A Framework for Assessing Trust of Women Seafarers' Performance in Indonesia's Maritime Sector using Analytical Hierarchy Process and System Dynamics

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ABSTRACT

The objective of this research is to elucidate the confidence levels of Women seafarers regarding their performance within the maritime sector, with a specific emphasis on Indonesia. Grounded in trust theory, which explores the performance dynamics of women in seafaring roles, this study employs a statistical descriptive qualitative methodology, utilizing both the Analytical Hierarchy Process (AHP) and System Dynamics as analytical tools. The data analysis was conducted using Microsoft Excel and Stella software version 9.1.3. The investigation identified 'Competence' (Variable A) as the primary factor, assigned a weight of 0.411. This was followed by 'Integrity' (Variable B) and 'Benevolence' (Variable C), with respective weights of 0.328 and 0.261. Detailed analysis further revealed that within the Competence category, the 'Experience' sub-variable (A5) emerged as the most significant, with a weight of 0.102. Other sub-variables of note included 'Capabilities' (A1) in Competence, 'Character' (B3) in Integrity, 'Empathy' (C4) in Benevolence, and 'Honesty' (B2) in Integrity, with weights of 0.091, 0.081, 0.074, and 0.071 respectively. The overall assessment of trust in the performance of Women seafarers within Indonesia's maritime industry yielded a score of 3,170, corresponding to 63.68%, which falls within the medium trust category. This categorization was consistent across all examined variables. It was observed that 'Harassment & Abuse' significantly contributed to the erosion of trust, holding the highest weight of 0.276. In contrast, 'Lack of Representation and Segregation' were identified as the least impactful factors, with a weight of 0.09. On the positive side, 'Supportive Work Environment' was recognized as a crucial factor, with the highest weight of 0.322, whereas 'Raising Awareness' and 'Recruitment & Retention' were found to be the least influential, each with a weight of 0.122. Furthermore, the study's scenarios one, two, and three revealed that without alterations in existing policies or strategies, there is no anticipated variation in the enhancement of trust levels among Women seafarers over a period of eight years. This finding underscores the need for strategic interventions and policy reforms to improve trust levels in this sector.

1. Introduction.

In the global shipping industry, the workforce is predominantly male, with women constituting only 2% of the approx-

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imately 1.2 million seafarers worldwide. Of this small percentage, a significant 94% are engaged in various roles within the shipping sector (Pasyah et al., 2021). Notably, the representation of women seafarers in some shipping companies is considerably lower compared to their male counterparts (Devereux & Wadsworth, 2023). This disparity is partly attributed to enduring perceptions that view ships primarily as a male domain, a belief that significantly hinders the integration of women into the maritime sector (Acejo & Abila, 2016). Women

seafarers often find themselves under pressure to prove their worth, frequently undertaking more strenuous or challenging tasks. The hurdles faced by women in maritime industries are not only multifaceted but also vary considerably across different countries (Yunus & Said, 2018). One particular challenge for Women seafarers is the requirement to perform physically demanding tasks, a demand that becomes more complex due to physiological differences between men and women (Narayanan et al., 2023).

The shipping industry, characterized by its inherent risk factors, exhibits unique qualities that can significantly impact the dynamics of trust formation (Gausdal & Makarova, 2017). Will gender parity be achieved among seafarers in the foreseeable future? (Kolodziej & Kolodziej-Durnas, 2015). The prevalence of distrust among crew members can adversely affect the retention of women in this field (Yunus & Said, 2018). Mejia (2021) underscores the importance of cultivating an interactive and open work environment that supports the development of trust and camaraderie. This includes fostering relationships with superiors and colleagues who value both autonomy and teamwork. Furthermore, Narayanan et al., (2023) have highlighted the specific challenges Women seafarers face in establishing trust with senior commanders and in convincing them of their physical capabilities to effectively undertake the required tasks.

This research aims to scrutinize the confidence levels of Women seafarers in their professional roles within the shipping sector, placing particular emphasis on the maritime industry in Indonesia. It endeavors to elucidate the potential challenges and barriers that Women seafarers might face in their careers, thereby highlighting opportunities for improvement in support and career development prospects. The study's significance extends to the promotion of gender equality and the enhancement of diversity within the maritime sector. By analyzing the trust experiences of Women seafarers, the research aims to uncover and address any existing biases or inequalities. This understanding is crucial for the development of policies and strategies aimed at creating a more equitable and supportive environment for women in the maritime industry. Additionally, the exploration of trust dynamics within the female seafaring community offers valuable insights for shipping companies and maritime organizations. These insights can guide the formulation of initiatives and approaches to cultivate a more inclusive and welcoming workplace for women in maritime roles.

This study is underpinned by trust theory and performance theory, particularly focusing on the context of Women seafarers within the shipping industry. Employing a statistical descriptive qualitative approach, the research utilizes the Analytical Hierarchy Process (AHP) and System Dynamics methodologies for in-depth analysis. The data processing and analysis were conducted using Microsoft Excel and Stella software version 9.1.3. This research was specifically conducted within the Indonesian maritime shipping industry, recognized as the largest in the regional context. For the field research component, the study engaged eight experts in the maritime sector, who served as the primary sources of information and insights.

This research has multiple contributions. Initially, it offers insights into the trust and difficulties encountered by women in the maritime sector, as well as the variables that impact the significance of this trust. Additionally, it enriches the existing body of knowledge on gender diversity and inclusion within the maritime sector by underscoring the importance of understanding the psychological aspects of women's experiences at sea. The research further extends theoretical frameworks related to gender equality, workplace dynamics, and career development in traditionally male-dominated professions. Moreover, by exploring the determinants of women's confidence in maritime settings, the study provides critical insights that can inform the development of interventions and support mechanisms to enhance the well-being and professional effectiveness of Women seafarers. Lastly, the findings of this research have practical implications for organizations in promoting diversity, combating gender-based discrimination, and fostering career advancement opportunities for women in the shipping sector.

2. Literature Review.

2.1. Trust.

Trust originated with advancing human and social engagements (Paliszkiewicz & Klepacki, 2013). Trust is a crucial component of a connection as it demonstrates how individuals constructively engage and foster relationships (Connelly et al., 2018). Trust, as defined by Schoorman et al., (2016), is the willingness of one party to expose themselves to the actions of another party, with the expectation that the other party will conduct specific actions that are significant to the one placing their trust, regardless of the ability to oversee or influence the other party. This phenomenon arises when one party progressively assumes more risks as their confidence in the trustworthiness of the other party increases (Agnihotri et al., 2023). Consequently, every affirmative action enhances the perceived probability that the other person will persist in demonstrating trustworthiness. Trust builds swiftly through mutual reciprocity as individuals amass favorable attributions regarding one another's trustworthiness (Schulz et al., 2022).

The significance of trust arises when there is a reliance on someone or something and a susceptibility to potential harm or negative outcomes. The term also delineates three elements of trust (Clark et al., 2010). The utilization of trust aspects in the context of the innovation ecosystem reveals that ability pertains to the competence of individuals to effectively perform their tasks (Mayer et al., 1995) possessing the requisite expertise and understanding (Steinbruch et al., 2021). Trust encompasses three dimensions: utilitarian and emotive aspects, which play diverse roles in influencing marital behavior (Uche et al., 2021). Chen and Dhillon (2003) posited that trust can be measured through competence, honesty, and compassion. Competence pertains to the company's capacity to meet consumer commitments. Integrity refers to the company's constant, reliable, and honest behavior. Benevolence refers to the company's capacity to prioritize the interests of consumers over its own and demonstrate authentic care for customers' well-being (Oliveira et al., 2017).

2.2. Trust at sea.

Trust is a crucial concern in all aspects of social existence (Agnihotri et al., 2023). Trust is crucial in all interactions, particularly when considering long-term connections within social systems (Kolodziej & Kolodziej-Durnas, 2015). Engaging in the system should incorporate aspects of predictability, which serves as a definitive indicator of trust (because predictability is one of the fundamental prerequisites for trust). In the 21st-century, characterized by risk, uncertainty, and instability, the significance of trust in social systems has become even more pronounced. Consequently, researchers utilize the predictability of others' acts and confidence in friendly dispositions as trust markers. Quantitative research examines individuals' trust levels, focusing on variables such as their desire to cooperate with representatives from a specific country and the emotional milieu inside a group. When at sea, it is crucial to collaborate with crew members who are reliable and consistent. The significance of trust is growing as work environments become separated. Professional and personal behavioral activities on board have a reciprocal effect, where a loss of trust in one area leads to the degradation of relationships in other aspects of the seafarer's life (Kolodziej & Kolodziej-Durnas, 2015).

2.3. Women Seafarer Performance.

Over the years, women seafarers have made noteworthy contributions to the maritime industry (Pasyah et al., 2021). Their maritime performance has garnered significant attention and scrutiny because of their ability to surpass conventional limits and challenge prevailing prejudices in a field that has historically been dominated by men (Senbursa, 2020). The performance of Women seafarers is distinguished by their skill and proficiency in carrying out their responsibilities at sea. They receive training in navigation, ship handling, cargo operations, and other crucial marine duties. Women seafarers undertake intensive training and education to gain the requisite expertise and understanding to fulfill their duties on a ship competently. Their performance is assessed according to their proficiency in operating and maintaining the vessel, adhering to safety rules, and effectively responding to emergencies (Yilma et al., 2015).

The performance of Women seafarers is impacted by their capacity to adapt and remain resilient in response to the distinct challenges encountered while working at sea (Mejia, 2021). They exhibit proficiency in managing extended periods of separation from their residence, solitude, and rigorous work timetables. Women seafarers exhibit resilience and emotional resilience to cope with their profession's physical and psychological challenges (Pejović, 2020). Their performance is influenced by their ability to surmount challenges and uphold a high standard of professionalism in a dynamic and frequently unexpected maritime setting. As trailblazers in a field that men have historically dominated, Women seafarers have been instrumental in championing gender equality and dismantling obstacles for future generations of women in the maritime industry (J. L. Guo, 2019). Their success encompasses individual accomplishments and their influence in establishing a more diverse and fair marine workforce. Their contributions play a vital role in questioning conventional gender conventions and promoting the marine

industry's advancement towards increased inclusivity and gender parity.

Table 1: Dimensions of trust in women seafarers.

Dimension	Subcriteria	References
Competence	Capabilities, Knowledge, Skills Resources Experience, Reliability	(Owot et al., 2023) (Derwik & Hellström, 2017) (Connelly et al., 2018) (Staniskiene et al., 2019) (Uche et al., 2021)
Integrity	Motives, Honesty, Character Transparency Fairness, Accountability	(Connelly et al., 2018) (Vallejos-Romero et al., 2020) (Steinbruch et al., 2021) (Malkamäki et al., 2021)
Benevolence	Appreciation, Interest, Attentiveness, Empathy, Listening,	(Schiemann et al., 2019) (Derwik & Hellström, 2017) (Chen & Dhillon, 2003) (Malkamäki et al., 2021)

Source: Authors.

2.4. Factors contributing to decreased trust in women seafarers.

The diminishing trust in women mariners can be attributed to several social, cultural, and institutional issues. These characteristics frequently indicate ingrained gender biases and societal stereotypes (Dragomir et al., 2018; Pejović, 2020; Pike et al., 2021; Senbursa, 2020). Throughout history, seafaring has traditionally been regarded as a vocation dominated by men, and the belief that women are physically weaker or less competent at sea persists. These preconceptions can result in discriminatory and prejudiced treatment towards Women seafarers (Pejović, 2020), thereby eroding trust in their capabilities.

An additional aspect to consider is the inadequate representation and visibility of women working as seafarers. The lack of women in the maritime business fosters a notion that they are ill-suited for nautical positions, leading to concerns regarding their aptitude and dependability (Senbursa, 2020; Stannard et al., 2015). The lack of clear visibility also obstructs the acknowledgment of women's accomplishments and contributions to the field, thus diminishing trust even further. The obstacles encompass biased recruitment procedures, inequitable prospects for professional growth, and insufficient workplace infrastructure. The presence of these obstacles signifies an intrinsic prejudice against women (Pejović, 2020; Pike et al., 2021). These obstacles imply an intrinsic prejudice against women, strengthening skepticism regarding their competence to carry out their responsibilities proficiently (Pejović, 2020; Pike et al., 2021).

Sexual harassment and gender-based violence contribute to the erosion of trust among Women seafarers (Pasyah et al., 2021). The maritime industry has faced criticism for its insufficient efforts in addressing these concerns. Instances of harassment or assault targeting Women seafarers not only endanger their well-being but also foster an environment of apprehension and

suspicion among female colleagues (Carballo Piñeiro & Kitada, 2020; Narayanan et al., 2023). Furthermore, the cultural norms and societal attitudes on gender roles significantly influence how women seafarers are perceived (Galam, 2017). Traditional gender norms in certain countries may clash with the notion of women pursuing careers in the maritime industry. These cultural norms might sustain biases and prejudices toward women, leading to a decline in trust (Grøn & Svendsen, 2013; Narayanan et al., 2023).

2.5. *Strategies for increasing trust levels in women seafarers.*

Historically, the maritime industry has been predominantly occupied by men, resulting in women encountering numerous obstacles and impediments while attempting to pursue a seafaring profession (Narayanan et al., 2023). A major concern for Women seafarers is the dearth of confidence and recognition in a predominantly male setting (Acejo & Abila, 2016). Advocating for gender parity and inclusivity in the maritime sector is crucial for establishing a supportive and all-encompassing atmosphere for women working as seafarers. (Narayanan et al., 2023; Senbursa, 2020). Increasing workplace understanding of the difficulties encountered by women seafarers can contribute to closing the trust divide (Mejia, 2021; Pasyah et al., 2021). Training programs and workshops can be arranged to instruct male seafarers about gender issues, unconscious prejudices, and appropriate actions, promoting empathy, comprehension, and regard for female colleagues (Carballo Piñeiro & Kitada, 2020).

Matching seasoned Women seafarers with novice seafarers can offer mentorship, assistance, and a secure environment (Senbursa, 2020; Stannard et al., 2015) to address the difficulties encountered at sea. In addition, establishing support networks or affinity groups can foster a feeling of inclusion and camaraderie. It is imperative to effectively convey these principles to all crew members, guaranteeing that any reported occurrences are swiftly examined and suitable measures are implemented. Collaboration between organizations and industry stakeholders is crucial to advancing gender equality. This includes promoting awareness, offering guidance and assistance, implementing strict policies against gender discrimination, and fostering leadership possibilities for women seafarers (Mejia, 2021; Pasyah et al., 2021).

3. Methodology.

This section presents the development of a trust evaluation framework to assess the performance of women seafarers in the Indonesian maritime industry. It further describes the research's utilization of the Analytic Hierarchy Process (AHP) and system dynamics (SD) models.

This study employs a statistical descriptive qualitative methodology. The statistical descriptive qualitative research design is a sequential research method that collects qualitative data first, followed by quantitative data gathering (Manca et al., 2022; Yates et al., 2021). Qualitative data is employed to ascertain the elements that determine the level of trust in the performance of Women seafarers in the Indonesian maritime sector. In addition, descriptive statistical data will be used to present the

acquired statistics, including the percentage of each variable's weight on the Saaty scale, the mean, and the value at the trust level. The data gathering in this article is categorized into two distinct groups: primary data and secondary data. The primary data will be collected from maritime specialists who are both practitioners and academics. The established criteria for the expert are as follows: 1) Minimum educational qualification of at least Master's Degree (Hult Khazaie & Khan, 2020; Rioja-Lang et al., 2020); 2) Relevant professional experience (Fallah & Ocampo, 2021) in the field of women seafarers; 3) A minimum of 5 years of service (Khalilzadeh et al., 2020; Kim & Kim, 2022). Secondary data refers to several sources of information that can be used for research purposes. These sources include news articles and other printed materials, research findings on the internet, archives, legislation, policies, and official papers from organizations and social media profiles.

This study will be conducted in Jakarta and various port regions and maritime industries that offer job prospects for Women seafarers and serve as indicators of the confidence placed in women's competence in the maritime profession. The research was carried out by administering questionnaires to specialists utilizing secondary data. Authors have long been concerned with observing and assessing the amount of trust in the performance of women sailors. An in-depth examination of the trustworthiness of women seafarers in the Indonesian marine shipping industry is crucial, given the high demand for Women seafarers in Indonesia. Consequently, researchers perceive a significant potential to engage and provide a theoretical contribution.

3.1. *Analytical Hierarchy Process (AHP).*

The Analytic Hierarchy Process (AHP) is a methodology used to analyze intricate problems involving multiple factors or criteria. A hierarchy is a multi-level structure representing a complex problem, with the goal being at the top level, followed by factors, criteria, sub-criteria, and subsequent levels. The final option involves categorizing a series of intricate difficulties into groups and organizing them into a hierarchy. This approach enhances the systematic structure of the problem (Saaty, 2006). A key benefit of AHP that sets it apart from other decision-making models is its lack of strict requirements for exact consistency. To identify and examine existing issues, it is important to note that although numerical data provides some insight, it is insufficient for quantitative problem modeling (Siekelova et al., 2021).

Humans possess an innate ability to approximate basic quantities using their sensory perception. The most straightforward method is comparing two entities with a high degree of accuracy in the comparison. Saaty developed a numerical scale from 1 to 9 to evaluate the relative significance of different elements. There are seven pillars used and considered in AHPmodellingg, including: 1) Ratio scale is a comparison of two values (a/b) where the values of a and b are of the same type (unit); 2) Pairwise comparisons; 3) Eigenvector sensitivity conditions; 4) Homogeneity and clustering; 5) Synthesis; 6) Maintaining and reversing the order of weights and order in the hierarchy; 7) Group considerations (Marzouk & Sabbah, 2021; Saaty, 2012).

Table 2: AHP Rating Scale.

Scale of Interest	Definition	Explanation
1	Equal Important	The two activities contribute equally strongly to the goal
3	Moderate Important	One activity is slightly more important than the other
5	Strong Important	One activity is more important than the other activity
7	Very Strong Important	One activity is very important compared to other activities
9	Extreme Important	One activity is very important compared to other activities
2, 4, 6, 8	Intermediate Values	
Reciprocal	Describes the dominance of the second alternative compared to the first alternative	

Source: Authors.

The steps of the AHP method include:

$$A = a_{im} = \begin{bmatrix} 1 & a_{12} & ... & a_{1n} \\ \frac{1}{a_{12}} & 1 & ... & a_{2n} \\ ... & ... & ... & ... \\ \frac{1}{a_{1n}} & \frac{1}{a_{2n}} & ... & 1 \end{bmatrix} \qquad (1)$$

i, m = 1, 2, ... , n = related criteria index.
b. Creating a matrix value criteria.
c. Creating an additional Matrix for Each Row.
d. Assessing Consistency Index (CI) and Consistency Ratio (CR).

$$CI = \frac{\lambda_{maks} - n}{n} \qquad (2)$$

$$CR = \frac{CI}{RI} \qquad (3)$$

N = Number of Elements,
RI = Random Consistency Index.

If the CR (Consistency Ratio) is 0.1 (i.e., 10%), the matrix is considered consistent, and the decision is accepted. Conversely, if CR is greater than that, it means there are too many contradictions in the matrix. Anticipating the latter situation involves reviewing the matrix and then revising the weights loaded by the vector.

Table 3: Random Consistency Index Value.

| 1	2	3	4	5	6	7	8	9	10
0	0	0.58	0.9	1.12	1.24	1.32	1.41	1.45	1.49

Source: Authors.

3.2. System Dynamics.

System dynamics modeling is a methodology employed to address real-world problems when the cost or complexity of direct implementation or experimentation is prohibitive. Modeling enables the optimization of a system before its implementation in the physical realm. Modeling encompasses representing real-world problems by creating a simplified model (abstraction process) and analyzing and optimizing it to provide implementable solutions (Sterman, 2018). Simulation refers to the execution of a system model. Simulation is a preemptive measure to mitigate the consequences of failures, mitigate unforeseen hurdles, minimize resource consumption, and enhance system performance before implementing modifications to existing systems (Forrester, 2009).

The System Dynamics Society offers an updated definition, which states that System Dynamics (SD) is a methodology for collecting knowledge and managing intricate communication patterns. Initially introduced by Jay W. Forrester in the 1950s, system dynamics is a methodology for addressing intricate problems that emerge from patterns, causes, and the impact of multiple variables in a system. The gadget dynamics technique was initially employed to address control issues such as stock swings, activity volatility, and declining enterprises' market shares. A flowchart is created based on a centralized representation of the system dynamics. This flowchart displays the simulation variables and parameterizations, and a versioned system is then prepared for simulation (Forrester, 2016). Variables in a dynamic structure are defined in Table 4.

Table 4: Symbol of system dynamics.

| Variable	Symbol	Explanation
Level	□	Presenting the accumulated quantity that accumulates over time, its value can change in line with changes in the rate
Rate	⋈	Presenting a flow rate that can change the level value
Auxiliary	○	Presents auxiliary variables containing formulations that can be input to the rate.

Source: Authors.

A System Dynamics model illustrates an arrangement of a feedback diagram that might take the form of a causal diagram, also known as a Causative Loop Diagram (CLD). This graphic illustrates the direction of adjustment of the variable flow and its polarity. The flow is polarized into positive and negative. A flowchart is an alternative type of diagram that visually represents the organization of a system dynamics model. Flowcharts depict the connections between variables in a cause-and-effect diagram, using distinct and meaningful symbols to represent different connected variables (Forrester, 2010).

CLD, or Causal Loop Diagram, is a graphical language that establishes connections between variables represented on a pie chart. Arrows can be employed to denote variables that are either causes or effects. The arrowhead represents the cause, while the arrow's tail represents the effect. Every modeler must comprehensively understand the processes to ensure the logical model aligns with reality. The comprehension process is achieved by describing the causal variables or differentiating between dependent and independent variables (Sterman et al., 2015). Stella 9 software is employed for system dynamics analysis in this work.
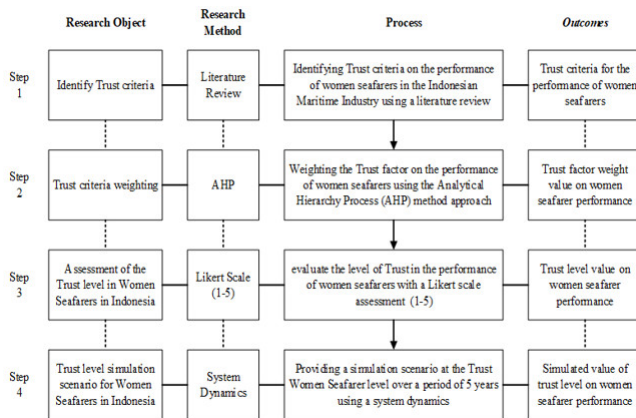
3.3. Research Design.

Figure 2 displays the research plan proposed for this study. Study objectives can be divided into four parts as follows:

Figure 1: Minimal stock and flow diagrams in System Dynamics.
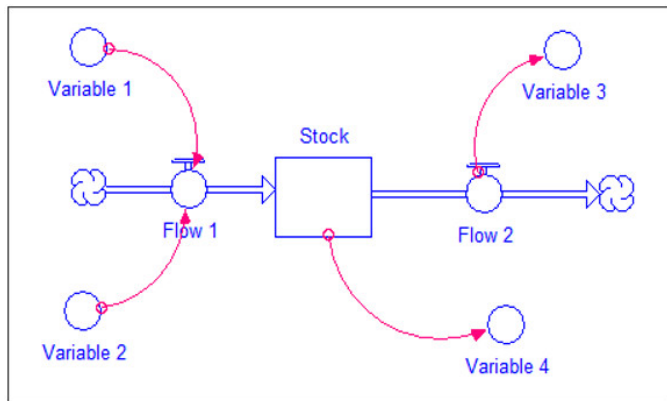
Source: Forrester, 2009; Morshedi & Kashani, 2020; Schoenenberger et al., 2021.

Figure 2: Research methods, process and outcomes.

Source: Forrester, 2009; Morshedi & Kashani, 2020; Schoenenberger et al., 2021.

- Identify the criteria and sub-criteria that contribute to trust in the performance of women seafarers. Additionally, identify strategies for enhancing trust and factors that lead to a decline in trust.

- Assign weights to the trust factor in evaluating the performance of women seafarers.

- Analyze and measure the level of trust in the performance of women seafarers within the Indonesian shipping industry.

- Create a simulation scenario to demonstrate trust's impact on women seafarers' performance.

This study also constructs a model that evaluates and quantifies the degree of trust in the competence of women seafarers. The suggested methodology incorporates the prequalification procedure into the planning step. Integrating AHP and system dynamics approaches, specifically TOPSIS and AHP procedures, has been chosen for its numerous advantages (Liu &

Liu, 2023; Zarghami & Dumrak, 2021). This integrated method facilitates examining various model development strategies for women seafarers' performance based on their future trajectory. It also allows for the simulation and trend analysis of trust levels in different scenarios, offering support for implementing suitable strategies. The operational aspects of the model are depicted in the research design presented, which is separated into four phases adapted from Abdul Halim et al. (2017) and Bottero et al. (2020).

Phase 1 - This article examines the evaluation of trust in the performance of Women seafarers. It establishes the criteria by doing a literature review and consulting with experts to understand the factors to consider when making judgments comprehensively. This phase concludes once an agreement has been established on the criteria and sub-criteria for determining trust levels.

Phase 2 - This study adopts a methodology considering three primary criteria in the trust dimension. We have discovered these specific criteria by conducting a comprehensive analysis of existing literature and consulting with experts in the field. Identifying the identification of development techniques to enhance trust and the variables that contribute to the decrease of trust. A survey was conducted to gather responses to determine the criteria and create a hierarchical structure. Subsequently, the relative value or weight of the criteria was calculated.

Phase 3 involves analyzing the trust level value of women seafarers' performance. This analysis is conducted by evaluating several metrics against certain criteria and sub-criteria. The AHP approach and Likert scale are utilized to assess and quantify the level of trust in the decision-making process.

Phase 4 involved conducting model simulations to examine the magnitude of changes in trust level values during the simulation period. The simulation model's time horizon was expanded from 2023 to 2027, and the model was executed using yearly time intervals.

Table 5: AHP scale values Likert scores and trust scores.

Scale AHP	Description	Likert	Trust Score
9	exhibit complete and unwavering trust in the entity or system	5	Highest
7-8	have significant faith and reliance on the entity or system being evaluated	4	High
5-6	have a reasonable amount of confidence in the entity or system	3	Medium
3-4	have some reservations but still demonstrate a limited amount of trust	2	Minimum
1-2	have minimal or no trust in the entity or system being evaluated	1	Unknown

Source: Anusha & Sathiyamoorthy (2017) and Iltaf et al (2012).

Table 6: Trust Level of Women Seafarer Performance .

Level	Score	Trust Level	Description
V	4.01-5	High trust (81-100%)	Completely trust this entity, Extremely high trust level, which is considered very reliable
IV	3.01-4	Medium trust (61-80%)	More trustworthy than most entities. Fairly high trust level, which is considered reliable
III	2.01-3	Low trust (41-60%)	Mean trustworthiness. Most entities I know of have this trust level. Average trust level, somewhat reliable
II	1.01-2	Low distrust (21-40%)	Lowest possible trust, A low trust level
I	0-1	High distrust (0-20%)	Cannot make trust-related judgments about entities.

Source: Goyal & Batra (2016) and Anusha & Sathiyamoorthy (2017).

4. Result and Discussion.

4.1. Determination of evaluation index weight.

The inquiry necessitated the involvement of eight senior professionals, who played a crucial role in the research by establishing a consortium of decision-making experts. An evaluative framework was developed using the 1-9 Saaty scale technique. This framework allows for systematically scoring interacting elements and determining the significance of factor groupings. As a result, it enables the creation of a well - considered matrix and enhances future computations. Consequently, the weight of the assessment index for assessing the trust level of women seafarers was determined, and the collected results are presented in Table 7.

Table 7: Local Weight and Global Weight for Trust Level of Women Seafarer Performance in Maritime Industries.

Variables	Weight	Sub-variables	Code	Local Weight	Overall Weight	Rank
Competence (A)	0.411	capabilities	A1	0.221	0.091	2
		knowledge	A2	0.157	0.065	8
		skills	A3	0.158	0.065	7
		Resources	A4	0.089	0.037	15
		experience	A5	0.247	0.102	1
		reliability	A6	0.127	0.052	11
Integrity (B)	0.328	motives	B1	0.141	0.046	12
		honesty	B2	0.216	0.071	5
		character	B3	0.246	0.081	3
		transparency	B4	0.113	0.037	14
		fairness	B5	0.195	0.064	9
		accountability	B6	0.089	0.029	16
Benevolence (C)	0.261	appreciation	C1	0.142	0.037	13
		interest	C2	0.217	0.057	10
		attentiveness	C3	0.106	0.028	17
		empathy	C4	0.284	0.074	4
		listening	C5	0.251	0.065	6

Source: Authors.

The model's output in this study will exhibit variability depending on the specific under investigation. It will consist of a vector encompassing the alternatives investigated for each sub-criteria. Subsequently, the local vector that encompasses the sub-criteria's weights is normalized and multiplied by the global vector that encompasses the weights of the higher-level criteria (parent criteria). This will result in the ultimate vector of the choice problem (Improta et al., 2018). To summarize, we will simulate each criterion in the hierarchy, including the interdependencies between sub-criteria under the same parent

criterion and their variability over time, similar to dynamic systems modeling. Ultimately, by considering the importance of each criterion, the scenario rating may be calculated, allowing for the determination of a specific decision vector at each time step of the simulation process. The decision-making process allows for selecting evaluation values and situations, namely the optimal combination of parameters. The weighting results can be seen in Table 7.

Table 7 indicates that the priority criteria variable is the Competence variable (A), with a weight value of 0.411. The second variable, integrity (B), weighs 0.328. The third variable, Benevolence (C), weighs 0.261. The ship is perceived as a male-dominated environment that portrays Women seafarers as deviating from the established gender hierarchy. This is evident in the demeanor of Women seafarers, who must demonstrate their professional aptitude as equals (Acejo & Abila, 2016). Policymakers and educators promote gender equality by ensuring unbiased access and opportunity for acquiring future skills and competencies (Narayanan et al., 2023). This is anticipated to address the deficiency in interpersonal communication abilities among Women seafarers, which arises from their distinct emotional expression compared to men, as well as the physically demanding labor on board that might compromise work safety and hinder the optimal performance of Women seafarers (Pasyah et al., 2021).

Table 7 provides a comprehensive overview of the local and global weights and the overall ranking for both the main criterion and sub-criteria. The Experience (A5) sub-variable in the Competence (A) variable is assigned a weight of 0.102 in the global weights. The sub-variable Capabilities (A1) falls under the Competence (A) variable and carries a weight of 0.091. The Character (B3) sub-variable weighs 0.081 on the Integrity (B) variable. The fourth sub-variable, Empathy (C4), has a weight of 0.074 on the Benevolence variable (C). The sub-variable of Honesty (B2) weighs 0.071 on the Integrity variable (B), the fifth variable.

Experience. The current global momentum has sparked a discussion on gender issues, emphasizing the need for policymakers to prioritize enhancing the working conditions of minority seafarers in the marine industry. Individuals with limited or no prior experience collaborating with women aboard a ship tend to exhibit unfavorable toward Women seafarers (Yunus & Said, 2018). This observation concerning women's experience working at sea reinforces the conclusion. It indicates that implementing these reforms could enhance the working conditions for all individuals in the maritime industry, especially Women seafarers who today endure the most unfavorable experiences (Pike et al., 2021).

Capabilities. The presence of gender discrimination in the maritime sector originates from the belief that shipping is exclusively a male-dominated industry. Hence, women who pursue careers i.e. business or enroll in maritime colleges, frequently face challenges, with their abilities frequently underestimated by their male colleagues and peers. (Tangi, 2016). Certain shipboard occupations provide physical challenges for Women seafarers. However, it is crucial to actively engage and consistently endeavor to integrate into the crew rather than rely on gender as

a justification. Women seafarers can select duties that align with their strengths when they work as part of a team (Narayanan et al., 2023). Consequently, shipping companies that hire Women seafarers generally have a favorable evaluation of their skills and capabilities while on board (Guo & Liang, 2012).

Character. Women seafarers often possess traits that may give them an edge over male seafarers in particular circumstances (Guo & Liang, 2012). The job characteristics of seafarers who work aboard a ship solely address seafarers' physiological and safety requirements without satisfying their higher-level needs (J.L. Guo, 2019).

An isolated female individual in a predominantly male - dominated setting, such as a boat, is particularly susceptible to unwelcome rumors and defamation of character, which can have a detrimental impact on her psychological well-being (Narayanan et al., 2023). Hence, enhancing the representation of women on board will enhance the occupational health, safety, and well-being of all seafarers, irrespective of their gender or other attributes or classifications (Pike et al., 2021).

Empathy. Empathy significantly influences emotional responses to internal states and facilitates the comprehension of others' perspectives (Pasyah et al., 2021). Affective or emotional relationships and practices encompass connections and behaviors that involve empathy, problem-solving, seeking fulfillment, and understanding (Stanley, 2020).

Honesty. Women who employ immutable tactics are likely to possess strength and exhibit honesty regarding their true selves. Women experience fewer challenges related to gender issues on board than negotiators and constructors (Kitada, 2013). These characteristics are inherent to an individual's personality and are the driving force behind their actions, behavior, speech, and ethical or moral perspective. For instance, honesty is one attribute (Pasyah et al., 2021).

4.2. Assessment of trust level at women seafarers.

A simulation model was utilized to evaluate the trustworthiness of women seafarers' performance. The developed models utilize the AHP weighting approach and Likert scale assessment to quantify the values of variables and sub-variables in the decision-making problem. Furthermore, it is feasible to construct a simulation model for every criterion inside the dynamic system hierarchy. The input for each simulation model is a vector with a size equivalent to the number of options being evaluated in the decision-making process. Each row of the vector corresponds to an alternative or preference related to the decision problem and includes all the data associated with that alternative (Octavian et al., 2021).

The assessment of trust in the performance of women seafarers on the Competence (A) factor has six sub-factors. Competence (A) in the Medium trust category comprises five sub-variables, specifically at level IV. One sub-variable is in the Low trust category at level III. The Competence (A) variable generally has a moderate level of trust, shown by a value of 0.656 (Table 8). Furthermore, the Integrity (B) variable consists of six sub-variables. There are five sub-variables within the Medium trust category, specifically at level IV. One sub-variable is in the

Table 8: Evaluation value of trust level at women seafarer on Competence (A) criteria.

Competence (A)	Weight	Score	Result	%	Explanation
capabilities	0.221	2.944	0.652	58.889	Low trust
knowledge	0.157	3.667	0.577	73.333	Medium trust
skills	0.158	3.167	0.501	63.333	Medium trust
resources	0.089	3.611	0.322	72.222	Medium trust
experience	0.247	3.167	0.783	63.333	Medium trust
reliability	0.127	3.111	0.395	62.222	Medium trust
Competence (A)	**1.000**		**3.229**	**65.556**	**Medium trust**

Source: Authors.

Table 9: Evaluation value of trust level at women seafarers on Integrity (B) criteria.

Integrity (B)	Weight	Score	Result	%	Explanation
motives	0.141	3.278	0.461	65.556	Medium trust
honesty	0.216	3.111	0.672	62.222	Medium trust
character	0.246	3.056	0.753	61.111	Medium trust
transparency	0.113	3.056	0.345	61.111	Medium trust
fairness	0.195	3.000	0.586	60.000	Low trust
accountability	0.089	3.278	0.291	65.556	Medium trust
Integrity (B)	**1.000**		**3.108**	**62.155**	**Medium trust**

Source: Authors.

Table 10: Evaluation value of trust level at women seafarers on Benevolence (C) criteria.

Benevolence (C)	Weight	Score	Result	%	Explanation
appreciation	0.142	3.000	0.426	60.000	Low trust
interest	0.217	2.889	0.627	57.778	Low trust
attentiveness	0.106	3.222	0.343	64.444	Medium trust
empathy	0.284	3.611	1.025	72.222	Medium trust
listening	0.251	3.000	0.752	60.000	Low trust
Benevolence (C)	**1.000**		**3.173**	**63.459**	**Medium trust**

Source: Authors.

Table 11: Evaluation value of trust level at women seafarers in Maritime Industries.

Variables	Weight	Score	Value	%	Level
Competence (A)	0.411	3.278	3.229	65.556	Medium trust
Integrity (B)	0.328	3.130	3.108	62.593	Medium trust
Benevolence (C)	0.261	3.144	3.173	62.889	Medium trust
Result of Trust			**3.170**	**63.679**	**Medium trust**

Source: Authors.

Low trust category at level III. The Integrity (B) variable falls into the medium trust group, with a value of 0.621 (Table 9).

Furthermore, within the Benevolence (C) variable, which has five sub-variables, two sub-variables are classified as having a medium level of trust. In contrast, the remaining three are classified as having a low level of trust. The Benevolence (C) variable falls within the medium trust group, as seen in Table 10.

Based on Table 11, the assessment score for trust in the performance of women seafarers in the Indonesian maritime industry is 3,170 (63.68%), placing it in the medium trust group. All variables are classified under the Medium trust category. The ship is perceived as a predominantly masculine environment, where Women seafarers are considered deviant from societal

norms and disrupt the established gender hierarchy. This is evident in the demeanor of women seafarers, who must demonstrate their professional aptitude as equals. Policymakers and maritime educators promote gender equality by offering gender-neutral access and opportunity for individuals to gain the skills and abilities necessary for future employment in traditionally male-dominated industry fields (Narayanan et al., 2023). Unstable relationships hinder the acquisition of competencies and trustworthy behaviors from individuals, which is essential for establishing trust based on characteristics (Gausdal & Makarova, 2017). Consequently, shipping businesses that hire women seafarers generally have favourable evaluations of their skills and capabilities while working aboard ships (Guo & Liang, 2012).

To enhance crew harmony, engaging in open communication behavior that minimizes negative emotions is crucial, hence reducing suspicion and lack of trust within the organization. This will ultimately lead to a higher level of communication integrity. (Pasyah et al., 2021). In the context of ships, an author needs to avoid alienating seafarers. This is crucial to preserve the credibility of their research and reduce the personal risks seafarers may encounter (Sampson & Thomas, 2003). The extant benevolent attitude towards women offers a limited understanding of the level of implementation of protection against violence towards women aboard ships. Certain male crew members have purportedly breached standards of behavior by engaging in sexual harassment, as well as subjecting women to violent and cruel treatment (Akiko Sugiyama, 2021).

Influencing factors for decreased trust in women seafarers.

Table 12: Value of trust level at women seafarers for decline factors.

Factors of Trust Decline	Overall Weight	Score	Value
Gender Stereotypes	0.192	2.889	0.556
Lack of Representation	0.090	2.889	0.259
Cultural & Social Norms	0.215	3.333	0.717
Harassment & Abuse	0.276	3.222	0.888
Segregation	0.090	3.000	0.269
Safety Concern	0.138	3.111	0.429
Factors of Trust Decline		**3.074**	**3.117**

Source: Authors.

The declining level of trust in women mariners can be attributed to various social, cultural, and institutional issues. Traditionally, the maritime sector has been predominantly controlled by men, resulting in a shortage of confidence in Women seafarers. Six elements contribute to the decline in trust towards women mariners. The primary factor contributing to a decline in trust among women seafarers is harassment and abuse, which carries a weight of 0.276. Conversely, the component with the least impact is lack of representation and segregation, with a weight of 0.09.

The topic of harassment and abuse of Women seafarers is a significant one that has garnered attention in recent years. Female individuals employed in the maritime sector encounter

distinct obstacles, such as prejudice, mistreatment, and exploitation. The maritime sector has traditionally been male-dominated, leading to an environment where Women seafarers are susceptible to harassment and abuse due to this gender imbalance. The prolonged periods of solitude experienced when working aboard ships might intensify this issue, as it hinders women from reporting abuse or seeking assistance. Moreover, the hierarchical organization of numerous shipping enterprises might establish a power asymmetry that facilitates the occurrence of harassment and the misuse of authority.

Confidence segregation in Women seafarers pertains to discriminatory policies that systematically exclude or restrict the roles and responsibilities of women employed in the maritime industry, particularly on ships. Although gender equality is increasingly acknowledged in numerous areas, the marine industry still struggles with gender discrepancies and biases. The lack of sufficient support structures, such as policies that consider gender, facilities, and mentoring programs, intensifies the difficulties experienced by women mariners. Furthermore, the issue of segregating trust towards women seafarers has gained significant attention from academics, politicians, and advocacy groups. To tackle the issue of gender-based segregation among women seafarers, a comprehensive strategy is needed. This strategy should encompass policy reforms, cultural shifts within the industry, specialized training and mentorship initiatives, and promoting inclusive practices through advocacy.

Strategic factors to increase trust in women seafarers.

Table 13: Value of trust level at women seafarer for Strategy factors.

Strategies for Increasing	Overall Weight	Score	Value
Training & Education	0.189	2.944	0.556
Recruitment & Retention	0.122	3.222	0.394
Supportive Work Environment	0.322	3.500	1.128
Raising Awareness	0.122	3.333	0.407
Gender Equality	0.244	3.333	0.815
Strategies to Increase Trust		**3.267**	**3.300**

Source: Authors.

Promoting gender equality and diversity in the maritime industry necessitates bolstering the self-assurance of Women seafarers. Several strategic aspects can be implemented to attain this goal, such as training & education, recruitment & retention, supportive work environment, raising awareness, and gender equality.

The component with the highest weight of 0.322 is the supportive work environment. The criteria of raising awareness and recruitment & retention had the lowest weightage, specifically at 0.122. Establishing a conducive work atmosphere is crucial for enhancing the self-assurance of Women seafarers. This encompasses the promotion of equal chances for the progression of careers, the establishment of training and mentorship initiatives tailored exclusively for women in the marine sector, and the implementation of strict policies that do not tolerate gender-based discrimination and harassment. The recruitment and retention of Women seafarers necessitate a focused endeavor to

enhance awareness and bolster trust in their aptitude inside the maritime sector. To foster an inclusive and varied workforce in the maritime industry, it is crucial to challenge prejudices, establish support networks, endorse positive role models, and collaborate with industry stakeholders. These efforts will enable women to flourish as seafarers.

4.3. System Dynamics model for trust level at women seafarers.

A comprehensive analysis of trust in women mariners necessitated a broad examination encompassing both qualitative and quantitative approaches. Consequently, a thorough evaluation was carried out utilizing a causal loop diagram (Figure 3), which aids in comprehending the factors that influence trust in women mariners inside a dynamic system. Additionally, it aids in the visualization of the impact of several elements in determining trust levels among Women seafarers.

Figure 3: Causal loop diagram of trust level at women seafarers.
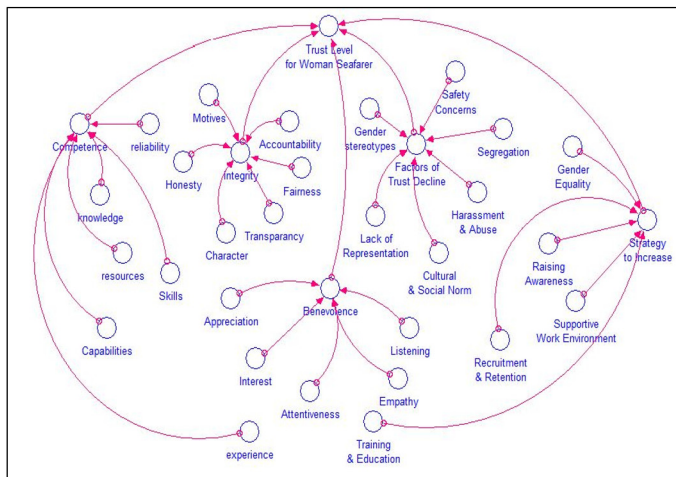
Source: Authors.

An assessment of the effectiveness of dynamic system modelling in determining trust levels among women sailors in Indonesia's maritime industry is conducted by considering the goals and scenarios of each model. This scenario is presumed to be a simulated outcome without any intervention or activity, aimed at analyzing the coherence of trust levels among women seafarers. This demonstrates the correlation between trust levels among Women seafarers in the Indonesian maritime industry from 2023 to 2031 projections and their influence on trust levels among Women seafarers, which is strongly associated with Competence (A), Integrity (B), and Benevolence (C) - factors that diminish trust, as well as tactics to enhance trust in Women seafarers. Model development is conducted to ascertain the behavioural patterns and interrelationships among factors that define the model's correspondence to reality. (Octavian et al., 2021).

The constructed causal loop diagram (CLD) is transformed into stock and flow diagrams to forecast the dynamics of variables inside the system as time progresses. Figure 4 depicts a visual representation of the system dynamics modelling of trust level among women seafarers. The complexities of trust

Figure 4: Stock-flow diagram of trust level at women seafarers.
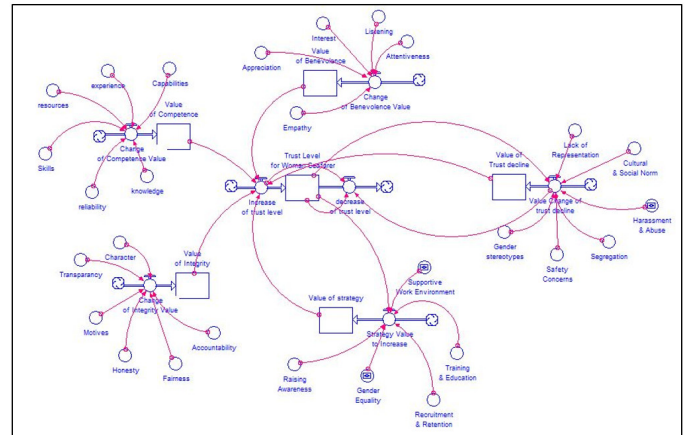
Source: Authors.

levels among women seafarers in the Indonesian maritime industry arise from a combination of various factors to comprehensively examine the interrelated functions of these variables in trust levels among women seafarers, we conducted a meticulous analysis of the causal relationships between the variables. As a conclusion to this work, we show a causal diagram that visually represents the dynamic relationships that contribute to trust levels among women seafarers. This figure visually represents the feedback mechanisms inherent to the system. Figure 4 comprises Competence (A), Integrity (B), Benevolence (C), variables that reduce trust, and measures to enhance confidence in women mariners.

Scenario.

Figure 5: Output value of trust level for women seafarers (2023-2031).
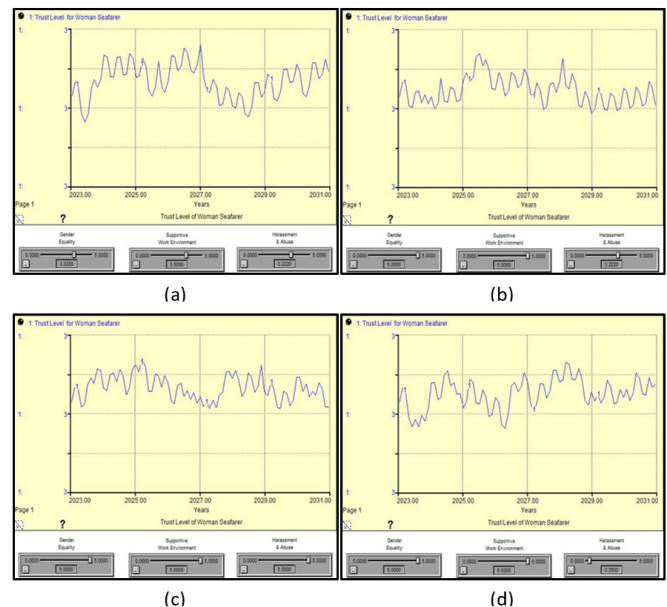
Source: Authors.

In this study, we examine the level of trust in the performance of women seafarers by considering four different scenarios. These scenarios include the basic scenario, which does not involve any specific policies; scenario 2, which involves only direct policies; scenario 3, which involves only indirect policies; and scenario 4, which involves both direct and indirect policies. Each scenario is executed by implementing rules prioritizing the most influential aspects, namely Gender Equality, Supportive Work Environment, and Harassment & Abuse. The scenarios are conducted over a period specifically from 2023 to 2031.

Basic scenario. In this basic scenario, it is considered that there is no policy in place to enhance the value of the strategy or reduce the level of trust. Therefore, the value is assumed to remain unchanged from the initial outcome. Figure 5(a)) depicts the assessment of trust level in the performance of women seafarers during the first year (2023). It reveals an initial increasing trend for the first four years until 2027, followed by a decline over two years until 2029. Subsequently, there will be a progressive increase in trust levels until 2031. Nevertheless, the evaluation of trust remains at a medium medium-level 4. This finding indicates that the degree of trust in women seafarers does not change if there are no modifications in the current policies using the same approach for eight years.

Scenario 1 (Direct policy only). In this scenario, it is considered that there is a specific policy aimed at implementing a strategy to enhance gender equality and create a supportive work environment to achieve a maximum value of 5. However, the trust reduction factor (Supportive Work Environment) maintains its original value. Figure 5(b) illustrates that the trust level in the performance of women seafarers during the first year evaluation (2023) is relatively stable until 2025. However, it then rises at the beginning of 2025 and undergoes a fall followed by a significant increase in the middle of 2027-2029. After two years, the degree of trust remains constant, showing no significant change from its initial value.

Scenario 2 (Indirect policy only). In this scenario, it is expected that a policy is implemented to enhance gender equality and create a supportive work environment. Additionally, the value of the trust Harassment & Abuse reduction factor is increased to its maximum value of 5. Figure 5(c) indicates that the trust level in the performance of women seafarers has increased in the first year evaluation (2023), while the increase is not statistically significant during the first two years. Between the years 2025 and 2027, there was a marginal decline. From 2027 to 2031, the evaluation of trust remained at a standstill.

Scenario 3 (Both direct & indirect policies). In this particular situation, it is considered that there is a specific policy in place to raise the value of the gender equality strategy to 5 while simultaneously implementing a policy to decrease the value of Harassment & Abuse to 0, therefore creating a supportive work environment. Figure 5(d) illustrates a fluctuation in trust scores throughout the initial two years, with a reduction followed by a rise. Between 2027 and 2029, there was a notable rise following the implementing of a strategic trust-building program and a policy aimed at eradicating harassment and abuse. Subsequently, there was a gradual increase from 2029 to 2031. Nev-

ertheless, the current trust level remains within the range of medium trust, specifically level IV.

Collectively, the outcomes of scenario one, scenario two, and scenario three demonstrate that the augmentation of trust levels in women seafarers remains constant when there is no alteration in current regulations employing the same approach for eight years.

4.4. Implication.

Theoretical. The study on the framework of trust levels among Women seafarer in Indonesia's maritime industries has several theoretical ramifications. Initially, the objective is to evaluate the trust levels of Women seafarers in the maritime industry in Indonesia by using a customized assessment technique. This model specifically addresses the distinct requirements and difficulties encountered by women seafarers, including gender stereotypes, cultural and social norms, as well as harassment and abuse. Its purpose is to contribute to developing the theory of trust in the context of women seafarers.

Furthermore, this study emphasizes the significance of evaluating the levels of trust among women seafarers in the Indonesian maritime sector. Evaluating their levels of trust can aid in identifying possible issues and implementing strategies to establish a more inclusive and supportive workplace atmosphere. The study has produced an evaluation model that offers a structured approach to assess and enhance trust levels among women seafarers. This, in turn, leads to an improvement in the performance of women seafarers in the Indonesian maritime industry. Furthermore, this study examines the determinants that impact the level of trust among Women seafarers. Gaining insight into the determinants that impact the degree of trust in Women seafarers is crucial for establishing a nurturing and all-encompassing workplace atmosphere that fosters their welfare and career advancement. By comprehending these elements, the marine sector may strive towards establishing a fair and favorable environment for all seafarers, irrespective of gender.

Practical. The research findings can guide the Indonesian maritime industry in assessing the advantages and disadvantages of trust in women seafarers. Through this evaluation technique, the Indonesian maritime sector may evaluate the degree of confidence maintained by Women seafarers and pinpoint areas that require enhancement. Furthermore, the assessment framework might aid the shipping sector in making informed choices regarding hiring Women seafarers. By evaluating the reliability of candidates, the shipping sector can ensure the recruitment of women seafarers who possess the necessary abilities to integrate their performance seamlessly.

Furthermore, the evaluation model offers a uniform and structured framework for appraising reliability, which regulatory entities and decision-makers may embrace. Trust is a crucial element in the maritime sector, and it is essential to assess the reliability of Women seafarers to ensure their seamless integration and achievement in a traditionally male-dominated domain. This will ultimately contribute to acknowledging women seafarers within the maritime community.

Conclusions.

The enduring presumption that ships are predominantly male - dominated remains a significant obstacle to the successful integration of women seafarers into the maritime industry. This study aims to analyze the self-assurance levels of women working as seafarers in the shipping business, with a particular focus on Indonesia's maritime sector. The findings indicate that the variable given the most priority is the Competence variable (A), with a weight value of 0.411. The second variable is the integrity variable (B), with a weight of 0.328. The third variable is the Benevolence variable (C), which weighs 0.261.

The Experience (A5) sub-variable inside the Competence (A) variable is assigned a weight of 0.102 in the overall weightage. The sub-variable Capabilities (A1) component of the Competence (A) variable weighs 0.091. The third sub-variable, Character (B3), is a component of the Integrity (B) variable and has a weight. The Empathy sub-variable (C4) weighs 0.074 on the Benevolence variable (C). The fifth sub-variable, Honesty (B2), weighs 0.071 on the Integrity variable (B).

The assessment score for the level of trust in the performance of women seafarers in the Indonesian maritime industry is 3,170, which corresponds to 63.68% and falls into the Medium trust group. All variables are classified under the Medium trust category. The primary factor contributing to a decline in trust among women seafarers is harassment and abuse, which carries a weight of 0.276. Conversely, the component with the least impact is lack of representation and segregation, with a weight of 0.09. The component with the highest weight of 0.322 is the Supportive Work Environment. The elements of Raising Awareness, and Recruitment & Retention have the lowest weight, which is 0.122. In summary, the outcomes of scenarios one, two, and three indicate that there is no difference in the growth of trust in women seafarers when there is no alteration in current policies using the same approach over the years.

Future Work.

This research is subject to limitations. First is the utilization of a limited number of variables. This study employed a simplified model and intentionally minimized the number of variables to adequately showcase the potential utility of the SDM approach in assessing trust levels among women mariners. Despite limitations imposed on the model, it uncovered unforeseen patterns in the correlation between trust levels among women seafarers and some characteristics that impact trust degradation. Subsequent studies may enhance the sophistication of the models by using additional variables as mediators or moderators of trust levels among women seafarers.

Secondly, the variables influencing the decrease in trust levels among women seafarers may not accurately represent the real circumstances. By validating the questions of the reasons that contribute to the decrease in trust levels among Women seafarers, we can get useful insights into the practical application of the suggested simulation model. Third, the limits of the

provided research stem from the subjective nature of the content analysis approach, the discretion and quantity of experts participating, and the intentionally broad scope of the research. An in-depth examination of system dynamics models in many industries, such as military, transportation, and economy, could enhance the comprehension of system dynamics modeling.

Fourth, model-based studies will enhance the comprehension of stakeholder influence roles, the dangers associated with trust levels among women seafarers, and the resulting consequences. The review has demonstrated that SD modeling effectively represents the intricate interactions and dynamic linkages among many causative elements throughout time. This may foster the advancement and implementation of system dynamics models for future investigations on trust levels among women seafarers.

Fifth, the assessment model presented in this study is comprehensive. It may be utilized to gauge the fluctuating trust levels among women seafarers in Indonesia's marine and shipping sector. Nevertheless, the framework still has certain constraints. The fluctuation in the trust level among Women seafarers in the maritime and shipping sector may exhibit gradual or typical changes, given that daily data is not consistently accessible. Henceforth, the evaluation framework for gauging the extent of corrosion among women seafarers in the maritime and shipping sector can be enhanced by refining variable selection and data-gathering methods. Additional relevant criteria can be incorporated into the model to capture the level of rust among women seafarers more accurately.

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