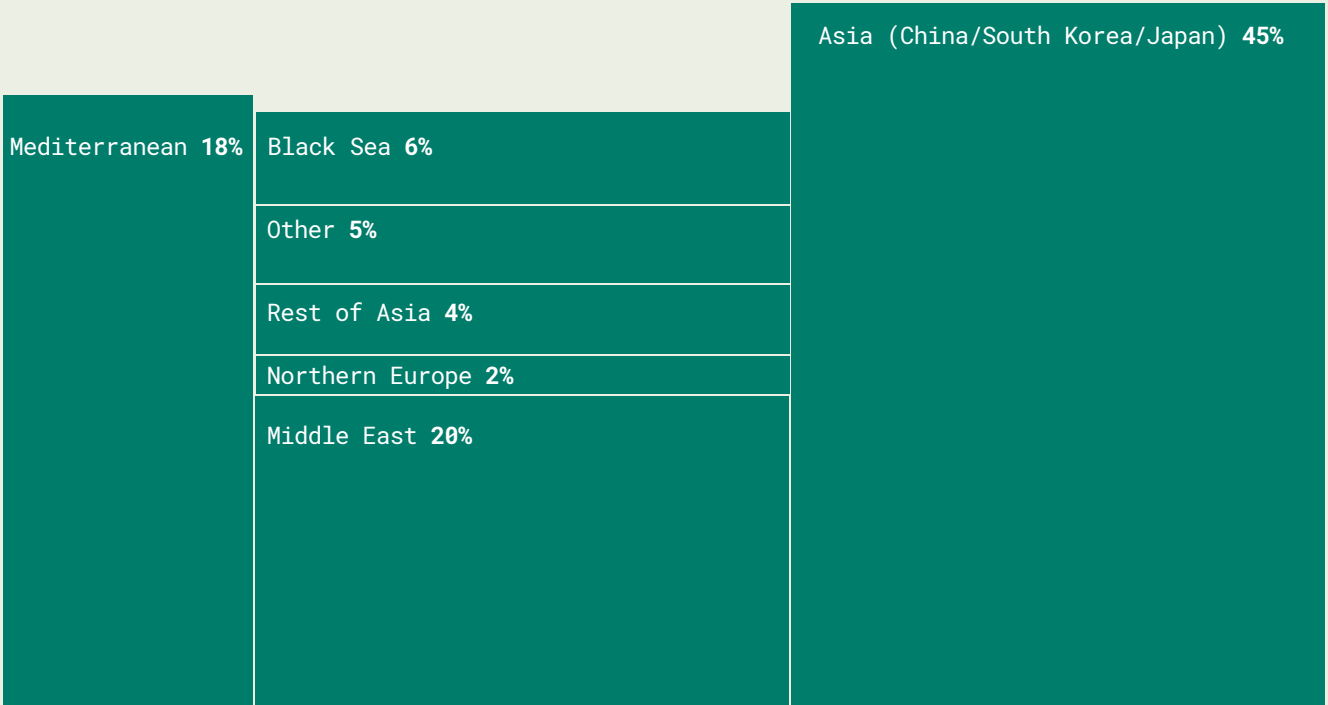
African countries and the lack of adequate infrastructure. At the same time, however, commodities and shipping analysts have stressed that Africa will play an important role in transport in the coming years due to its rich natural resources and highly dynamic labour force. Some respondents also expressed the view that a change in location from Japan and South Korea to China, Vietnam, and the Arabian Gulf is already taking place. At the same time, India's prospects of becoming a shipbuilding country are high. One participant commented that the relocation of the shipyards would depend on Japan and South Korea's immigration policies on the possible importation of foreign labour.

SHIPREPAIRING

WHAT ARE THE MAIN SHIP REPAIR HUBS?
The following section of the survey concerns the shipyard selection criteria for carrying out repairs/maintenance, etc. As shown in Graph 8, when it comes to ship repairs, Asian shipyards are the first choice of 45% of the respondents. This figure is unsurprising, given that Asian

countries such as China, South Korea, and Japan have developed a strong and reliable shipbuilding industry. The need to comply with new environmental standards may direct companies to shipbuilding states that have invested and continue to invest in advanced technologies that reduce ship emissions.

Graph 8 "Which region's shipyards do you usually choose for vessel maintenance or upgrades?"



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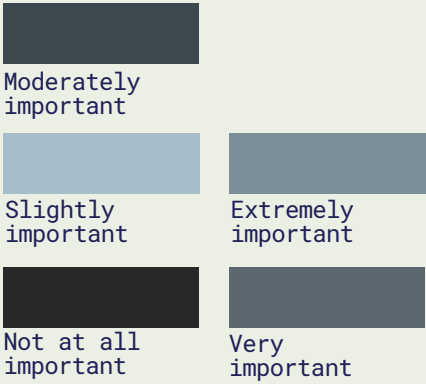


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Graph 9 “How important do you consider each of the following factors in choosing a ship repair facility?”



The “Middle East” and “Mediterranean” gathered relatively high percentages (20% and 18%, respectively). The strategic geographical positions of these regions, which have led to their becoming important maritime transport hubs, probably contributed to this choice. In contrast, some options, such as “Northern Europe” and “Black Sea,” garnered particularly low percentages (2% and 6%, respectively).

Finally, of particular interest is that one participant ticked the “Other” option, explaining that the company he works for chooses shipyards in Singapore, Dubai, and Lisbon for its ship repairs.

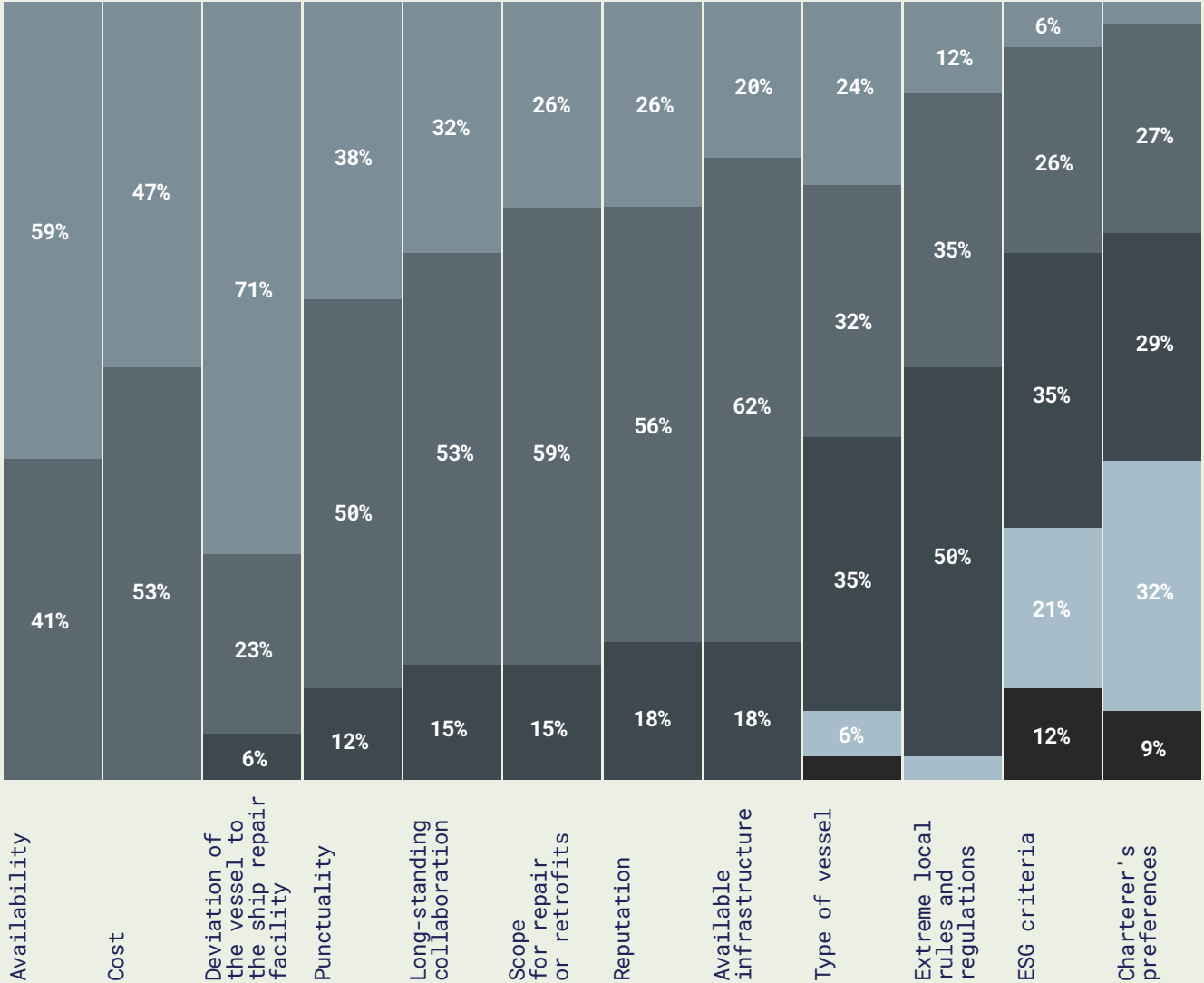
At this point, it is worth noting that each participant could choose up to three answers. However, this does not mean that everyone chose three.

Instead, several participants chose two answers (6 people) or only one (15 people). Following the principle that each participant has the same “value,” we have assigned a weighted value to each answer.

In the event that one of the participants chose only one answer, their answer has three times the value of that of a participant who chose three.

SHIP REPAIR SHIPYARD SELECTION CRITERIA

In the next question, the technical managers were asked to rate the importance of specific criteria regarding the choice of a shipyard for the repair of their ships. The survey participants rated the factors on a scale of 1 to 5, with 1 being ‘Not at all important’ and 5 being ‘Extremely important.’



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94%

OF PARTICIPANTS
CONSIDER
THE "DEVIATION
OF THE VESSEL
TO THE SHIP REPAIR
FACILITY" A "VERY"
OR "EXTREMELY" IMPORTANT
FACTOR WHEN CHOOSING
A SHIP REPAIR FACILITY

The most important factors are undoubtedly "Availability" and "Cost." All survey participants rated them as very or extremely important, which suggests that companies want to make sure that the shipyard will be able to receive their ship for repairs in the desired time frame and at the lowest possible cost.

At the same time, 94% of the technical managers deem "Deviation of the ship to the ship repair facility" as a very or extremely important factor, which shows it is one of the most critical factors.

The "Long-standing collaboration" and "Reputation" factors seem to be decisive for the participants, as 85% and 82% of the participants characterised them as "Very" or "Extremely" important, which also confirms the above findings, i.e., that most companies prefer to collaborate with shipyards that have a good reputation with which they have established long-term collaborative relationships.

Moreover, the "Punctuality" factor is rated as very or extremely important by 88% of the participants, given that punctuality and adherence to sched-

ules are of prominent importance as possible delays in repairs can cause companies financial losses, especially in times of good charter markets. "Scope for repairs or retrofits" was rated as a very important factor by 85% of the respondents.

On the contrary, "ESG criteria" seems to be one of the least important factors, with 32% of the participants characterising it as very or extremely important. In contrast, the largest percentage, i.e., 35%, rated it moderately important. This finding demonstrates that shipping companies focus more on financial and technical criteria and that the discussion on ESG criteria may be premature.

It is also worth noting that 50% of the technical managers considered the "Extreme local rules and regulations" factor moderately important.

Finally, 41% of the participants rated the "Charterers' preferences" factor as slightly important or not at all important, indicating that companies consider charterers' preferences to a lesser extent when selecting a shipyard for repairs.

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