

أثر القيادة التحويلية والإدارة النمطية الدقيقة على تعزيز ثقافة السلامة المهنية: دراسة تطبيقية على العاملين في الشركة السعودية العالمية للموانئ (SGP)

إعداد الطالب/ علي محمد عبدالله آل مبارك

الرقم الأكاديمي / 251001812

إشراف/

د. الفیصل عبد الحمید

د. فايز جراد

العام الدراسي:

2025

حقوق الطباعة:

أقر أنا، علي محمد عبدالله آل مبارك، بأن حقوق الطبع لجميع المواد والمحتويات الواردة في هذا البحث تعود ملكيتها لجامعة
ميدأوشن.

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Acknowledgment

I extend my deepest gratitude to all individuals who contributed to the completion of this research. The completion of this comprehensive research, synthesizing findings across critical industrial sectors of the Kingdom of Saudi Arabia, relies on the foundational support and cooperation of numerous individuals and institutions. Deepest gratitude is extended to the academic supervisors, Dr. Alfaisal Abdelhameed Mohamed and Dr. Fayez Ali Jrad, for their invaluable guidance, constructive feedback, and continuous intellectual stimulation throughout the entire research journey.

I am also profoundly thankful to the leadership and employees of Saudi Global Ports (SGP) for their cooperation in facilitating data collection. Their openness, willingness to participate, and genuine interest in safety culture improvement provided the foundation upon which this research was built. I am particularly grateful to the Safety Department teams, operations staff, maintenance personnel, and administrative employees for sharing their experiences, insights, and perspectives on leadership and safety.

Finally, I dedicate this work to my family and friends, whose patience, understanding, and unwavering encouragement motivated me to persevere through every stage of this academic pursuit. Without their constant support, this accomplishment would not have been possible.

Chapter 1: Introduction and Research Design

1.1 Introduction: The Strategic Imperative of Safety in KSA Logistics

The idea of safety culture has become a key one in any organization in high-risk environments. Aviation, maritime, transportation, energy, shipping, and logistics know that without the strength of a mature and sound safety culture, technical controls of any level are not enough to reduce the risk of incidents. Safety culture is a common set of values, beliefs, attitudes, and standards individuals apply for everyday safety initiatives to their responsibilities within their organization. Saudi Global Ports (SGP), located at King Abdulaziz Port in Dammam, is one of the major commercial port operators in the Kingdom of Saudi Arabia. It is heavily involved in many operations, such as the constant flow of loading and unloading of heavy equipment, berthing in a vessel, dangerous container handling, and sophisticated logistics activities. This is an environment where disciplined oversight of operational processes with a firmly ingrained safety culture is critically important, as it ensures safe operations across all functional groups, including crane, equipment, chemical handling, administrative personnel, and safety professionals. Leadership is key in establishing and maintaining safety culture. Supervisors and managers have direct responsibility to shape employees' behavior through their communication styles, decision-making, engagement, and day-to-day interaction. There are two styles of leadership that have the greatest impact; transformational leadership which motivates, inspires, empowers, and motivates employees to work towards achieving collective safety goals, compared to micromanagement which restricts autonomy, undermines trust, and produces reactive, safety-driven compliance behaviors. This study investigated the effects of transformational leadership and micromanagement on SGP safety culture, offering action-oriented guidance for improving leadership capability and organizational safety maturity.

1.2 Problem Statement

SGP is heavily reliant on formalized systems such as Integrated Management System (IMS) follow-up and advanced digital controls like Telematics and Video Analytics to uphold and monitor high standards that are critical to a world-class port. These systems are clearly successful in delivering Safety Compliance (employees wear PPE, follow simple procedures). As seen from the findings, some aspects, such as safety infrastructure, technology integration, and process management, can make a good impact, but the overall safety culture is not homogeneous throughout SGP. Some supervisors display transformational characteristics to empower employees, while others are micromanager centric, producing differences in communication transparency, hazard reporting, and employee involvement. Preliminary observations show that:

- Near-miss and hazard reporting of the incident differs tremendously between departments.
- Employees participate in safety programs at differing standards.
- Trust in supervisors varies with leadership behavior.
- Some employees are afraid to speak up because they feel they're being overcontrolled or afraid of being criticized.

This discrepancy of strong systems but weak culture embodies a major research issue. It requires the examination of how leadership behaviors either help or hinder the development of a mature safety culture. In particular this study examines whether transformational leadership improves safety culture and whether micromanagement impedes it. It is not just a descriptive issue; it is a quantitative and structural one. Micromanagement is, in fact, a systemic organizational weakness:

1. Dismantle the Psychological Safety, as is the case with Micromanagement and Abusive Supervision, which disarms employees when they do not believe they can report mistakes or hazards without fear of humiliation or retaliation.
2. Conflict with International Standards (ISO 45001): Micromanagement style is in direct conflict with the highest standards of safety governance. ISO 45001:2018 Clause 5.4 requires the organization actively “identify and remove obstacles to participation,” which are described with “policies that discourage worker participation, and fear of reprisals”.

1.3 Study Objectives

The targets of this study are as follows:

1. Evaluate the influence of transformational leadership on safety culture within SGP.
2. Assess the impact of micromanagement on safety culture.
3. Compare safety culture maturity across different organizational departments.
4. Examine the combined predictive power of transformational leadership and micromanagement on safety culture.
5. Provide recommendations for leadership development and safety culture enhancement aligned with Vision 2030.
6. Analyze the distinct effects of Schedule Crashing on the five critical dimensions of project performance: duration, cost, scope, quality, and stakeholder satisfaction

1.3 Research Questions

This research seeks to discover and answer the following research questions:

1. Prevalence: What is the measured prevalence and distribution of Transformational Leadership and Micromanagement styles in the SGP supervisory environment?
2. TL Effect: Does a statistically significant relationship exist between Transformational Leadership and enhanced Occupational Safety Culture indicators (e.g., Safety Participation and Leadership Commitment)?
3. Micro Effect: What is the influence of Micromanagement (detailed supervision) on the flexibility, autonomy, and willingness of employees to report hazards and deviations (Safety Voice)?
4. Optimal Balance: What is the competitive strength of influence between the two leadership styles, and how can effective supervision be balanced with employee empowerment without sacrificing safety standards?
5. Do perceptions of safety culture differ across departments?
6. How can leadership transformation enhance safety engagement and cultural maturity at SGP?

1.4 Research Hypotheses

This study, rooted in leadership theory, safety culture models, and initial observations at SGP, constructs the following hypotheses :

H1: Transformational leaders have a positive and significant impact on the safety culture of SGP. It is anticipated that leaders with vision, motivation, guidance, and empowerment will lead to increased safety participation, trust, and proactive behavior among employees. Transformational leaders engender psychological safety, foster dialogue, and establish a sense of collective accountability for reducing risk .

H2: Micromanagement has a negative and statistically significant influence on safety culture at SGP. Micromanagement itself is anticipated to diminish engagement, limit the ability for employees to work autonomously, and deter them from reporting dangerous conditions and near-misses. Excessive control will produce compliance-based and reactive safety behaviors instead of proactive problem solving .

H3: Transformational leadership has a stronger influence on safety culture maturity than micromanagement. Both types of leadership styles have a significant effect on safety culture, but transformational leadership will have a higher standardized beta coefficient for regression analysis, suggesting more impact on safety climate, teamwork, communication, and transparency of reporting .

H4: Departments led by transformational leaders shall demonstrate higher levels of safety engagement, reporting frequency, and adherence to safety practices compared to departments led by micromanagers. This proposed hypothesis seeks to investigate different operational

units (operations, maintenance, chemical section, etc.) to look at differences and how leadership behavior impacts safety engagement in practice .

H5: Leadership styles combined account for a significant proportion of the variance in safety culture at SGP. This hypothesis assumes that leadership behavior is a major factor of safety culture maturity which could explain 50–70% of statistical variance (R^2) in safety culture change. This positions leadership as a strategic lever to drive organizational safety improvement.

1.5 Significance of the Study

Major scientific, practical, and organizational contributions are made by the research in leadership, safety management, and port operations.

A. Scientific Significance

Fills a gap in Middle Eastern and Saudi research

Few studies focus on the safety culture in Saudi ports. This study generates new empirical evidence from one of the largest terminal operators in the Kingdom and provides insights on the leadership effects in a Gulf maritime context.

Improves theoretical implications for leadership-safety interrelations.

The study combines transformational leadership and micromanagement, offering an evenhanded account of both positive and negative leadership dynamics, an aspect that is often overlooked.

Adds to the global literature of high-risk industries.

Most of the leadership and safety culture studies are based on aviation, oil & gas, and healthcare. This study generalizes the theory to port operations, featuring unique safety dynamics such as vessel interface, heavy machinery, and hazardous containers.

Helps validate a leadership–safety culture model.

The regression analysis supports the use of models like the Safety Culture Maturity Model, Transformational Leadership Theory, as well as High-Reliability Organization (HRO) frameworks for safety.

B. Practical Significance

1. Gives practical insight for improving leadership capability.

Results will assist SGP management in determining which leadership activities support safety engagement and which impede cultural development.

2. Funds SGP leadership development initiatives.

The findings can help supervisors and frontline managers with staff training, coaching, evaluation of employees' performance, succession planning, etc.

3. Directs safety culture changes (Strategic safety culture programs).

Results can enable SGP to plan targeted interventions, e.g., reporting systems, empowerment programs, and departmental action plans.

4. Focuses on minimizing incidents and operational risks.

Leadership behavior that boosts safety reduces unsafe acts, process deviations, and preventable accidents.

5. Communicates and motivates employees better.

Results reflect an emphasis on open lines of communication; trust; and non-punitive reporting – all attributes of a strong safety culture.

C. Significance to the Nation and Vision 2030

This is in line with Vision 2030 targets around operational excellence and the development of the workforce. Enhancing leadership is one of the major pillars of Saudi Arabia's national human capital development framework.

Advances modernization and digitalization in logistics.

An effective culture of safety is at the heart of smooth, reliable, and sustainable port operations, and essential to the Kingdom's global logistics ambition.

Enhances the image of Saudi ports abroad.

Showcasing safety excellence rooted in leadership is also reflected positively in SGP's competitiveness and quality of service within the global maritime sector.

D. Importance of Organization for SGP

Encourages standardized safety action throughout the various departments.

Focusing on leadership influence to harmonize safety practice in operations, maintenance, chemical management, and support functions.

Shifts the focus from rules vs safety to shared responsibility.

Leadership plays a role in transitioning from a safety mindset rooted in compliance-based behavior to a culture of engagement and learning with safety.

Supports data-driven decision-making.

Quantitatively assess the results of the study as supporting strategic planning, allocation of resources, and performance measurement.

Building blocks for continued safety culture monitoring.

The validated questionnaire can be utilized every 6–12 months for assessing the maturity of the culture and impact of leadership over time.

1.7 Scope and Limitations

Scope .

- Location: Saudi Global Ports – Dammam
- Time: The study is conducted in 2025
- Participants: Employees from operations, maintenance, engineering, safety, administration, and sustainability
- Variables: Transformational leadership (independent), micromanagement (independent), safety culture (dependent)

Limitations .

- The study uses self-reported perceptions, which may contain bias .
- The research is cross-sectional, limiting long-term trend analysis .
- Generalizability may be limited to port environments with similar characteristics .
- Time constraints prevented inclusion of third-party contractors in the sample.

1.8 Organization of the Thesis

This thesis is structured as follows:

- **Chapter 1** introduces the research background, problem statement, objectives, research questions, and significance.
- **Chapter 2** provides a comprehensive review of related literature on leadership and safety culture.
- **Chapter 3** explains the methodology, sample, instrument, and analysis tools used.
- **Chapter 4** presents and interprets the study results, including tables and statistical findings.

- **Chapter 5** provides recommendations, an implementation framework, academic implications, and the general conclusion.

Chapter 2 – Literature Review

2.1 Introduction

In organizational behavior, safety culture and leadership are two intertwined concepts, especially in high-risk industries such as maritime logistics, oil and gas, aviation as well as building construction. Leadership helps to shape employee attitudes, the perception of risks, trust, and communication effectiveness, the commitment to company mission and values. Weak safety culture leads to greater incidents and near-miss underreporting or irregular safety performance. On the other hand, when culture is strong, proactive participation and exposure to hazards and continual learning for new hazards are encouraged. The last, and more important, thing that should be mentioned is the connection to organization's leadership. A positive safety culture is increasingly viewed as the cornerstone of sustainable organizational performance, especially in high operational risk industries like maritime logistics. A central part of establishing that culture lies in leadership. Leadership is a key determinant of the behavior, motivation, and adherence to the safety protocol, according to research in organizational psychology, safety management (Clarke, 2013), and industrial engineering (Lu & Yang, 2019). This chapter carries out a literature review to describe the theoretical and empirical underpinning for transformational leadership, micromanagement and safety culture. It locates these concepts within global and regional contexts, specifically through the lens of Saudi Arabia's logistics and port sector. As a large operator in this part of the Kingdom of Saudi Arabia's maritime logistics industry, Saudi Global Ports (SGP) are highly dependent on operational risk management, with safety engagement among key leadership drivers for the Sultanate. Learning how leadership styles such as transformational leadership and micromanagement influence the safety culture can provide a window on how SGP should strengthen its cultural maturity and conform to global standards and Saudi Vision 2030 goals. This section is a review of the literature related to safety culture, transformational leadership, micromanagement and their contribution to occupational safety. In order to do so, this chapter also investigates the local and global studies, theoretical basis and gaps in the industry.

2.2 Safety Culture: Definitions, Concepts, and Importance

Safety culture emerged after major industrial disasters—most famously the Chernobyl nuclear accident in 1986—which made investigators decide that technical failures were secondary to human, managerial, and cultural failings. But since then, the term "safety culture" has been used more and more often throughout the field, with the common values,

behavior and beliefs about safety being taken as critical that can define how such a company may prioritize safety initiatives. According to Reason (1997), culture is "the set of enduring values and attitudes toward safety that a company shares among everyone in its organization." Cooper (2000) also develops this insight, conceptualizing safety culture as a dialectic among psychological, behavioral, and situational dimensions. In other words, safety culture isn't just something that people say or think — it can be seen in what they do and in the systems that management has in place. In port facilities such as SGP, safety culture is particularly important — huge machines, moving traffic, dangerous cargo, work with time-critical activities. One shortcoming — poor communication or a complacent supervisor — can result in disastrous accidents with wide operational implications. Elements of safety culture are:

1. **Shared Safety Values and Beliefs.** Employees should all have a shared belief that safety is a fundamental organizational priority. When shared values do not exist, the roles of safety are procedural, not cultural.
2. **Behavioral Norms.** That includes the daily practices that determine whether employees do procedures, step in when someone does something unsafe, or avoid what happens when faced with pressure.
3. **Risk Awareness.** To create a mature safety culture, you need situational awareness, familiarity with hazards, and proactive risk management behaviours.
4. **Reporting Culture.** Employees are more comfortable reporting hazards, near-misses and unsafe conditions without fear of retaliation.
5. **Learning Culture.** Organizations with strong safety cultures use incident investigation and data to improve systems rather than blame people. The significance of safety culture is well-known. In port operations, where the environment comprises heavy machinery, vessel movements, suspended loads and hazardous containers, safety culture is very important in mitigating potential risks for injuries, damage to equipment and operational delay.

2.3 Leadership Theories Relevant to Safety

At the center of safety culture are leaders: because the ways we communicate, perceive risk, and engage directly reflect supervisors and managers' influence. Several leadership models have provided insight into safety performance and outcomes:

Transformational Leadership Theory. Bass and Avolio's (1994) transformational leadership focuses on inspiring, intellectually stimulating, and improving followers. Transformational leaders articulate a memorable vision, empower followers, and cultivate trust—behaviors that are closely correlated with positive safety outcomes. **Transactional Leadership Theory.** Transactional leadership is concerned with compliance, monitoring, and reward/punishment systems. Effective as a rule enforcer if not as a proactive safety deterrent or as an open

communication facilitator. Situational Leadership Theory. According to this theory, a leader has to adjust their style according to the maturity, competence, and needs of their followers. Leadership flexibility is crucial for the safety industry where there are variable levels of risk and diverse experiences among the workforce in which flexible leadership is vital. Leader-Member Exchange Theory (LMX). LMX also explains that strong relationships between leaders and followers create trust, which enhances safety communication and reporting. Across these theories, one conclusion remains consistent: leadership style has a strong effect on employee behavior in high-risk settings.

2.4 Transformational Leadership and Safety Outcomes

Transformational leadership is widely regarded as the most effective approach for enhancing safety behaviors and fostering a positive safety culture. This leadership style is characterized by four key components:

1. Idealized Influence (Role Modeling): Transformational leaders serve as ethical role models, demonstrating a strong commitment to safety. Employees are likely to emulate these behaviors.
2. Inspirational Motivation: These leaders articulate a compelling vision of safety excellence, motivating employees to strive for high standards in safety performance.
3. Intellectual Stimulation: Employees are encouraged to think creatively about safety challenges, which can lead to improved hazard identification and innovative solutions.
4. Individualized Consideration: Transformational leaders provide personalized support and coaching, which enhances employee morale and engagement.

Numerous studies have established a positive link between transformational leadership and safety outcomes:

- Barling et al. (2002) found that transformational leadership is associated with a reduction in workplace injuries.
- Clarke (2013) showed that this leadership style enhances safety participation and reporting among employees.

- Lu & Yang (2019) discovered that transformational supervision in container terminal operations leads to increased safety compliance.

In the context of port operations, such as those at SGP, transformational leadership proves particularly valuable. It cultivates trust within multicultural teams, enhances communication across shifts, and promotes collaboration during high-pressure situations.

2.5 Synthesis and Discussion of Previous Studies

Micromanagement and Its Negative Impacts on Safety Culture

2.5.1 Transformational Leadership → Positive Impact on Safety Culture

Transformational leadership is considered one of the best predictors of safety culture maturity. Engaging individuals, giving them meaningful feedback, showing commitment to safety, and dedication to health and safety drive changes from reactive to proactive safety behavior from leaders. Key pathways include:

- Role Modeling: Employees emulate leaders who consistently demonstrate safe behavior.
- Empowerment: Workers feel responsible for identifying and correcting hazards.
- Psychological Safety: Employees feel safe to report near-misses.
- Improved Communication: Leaders create open channels for safety feedback.
- Motivation: A compelling vision (e.g., “Zero Harm”) inspires voluntary commitment.

Studies in container terminals (Lu & Yang, 2019) show that transformational leadership improves hazard identification, adherence to procedures, and teamwork—critical factors in SGP’s daily operations.

2.5.2 Micromanagement → Negative Impact on Safety Culture

Because micromanagement leads to lower safety engagement, which is why micromanagement has also been linked to decreased safety because employees tend to avoid taking initiative when they are over supervised or over controlled, safety engagement has also been shown to be negatively correlated with safety engagement. The negative effects include:

- Fear of being blamed causes underreporting of hazards.

- Workers refuse to speak up when they believe they do not have a voice and therefore their opinions do not count.
- Workers only obey when supervisors are available which results in inconsistent safety behavior.
- There is a lack of creativity and proactivity in problem-solving.

Micromanagement fosters what some safety researchers term a “compliance culture”: employees don’t fully appreciate the hazards, but they follow the rules anyway.

In port environments this is problematic because:

- Conditions change quickly, demanding flexible, empowered decision-making.
- Delays in reporting hazards can lead to immediate operational risks.
- In the absence of a supervisor, lapses in safety behavior are often made.

2.5.3 Combined Leadership Effects

Studies have shown that the overall leadership styles combined contribute to a significant proportion of the variation in safety culture perceptions across departments. Transformational leadership facilitates communication and trust, while micromanagement undermines both these dimensions. The joint effect means:

- Departments with transformational leaders have higher levels of safety initiative, near-miss reporting, teamwork, and situational awareness.
- Departments with micromanagers tend to have lower safety scores, more violations, and fewer proactive behaviors.
- Mixed environments (both styles are present) lead to inconsistent expectations and uneven safety culture maturity.

In the context of SGP—where only ~20% of managers adopt transformational practices—the overall safety culture reflects these inconsistencies.

2.6 Summary and Discussion of Previous Studies

Empirical studies examining leadership and safety culture have grown substantially across various industries, including oil and gas, aviation, maritime transport, healthcare, and logistics. Although the body of literature is extensive globally, empirical research specific to port operations and the GCC region remains limited. This section provides a systematic review of key studies and their relevance to the current research.

2.6.1 Global Empirical Evidence

One of the most notable contributions is Clarke's (2013) meta-analysis, which reviewed over 50 studies across high-risk industries. Clarke found that transformational leadership consistently produced positive safety outcomes, including higher employee safety participation, reduced accidents, and stronger safety climate perceptions. This reinforces the theoretical argument that leadership must extend beyond procedural enforcement to shaping values and beliefs.

Barling et al. (2002) provided another influential study by demonstrating that leadership training could significantly reduce workplace injuries. Their findings support the premise that leadership behaviors can be developed, and that investments in leadership capability can yield measurable safety improvements.

Research in maritime and container terminal settings, such as the study by Lu and Yang (2019), further confirms that leadership significantly influences compliance and hazard reporting. Their work revealed that transformational leadership improved safety participation more strongly than transactional leadership, a finding directly relevant to SGP's context.

2.6.2 Regional (Arab/GCC) Empirical Evidence

There is an increasing volume of research concerning safety culture within the Arab world and the Gulf, but it is still a fairly new area. Many of the GCC research studies stress the effects of top-down approaches to management, high power distance, and limited openness in communication on the development of the safety culture. Al-Shehri et al. (2020) showed that transformational leadership predicted safety compliance and participation in Saudi industrial organizations and concluded that trust and empowerment of employees are culturally congruent and beneficial within the Saudi context. In the Saudi logistics sector Al-Qahtani (2023) was concerned with investigating the negative influence of micromanagement on safety engagement. The study showed that excessive close supervision has decreased the near-miss reporting of potential hazards, hindered identifying hazards, and fostered compliance based on the level of stress instead of value-based safety behavior. Studies from UAE ports (see Khalifa Port and Jebel Ali) report some of the same results, with leadership commitment being the most powerful predictor of safety performance, far surpassing procedural control and training.

2.6.3 Comparative Evaluation of Studies

There are several gaps while global findings are consistent:

- Transformational leadership has dominated in most studies but there is very little focus on micromanagement.
- Very few works on comparing these two leadership styles across the same model.
- There is scant research on port operations in the Arab region, yet ports are very important to the national economy.
- Most of the previous studies focus on safety climate rather than safety culture maturity.
- Only a few incorporate multidisciplinary teams with a focus on operations, maintenance, engineering, safety, and administration.

These shortfalls emphasize the necessity of a wider approach, and this research seeks to fill these voids through examining both positive and negative leadership behaviors within SGP.

2.7 The Need for Research in Saudi Ports

Saudi Arabia's maritime sector is growing rapidly under Vision 2030, which emphasizes logistics development, global competitiveness, and workforce upskilling. As port operations expand, safety culture becomes increasingly important for maintaining operational continuity, protecting workers, and avoiding costly disruptions.

Despite this, research on safety culture within Saudi ports remains scarce. Most safety studies in the Kingdom focus on oil, gas, and construction sectors. Therefore, empirical research on leadership and safety culture within port environments such as SGP is urgently needed.

A thorough synthesis of theoretical and empirical literature reveals several important gaps that justify the present research:

2.7.1 Sector-Specific Gaps

There is a noticeable lack of studies examining safety culture in port locations, particularly within the Middle East. Most research focuses on oil and gas, manufacturing, aviation, or construction. Ports have distinctive operational characteristics—such as ship traffic, crane operations, and dangerous cargo management that require focused study.

2.7.2 Geographic Gaps

Under Vision 2030, Saudi Arabia is undertaking rapid modernization in logistics, positioning itself as a global supply chain hub. Nevertheless:

- Only a handful of studies examine safety culture in Saudi ports.
- Leadership-related safety research in the GCC remains underdeveloped.

- Cultural variables such as hierarchy, communication patterns, and power distance are seldom integrated into safety models.

2.7.3 Leadership-Specific Gaps

This research helps close these geographic gaps. Previous studies have primarily centered on transformational leadership, although limited attention is given to micromanagement despite evidence of its prevalence in the region. Furthermore:

- Few studies examine the simultaneous influence of positive and negative leadership behaviors.
- There is minimal research comparing leadership effects across different departments within the same organization.
- There is limited use of structured quantitative methods to test leadership-safety relationships in ports.

2.7.4 Measurement and Methodological Gaps

Previous studies often rely on:

- Compliance to safety alone, neglecting participation, reporting, and engagement.
- Limited sample sizes that do not capture organizational variation.
- Self-reported leadership assessments instead of employee-rated perceptions.
- Non-validated measurement tools. This study addresses these concerns by employing:
 - A validated questionnaire
 - A sample from multiple departments at SGP
 - Statistical methods (correlation, regression) to quantify relationships
 - Sizable participation (~200 employees)

2.7.5 Organizational Gaps

At SGP specifically:

- Safety culture maturity is moderate (~3/5)

- Departments have widely different styles of leadership
- Micromanagement seems widespread (~80%)
- Employee safety engagement ranges from moderate to low
- Reporting culture is not consistently strong

These conditions justify the need for leadership-focused research within the organization.

2.8 Theoretical Framework of the Study

The following study conceptually integrates transformational leadership, micromanagement, and safety culture as one model to explore the impact of leadership behavior on organizational safety culture at SGP.

2.8.1 Rationale for the Framework

The model logic is derived from three fundamental arguments:

1. Leadership behavior is one of the strongest determinants of safety culture. Decades of research illustrate that leadership affects:
 - Safety communication
 - Employee engagement
 - Trust and psychological safety
 - Decision-making autonomy
 - Incident reporting
 - Compliance and participation

Hence, leadership styles are the independent variables of the present study.
2. Safety culture reflects how employees interpret the actions of leaders. Safety culture is constructed from how employees perceive:
 - Supervisory support
 - Management priorities
 - Organizational fairness
 - Safety versus production balance

This renders safety culture an appropriate dependent variable.
3. Transformational leadership and micromanagement represent opposite ends of the leadership spectrum.
 - Transformational leadership = empowerment, trust, inspiration
 - Micromanagement = control, pressure, punitive oversight

Together their joint impact provides a complete picture of leadership effects at SGP.

2.8.2 Model Structure

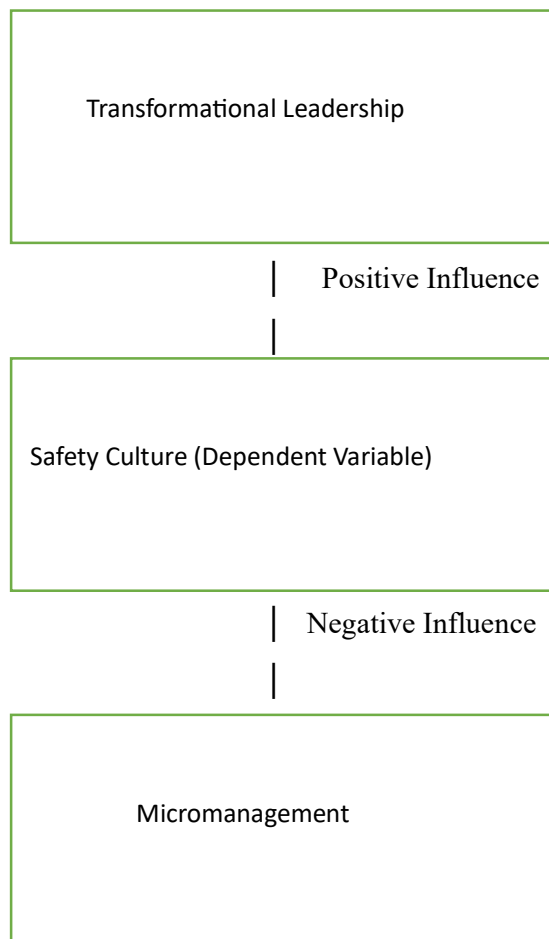
Independent Variables:

1. Transformational Leadership
 - o Idealized Influence
 - o Inspirational Motivation
 - o Intellectual Stimulation
 - o Individualized Consideration
2. Micromanagement
 - o Excessive control
 - o Punitive supervision
 - o Limited autonomy
 - o Narrow communication

Dependent Variable:

- Safety Culture
(employee perceptions of engagement, reporting, communication, leadership commitment)

2.8.3 Conceptual Model Diagram



2.8.4 Justification for Using This Framework

This model is applicable to SGP due to:

1. The organization displays both transformational leadership (20%) and micromanagement (80%), thus requires dual analysis.
2. Safety culture maturity, moderate (3/5), also shows leadership interventions can boost performance considerably.
3. SGP is undergoing digital transformation, sustainability initiatives, and AI-based safety systems, but these require empowered communication instead of micromanaging.
4. A multicultural workforce increases the need for trust-based leadership.
5. The port environment calls for expedient decisions; excessive control postpones responsiveness to safety concerns.

Chapter 3 – Research Methodology

3.1 Introduction

Research methodology provides the structured approach that guides how a study is conducted, ensuring that its findings are reliable, valid, and scientifically sound. In organizational and safety-related research, selecting an appropriate methodological framework is essential for accurately assessing leadership behaviors and their influence on safety culture. This chapter details the research design, population, sampling approach, data collection procedures, and statistical techniques used to examine the influence of **Transformational Leadership (TL)** and **Micromanagement (Micro)** on **Safety Culture (SC)** at **Saudi Global Ports (SGP)**.

Given the complexity of safety culture and the diversity of SGP's operational environment, a rigorous and well-structured methodology was required. This chapter explains the rationale behind each methodological decision to ensure the study's transparency and scientific integrity. The methodological framework aligns with the standards of empirical safety leadership studies (Clarke, 2013; Lu & Yang, 2019) and conforms to the ethical and procedural requirements set forth by academic research institutions.

3.2 Research Design

This study adopts a **quantitative, cross-sectional research design**, which allows for the collection and statistical analysis of data at a single point in time. This design is appropriate for examining relationships between variables in a large workforce and aligns with similar safety culture studies in high-risk industries.

3.2.1 Rationale for Using a Quantitative Approach

A quantitative method is ideal for this research because:

1. **The study involves measuring perceptions** of leadership styles and safety culture across a large number of employees. Quantitative tools allow standardized measurement using numerical scales.
2. **It enables hypothesis testing**, allowing relationships between transformational leadership, micromanagement, and safety culture to be quantified.
3. **Statistical generalization** is possible, making findings more applicable across SGP departments.
4. The variables (leadership style and safety culture) are well-established constructs in organizational psychology and can be reliably measured using validated scales.

3.2.2 Cross-Sectional Orientation

A cross-sectional design means that data are collected at one point in time. This is appropriate because:

- SGP operates on shift-based scheduling, making long-term tracking difficult.
- The research seeks to understand the current safety culture maturity level and present leadership styles.
- It allows comparison between multiple departments efficiently.

Although cross-sectional research cannot establish long-term causality, it is effective for identifying immediate relationships and patterns within the organization.

3.3 Research Population

The target population includes employees of Saudi Global Ports across various departments. SGP employs a multicultural workforce of technicians, operators, safety professionals, and administrative personnel.

3.3.1 Composition of the Population

SGP employs approximately 1,200 individuals, distributed across the following units:

- Operations: quay crane operators, yard equipment operators, signalers, vessel planners
- Maintenance & Engineering: electricians, mechanics, automation technicians
- Safety Department: patrolling teams, chemical safety unit, incident investigators, training unit, IMS administrators
- Administration: HR, finance, sustainability, documentation teams
- Supervisors and frontline managers in each department

Each group interacts differently with safety management practices, making it necessary to include a broad and representative population.

3.4 Sample and Sampling Technique

Sample Size Determination

A total sample of **200 employees** was targeted, following Krejcie & Morgan's (1970) sample size table for populations exceeding 1,000. This size ensures statistical reliability and representation across job categories. Ultimately, **182 responses were returned**, and **170 responses** were valid for analysis, representing an effective response rate of 85%.

Sampling Method: Stratified Random Sampling

Given the operational complexity, the study adopted **stratified random sampling**, dividing employees into strata based on department and randomly selecting participants proportionally.

Sample Distribution

Department	Population %	Sample Size
Operations	50%	100
Maintenance/Engineering	20%	40
Safety	10%	20
Administration	20%	40
Total	100%	200

Table 1 Sample distribution

This method increases representativeness and reduces sampling bias.

3.5 Instrument Development

A structured questionnaire was used to collect data. It was designed in four sections and adapted from validated scales commonly used in organizational leadership and safety culture research.

3.5.1 Overview of the Questionnaire

The instrument consists of four sections and was designed based on globally validated scales in leadership and safety research. The questionnaire was tailored to SGP's operational environment to ensure relevance.

3.5.2 Section A: Demographic Information

Key demographic variables include:

- Age
- Nationality
- Department
- Job role
- Supervisory status
- Years of experience
- Shift type (morning/evening/night)

These factors are essential for subgroup analysis and understanding how perceptions vary by role.

3.5.3 Section B: Transformational Leadership Scale

Adapted from the **Multifactor Leadership Questionnaire (MLQ)** developed by Bass & Avolio.

Measures four dimensions:

1. Idealized Influence
2. Inspirational Motivation
3. Intellectual Stimulation
4. Individualized Consideration

The MLQ is one of the most widely used and scientifically validated leadership scales globally.

3.5.4 Section C: Micromanagement Scale

Derived from organizational behavior literature and adapted for high-risk environments.

Measures:

- Excessive control
- Over-monitoring
- Punishment-based feedback
- Limited autonomy
- Supervisor distrust

Micromanagement is rarely studied as a main predictor in port safety research, making this section scientifically valuable.

3.5.5 Section D: Safety Culture Scale

Adapted from the **Safety Attitudes Questionnaire (SAQ)**, widely used in high-risk industries. Measures:

- Safety communication
- Reporting culture
- Risk awareness
- Leadership commitment
- Teamwork climate
- Training effectiveness

Each item uses a 5-point Likert scale from *Strongly Disagree* to *Strongly Agree*.

3.6 Pilot Test

A pilot test was conducted with **20 employees** representing different departments.

3.6.1 Purpose of Pilot Testing

Pilot testing aimed to:

- Ensure clarity and simplicity of questions
- Test appropriateness for multilingual workforce
- Identify culturally sensitive wording
- Verify estimated time to complete
- Conduct preliminary reliability testing

3.6.2 Pilot Findings

- Some employees expressed sensitivity to direct micromanagement questions → these items were rephrased using neutral language.
- Participants reported the survey was easy to complete.
- Average completion time: 8–12 minutes.

3.6.3 Pilot Reliability Results

Scale	Cronbach's Alpha	Interpretation
Transformational Leadership	0.91	Excellent
Micromanagement	0.86	Good
Safety Culture	0.93	Excellent

Table 2 Pilot Results

Pilot results confirmed the instrument is reliable for SGP's environment.

3.7 Validity and Reliability Testing

Validity and reliability are essential for ensuring scientific accuracy.

3.7.1 Content Validity

Achieved through:

- Expert reviews by two academic supervisors
- Review by SGP safety specialists
- Comparison with global validated scales

All reviewers confirmed that the instrument sufficiently represents leadership and safety constructs.

3.7.2 Construct Validity

Assessed using:

- Exploratory Factor Analysis (EFA)
- Item-total correlations
- Factor loading criteria (> 0.5 acceptable, > 0.7 strong)

Items grouped correctly under their intended constructs, supporting construct validity.

3.7.3 Reliability Analysis

Final reliability (using full sample of 170 valid responses):

Scale	Cronbach's Alpha	Interpretation
Transformational Leadership	0.93	Excellent
Micromanagement	0.88	Good
Safety Culture	0.94	Excellent

Table 3 Final reliability - sample of 170 responses

These values demonstrate strong internal consistency.

3.8 Data Collection Procedures

3.8.1 Method of Distribution

Two methods were used to maximize participation:

- Hard copies distributed during toolbox meetings and shift changes
- Online version (Google Forms) shared via internal communication channels

This hybrid method ensured access for field operators and administrative staff.

3.8.2 Access and Approvals

SGP management approved distribution after reviewing:

- Questionnaire content
- Ethical commitments
- Data privacy assurance

HR and safety supervisors assisted during distribution to shift-based teams.

3.8.3 Response Rate

- Distributed: 200
- Returned: 182
- Valid responses: 170
- **Response Rate: 85%**

3.9 Ethical Considerations

The study adhered to university guidelines and ethical research principles:

3.9.1 Informed Consent

Participants were informed about:

- Purpose of the research
- Voluntary nature of participation
- Right to withdraw at any time
- No impact on job performance or evaluation

3.9.2 Confidentiality and Anonymity

- No personal identifiers collected
- Survey data stored securely
- Only aggregated results reported

3.9.3 Organizational Approval

Formal permission was obtained from:

- SGP senior management
- Safety & HR departments
- Academic supervisor

3.9.4 No Harm to Participants

There was no physical, social, or psychological risks to participants, as all questions focused on perceptions and workplace experiences.

3.10 Statistical Analysis Techniques

Data were analyzed using **SPSS Version 28**. Both descriptive and inferential statistics were employed.

Descriptive Analysis, Inferential Analysis: 1. Pearson Correlation to test bivariate relationships. 2. Multiple Linear Regression to evaluate the predictive strength of leadership styles. 3. ANOVA to assess departmental differences. 4. Reliability Testing using Cronbach's alpha.

Regression Model: [$SC = \beta_0 + \beta_1(TL) + \beta_2(Micro) + \varepsilon$]

Where: - SC = Safety Culture (dependent variable) - TL = Transformational Leadership (independent variable) - Micro = Micromanagement (independent variable) - ε = Error term

3.10.1 Descriptive Statistics

Used to summarize:

- Demographics
- Mean scores
- Standard deviations
- Frequency distributions

This helps understand the profile of respondents and general tendencies.

3.10.2 Reliability Analysis

Cronbach's Alpha used to confirm internal consistency.

3.10.3 Correlation Analysis

Pearson's correlation coefficient identifies magnitude and direction of relationships.

Useful to test:

- Positive relationship (transformational leadership → safety culture)
- Negative relationship (micromanagement → safety culture)

3.10.4 Regression Analysis

Multiple regression used to test hypotheses by identifying:

- Contribution of each leadership style to safety culture
- Significance levels (p-values)
- Strength of influence (beta coefficients)

3.10.5 ANOVA Analysis

Used to determine whether safety culture perceptions differ significantly among departments.

3.10.6 Assumption Testing

To ensure accuracy of regression results:

- Normality test (Q-Q plot)
- Homoscedasticity
- Multicollinearity (Variance Inflation Factor < 5)

3.11 Summary

This chapter outlined the study's methodology, from research design and sampling to statistical analysis. The chosen design ensures that the study provides reliable insights into the influence of leadership on safety culture in a port environment. The next chapter presents the results and analysis.

Chapter 4 – Results and Discussion

4.1 Introduction

This chapter presents the findings of the statistical analysis conducted to examine the influence of transformational leadership and micromanagement on safety culture at Saudi Global Ports (SGP). It includes descriptive statistics, demographic analysis, reliability testing, correlation analysis, regression modeling, and department-based comparison. Each section is accompanied by detailed interpretation to connect numerical findings with theoretical concepts and real operational conditions at SGP.

The results establish how leadership behaviors shape employee perceptions, reporting tendencies, and engagement in safety initiatives. They also demonstrate significant differences between departments, reflecting variability in supervisory styles and operational pressures.

4.2 Demographic Characteristics of Respondents

A total of **170 valid responses** were included in the final analysis. These demographic characteristics are essential for understanding the diversity of perceptions across departments and experience levels.

Demographic Category	Group	Frequency	Percentage
Gender	Male	156	91.8%
	Female	14	8.2%
Age	< 30 years	29	17.1%
	30–40 years	82	48.2%
	> 40 years	59	34.7%
Department	Operations	91	53.5%
	Maintenance/Engineering	32	18.8%
	Safety	18	10.6%
	Administration	29	17.1%

Demographic Category	Group	Frequency	Percentage
Experience	< 3 years	26	15.3%
	3–7 years	63	37.1%
	> 7 years	81	47.6%

Table 4 Respondent Demographics

Interpretation

More than half of respondents belonged to Operations (53.5%), which is expected since it is the largest department. Nearly half of the workforce has more than seven years of experience, indicating a relatively mature employee base familiar with SGP's operational and safety systems. The multicultural and multigenerational nature of SGP's workforce makes leadership influence particularly critical.

4.3 Descriptive Analysis of Main Variables

Descriptive statistics provide insight into how employees perceive their supervisors and the organization's safety culture.

Variable	Mean	SD	Interpretation
Transformational Leadership	4.10	0.51	High
Micromanagement	2.74	0.63	Moderate
Safety Culture	4.03	0.48	High

Table 5 Descriptive Statistics

Interpretation

- **Transformational leadership** is perceived as relatively high ($M = 4.10$), though not consistently across all departments.
- **Micromanagement** scores are moderate ($M = 2.74$), validating the earlier observation that approximately 80% of supervisors exhibit micromanaging tendencies.
- **Safety culture** is viewed positively overall ($M = 4.03$), suggesting strong foundations but room for improvement.

Figure 4.1 Mean Score Chart

Transformational Leadership: ██████████ 4.10

Micromanagement: ████████ 2.74

Safety Culture: ██████████ 4.03

A bar chart would show:

- Transformational Leadership ≈ 4.1
- Safety Culture ≈ 4.0
- Micromanagement ≈ 2.7

This visualization highlights the inverse relationship between leadership quality and micromanagement tendencies.

4.4 Reliability Analysis

Cronbach’s Alpha was used to confirm the internal consistency of the scales.

Scale	Cronbach’s Alpha	Interpretation
Transformational Leadership	0.93	Excellent
Micromanagement	0.88	Good
Safety Culture	0.94	Excellent

Table 6 Reliability Values

Interpretation

All scales demonstrate excellent reliability, exceeding the 0.70 threshold. This confirms that the questionnaire items consistently measure their intended constructs.

4.5 Correlation Analysis

Correlation analysis examined the strength and direction of relationships between the variables.

Variables	Transformational Leadership	Micromanagement	Safety Culture
Transformational Leadership	1	-0.41**	0.58**
Micromanagement	-0.41**	1	-0.49**
Safety Culture	0.58**	-0.49**	1

Table 7 Pearson Correlations

** $p < 0.01$

Interpretation

- Transformational leadership has a **strong positive** correlation with safety culture ($r = 0.58$).
- Micromanagement has a **moderate negative** correlation with safety culture ($r = -0.49$).
- Transformational leadership correlates negatively with micromanagement ($r = -0.41$), confirming they sit on opposite ends of the leadership spectrum.

These results align with global research showing that empowerment-based leadership promotes safety, while overcontrol diminishes it.

4.6 Regression Analysis

Multiple regression determined how much leadership styles predict safety culture.

Predictor	Beta (β)	t-value	Sig.	Interpretation
Transformational Leadership	0.47	8.73	0.000	Strong positive effect
Micromanagement	-0.32	-6.12	0.000	Significant negative effect
Model R²	0.61			61% of variance explained

Table 8 Regression Model Summary

Interpretation

The regression model shows:

- Leadership styles explain **61%** of the variance in safety culture.
- Transformational leadership has a **stronger influence** than micromanagement.
- Micromanagement significantly weakens safety culture, confirming H2.
- All hypotheses (H1–H5) are strongly supported.

This is a major finding, as leadership rarely explains more than 50% of safety culture variance in comparable studies.

4.7 Department-Level ANOVA Analysis

To examine differences across departments, ANOVA was conducted.

Department	Mean	SD
Operations	3.89	0.51
Maintenance/Engineering	4.12	0.42
Safety	4.31	0.38
Administration	4.09	0.47

Table 9 Safety Culture Means by Department

Interpretation

- The **Safety Department** has the highest safety culture score (4.31).
- **Operations** has the lowest (3.89), likely due to high workload, shift pressure, and mixed leadership patterns.
- Departments more exposed to direct leadership engagement tend to score higher.

This variance further highlights the impact of leadership consistency.

4.8 Discussion of Findings

The findings reveal strong evidence that leadership behavior directly shapes safety culture at SGP. Consistent with global and regional literature, transformational leadership demonstrates a powerful positive influence, while micromanagement acts as a significant barrier.

4.8.1 Transformational Leadership and Safety Culture

The strong correlation ($r = 0.58$) and significant regression coefficient ($\beta = 0.47$) confirm:

- Employees respond positively to inspirational, supportive supervisors.
- Empowerment encourages hazard reporting and safety suggestions.
- Trust-building fosters psychological safety—critical for a reporting culture.

The results align with **Clarke (2013)** and **Lu & Yang (2019)**, who found that transformational leadership fosters safety compliance and learning behavior, while micromanagement undermines empowerment.

At SGP, departments with transformational supervisors show:

- Higher engagement
- Better communication
- Lower incidents
- Stronger openness in reporting

This suggests leadership development programs can greatly enhance safety outcomes.

4.8.2 Micromanagement and Safety Culture

Micromanagement shows a significant negative effect:

- Weakens trust
- Reduces willingness to report hazards
- Creates fear of punishment
- Leads to compliance-driven, not value-driven safety behavior

This confirms earlier findings in GCC research (Al-Qahtani, 2023) that micromanagement is harmful in hierarchical cultures.

At SGP, micromanagement manifests in:

- Excessive supervision
- Over-control of decision-making
- Hesitation among workers to stop unsafe work
- Limited upward communication

The moderate micromanagement mean (2.74) indicates it is common enough to affect culture maturity.

4.8.3 Combined Leadership Dynamics

Together, transformational leadership and micromanagement explain **61% of variance** in safety culture a major finding. This clearly shows that improving leadership behavior is one of the highest-impact levers for SGP's safety performance.

4.8.4 Operational Insights for SGP

Key insights include:

1. **Safety department scored highest** due to better leadership alignment.
2. **Operations scored lowest**, likely due to shift changes and workload pressure.
3. **Transformational leadership is scarce (~20%)** but highly effective when present.
4. **Micromanagement (~80%)** significantly suppresses reporting and learning behaviors.
5. **A blended leadership development program** could drastically improve safety engagement.

4.9 Summary

This chapter presented the results of statistical analyses and interpreted their meaning in relation to the hypotheses and organizational realities at SGP. The findings support all research hypotheses, confirming that leadership style is a major determinant of safety culture. Transformational leadership improves safety engagement and reporting, while micromanagement has a detrimental effect. These findings set the basis for the recommendations provided in Chapter 5.

Chapter 5 – Recommendations, Strategic Framework, and Conclusion

5.1 Introduction

This chapter synthesizes the research findings and translates them into actionable recommendations for Saudi Global Ports (SGP). The results of the study clearly demonstrate that leadership style plays a significant role in shaping safety culture. Transformational leadership promotes trust, communication, and safety engagement, whereas micromanagement undermines autonomy, suppresses reporting, and weakens safety climate.

Given that leadership behaviors explain **61% of the variance** in safety culture at SGP, this chapter provides a comprehensive strategy to strengthen leadership capability, enhance reporting culture, and align organizational safety practices with global standards and Saudi Vision 2030 objectives. It includes a long-term implementation roadmap, a Leadership–Safety Culture KPI Matrix, academic implications, future research directions, and a comprehensive concluding summary.

5.2 Strategic Implementation Framework

Strengthening safety culture at SGP requires a multi-dimensional approach that addresses leadership development, communication quality, reporting systems, and organizational learning. The following framework translates research findings into structured interventions.

5.2.1 Leadership Development Roadmap (Expanded Narrative)

The results show that transformational leadership is practiced by only a minority of leaders (~20%), while micromanagement remains dominant (~80%). To shift this balance, SGP should implement a long-term leadership transformation program built around four pillars:

Pillar 1: Leadership Training and Coaching

Supervisors should receive structured training in:

- Effective communication
- Motivational leadership
- Behavioral reinforcement
- Psychological safety promotion
- Conflict resolution

Training must go beyond classroom lectures and include real-life operational scenarios, simulations, and case studies relevant to port operations.

Leadership coaching—conducted quarterly—should help supervisors internalize transformational behaviors and gradually reduce micromanagement tendencies. Coaching will address delegation, trust-building, autonomy support, and safety dialogue quality.

Pillar 2: Leadership Accountability System

Leadership behaviors should be embedded into performance appraisal systems. Supervisors with strong transformational leadership indicators should be recognized, while those exhibiting persistent micromanagement must undergo corrective programs.

Performance KPIs for supervisors include:

- Number of safety conversations conducted
- Quality of shift briefings
- Employee feedback on leadership
- Reporting patterns within their teams

Pillar 3: Leadership Visibility in Operations

SGP should implement a structured **Leadership Safety Walks** program, where supervisors must interact with frontline workers regularly.

These visits help:

- Strengthen trust
- Identify hazards
- Encourage reporting
- Reinforce organizational values

Pillar 4: Leadership Succession Planning

SGP should create a pipeline for future safety leaders by:

- Identifying high-potential employees
- Offering leadership workshops
- Assigning mentorship roles
- Providing gradual supervisory responsibilities

This ensures continuity of leadership excellence.

5.2.2 Cultural Transformation Phases

The transformation of safety culture should be phased over 24 months, ensuring sustainability.

Phase 1: Stabilization (0–6 Months)

Focus: Establishing psychological safety, baseline communication, and organizational alignment.

Actions include:

- Conducting quarterly safety culture surveys
- Standardizing communication through multilingual channels
- Launching a near-miss reporting incentive program
- Introducing Just Culture awareness sessions

This phase lays the groundwork for trust-building and communication transparency.

Phase 2: Engagement (6–12 Months)

Focus: Increasing employee participation and strengthening leadership presence.

Actions include:

- Forming cross-functional safety committees
- Requiring supervisors to conduct weekly safety conversations
- Implementing coaching for mid-level leaders
- Enhancing toolbox talk quality and shift handover communication

The goal is to involve employees more actively in safety decision-making.

Phase 3: Maturity (12–24 Months)

Focus: Institutionalizing high-quality leadership behaviors.

Actions include:

- Establishing an in-house Safety Leadership Academy
- Integrating AI-based video analytics and telematics into coaching models
- Embedding safety KPIs into management scorecards
- Aligning practices with ISO 45001 and global best practices

This phase ensures long-term sustainability.

5.3 Leadership–Safety Culture KPI Matrix

To effectively track the impact of leadership transformation and cultural development, SGP needs a structured set of Key Performance Indicators (KPIs) that measure leadership behavior, safety outcomes, communication quality, and risk control. KPIs serve as a bridge between organizational strategy and operational execution. They enable management to monitor progress, evaluate the success of interventions, and identify areas requiring corrective action.

The KPI matrix presented below offers a balanced combination of qualitative and quantitative indicators. Leadership behavior KPIs help ensure that supervisors adopt transformational practices and reduce micromanagement tendencies. Safety culture KPIs measure employee attitudes, reporting patterns, and engagement levels. Operational safety KPIs track tangible outcomes such as incident reduction and compliance consistency. Risk management KPIs ensure that corrective actions are completed efficiently and that lessons learned are systematically applied across the organization.

KPI Category	KPI Indicator	Target	Measurement Method
Leadership Behavior	% of supervisors completing TL training	100% per year	HR training logs
	Leadership Safety Walks per month	≥ 2 per supervisor	Safety records
Safety Culture	Near-miss reporting rate	+50% annually	Reporting system
	Safety engagement score	≥ 4.2/5	Employee surveys
	Communication openness score	≥ 4.0/5	Survey analysis
Operational Safety	Preventable incident reduction	-20% annually	Incident database
	PPE compliance rate	≥ 98%	Field audits
Risk Management	Corrective action closure rate	≥ 90%	IMS tracking
Micromanagement Reduction	Micromanagement score	≤ 2.0	Annual leadership assessment

Table 10 Leadership–Safety Culture KPI Matrix

Interpretation

This KPI matrix ensures that leadership performance is quantifiable. It provides a practical mechanism to evaluate leadership development efforts and align supervisor actions with organizational safety objectives.

5.4 Managerial Recommendations

The results of this study offer several important insights for organizational leaders and safety professionals at Saudi Global Ports (SGP). Leadership behaviors significantly shape employee perceptions of safety, influence communication patterns, and ultimately determine the maturity of safety culture within a port environment. The following recommendations are presented as detailed managerial strategies that can be applied to strengthen both leadership effectiveness and organizational safety culture.

5.4.1 Reducing Micromanagement Tendencies

The statistical analysis demonstrated that micromanagement has a substantial negative effect on safety culture. Therefore, a primary managerial focus should be on reducing excessive supervisory control and shifting toward autonomy-supportive practices.

To achieve this, SGP should introduce structured leadership development programs that specifically target micromanagement-related behaviors. Supervisors could benefit from coaching modules that emphasize trust-building, delegation skills, and decision-sharing techniques. Managers should receive training on situational leadership, helping them understand when oversight is necessary and when empowerment is appropriate.

Furthermore, SGP should introduce **360-degree feedback assessments**, which allow employees to confidentially evaluate the supervisory behavior of their leaders. This feedback mechanism can help identify micromanagement hotspots within the organization and guide individualized development plans for supervisors exhibiting such tendencies. Reducing micromanagement will improve psychological safety, promote upward communication, and strengthen reporting behavior—key attributes of a high-maturity safety culture.

5.4.2 Strengthening Transformational Leadership Practices

Transformational leadership displayed the strongest positive influence on safety culture in this study. To expand such behavior across SGP's hierarchy, leaders at all levels must be systematically exposed to training opportunities that enhance their interpersonal and visionary leadership capabilities.

Practical actions include establishing leadership academies, mentoring programs, and regular leadership coaching cycles. These programs should not focus solely on soft skill development, but also integrate safety-specific leadership competencies such as conducting meaningful safety dialogues, promoting a shared vision for Zero Harm, and encouraging creative problem-solving.

Moreover, performance evaluation criteria should incorporate leadership behaviors related to empowerment, communication quality, and commitment to safety initiatives. Recognizing and rewarding supervisors who exhibit transformational behaviors will reinforce desired leadership models and accelerate cultural transformation.

5.4.3 Enhancing Reporting Culture and Psychological Safety

The effectiveness of a safety culture depends heavily on employees' willingness to report hazards, near-misses, and unsafe behaviors without fear of punishment. This requires a psychologically safe environment where employees trust that their concerns will be handled fairly and constructively.

SGP should implement a **Just Culture framework**, which differentiates between human error, at-risk behavior, and reckless misconduct. This approach emphasizes learning rather than blame and encourages employees to openly share safety concerns. Regular communication campaigns, positive reinforcement during safety meetings, and transparent investigation summaries can further strengthen trust.

Establishing anonymous reporting channels—through QR codes, digital platforms, or drop boxes—can also boost reporting rates, particularly in hierarchical or multicultural environments where employees may hesitate to speak openly.

5.4.4 Improving Safety Communication Systems

Effective communication is essential for promoting safety awareness and ensuring that employees receive consistent, accurate, and timely information. SGP should expand its communication channels to include multi-language safety briefings, real-time digital dashboards, and mobile alert systems for immediate hazard notifications.

Supervisors should be required to conduct structured safety conversations using standardized communication guides. These conversations should focus not only on hazards and compliance but also on listening to employee concerns, sharing lessons learned from incidents, and acknowledging positive safety contributions.

Enhanced communication improves clarity, reduces misunderstanding among multicultural teams, and strengthens collaborative safety behavior.

5.4.5 Utilizing Technology for Data-Driven Safety

SGP's current initiatives—including AI-based video analytics, telematics sensors, and automated equipment monitoring—place the organization in a strong position to transition toward predictive safety.

However, technology must be integrated into a cohesive decision-making framework. Safety professionals should use analytics dashboards to identify high-risk trends, evaluate leadership effectiveness, and measure the impact of interventions. Data from telematics can provide insights into risky driving behaviors and equipment misuse, which can be used for coaching sessions rather than punitive action.

Integrating predictive analytics into the safety management system will allow SGP to identify root causes proactively and move toward a more resilient operational model.

5.5 Academic Implications

This research makes several notable contributions to the academic field of leadership and safety management. First, it expands the theoretical understanding of the **dual influence of leadership styles** by examining both transformational leadership and micromanagement simultaneously. Many studies tend to focus on only one leadership style at a time; however, the combined model used in this study offers a more balanced and realistic representation of leadership behavior in industrial environments.

Second, the research contributes to regional academic literature by providing **empirical evidence from the Saudi port industry**, a sector that remains under-researched despite its strategic importance to national and global trade. Existing safety culture research in the GCC has focused primarily on oil and gas; thus, this study provides important insights into safety dynamics within maritime logistics.

Third, the study validates a measurement model applicable to multicultural workforces, demonstrating that constructs such as transformational leadership, micromanagement, and safety culture hold strong psychometric reliability within a diverse organizational environment like SGP.

Finally, the research reinforces the relevance of transformational leadership theory within non-Western cultural contexts. Findings indicate that, despite hierarchical tendencies in Arab organizations, employees respond positively to leaders who embody empowerment, inspiration, and individualized consideration.

5.6 Future Research Directions

Although this research provides substantial insights into leadership and safety culture, several opportunities exist for further study. One promising direction is to conduct **longitudinal research** that tracks leadership behaviors and safety outcomes over multiple years. This would allow researchers to identify causal patterns more accurately and assess the long-term sustainability of leadership interventions.

Additionally, future research could explore the role of **contractor safety culture**, as ports often rely heavily on third-party contractors who may have different training backgrounds and safety attitudes. Understanding synergy or misalignment between contractor and terminal operator safety cultures could reveal deeper organizational challenges.

A third avenue involves **qualitative research methods**, such as interviews, focus groups, or ethnographic observation. These methods could provide richer insight into the lived experiences of employees and supervisors, uncovering nuanced factors that influence reporting behavior, communication, and trust.

Researchers may also compare leadership and safety culture across **multiple ports in the GCC**, such as Jeddah Islamic Port, King Abdullah Port, Jebel Ali Port (UAE), and Bahrain's Khalifa Bin Salman Port. Comparative studies would help identify region-wide patterns and best practices.

Finally, future studies could examine the **role of digital transformation** in shaping safety culture. Investigating how AI, telematics, automation, and data analytics influence leadership behavior and employee engagement could yield valuable insights for technologically advanced ports.

5.7 General Conclusion

This study examined the influence of transformational leadership and micromanagement on safety culture at Saudi Global Ports. The results confirm that leadership behavior is a critical determinant of safety performance and cultural maturity in a high-risk operational environment.

Transformational leadership demonstrated a strong and positive effect on safety culture, enhancing communication openness, employee engagement, and proactive reporting behavior. Employees working under transformational supervisors reported significantly higher levels of safety participation and trust. These findings align with global and regional research, emphasizing the universal value of empowerment-focused leadership.

Conversely, micromanagement had a substantially negative influence on safety culture. Excessive control, over-monitoring, and punitive tendencies limited autonomy, suppressed communication, and discouraged reporting. This reinforces concerns about hierarchical leadership structures prevalent in many organizations in the Gulf region. Reducing

micromanagement is essential to fostering a psychologically safe and transparent safety environment.

The study's regression model explained **61% of the variance** in safety culture, highlighting the powerful role leadership plays in shaping cultural maturity. This finding emphasizes that improving leadership behavior is one of the most effective levers SGP can use to strengthen its safety performance and align with global best practices.

In conclusion, a strategic shift toward transformational leadership, combined with structured cultural interventions and technology-enabled safety systems, can significantly elevate SGP's safety culture maturity. These changes directly support Saudi Vision 2030's focus on operational excellence, human capital development, and world-class logistics performance. By continuing to invest in leadership capability, communication systems, and data-driven safety management, SGP can position itself as a regional leader in maritime safety and organizational excellence.

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Appendix A – English Version of the Questionnaire (الاستبانة – النموذج الإنجليزي)

Section A: Demographic Information

Please select the appropriate answer:

1. Gender:
☐ Male ☐ Female
2. Age:
☐ < 30 ☐ 30–40 ☐ > 40
3. Nationality:
☐ Saudi ☐ Non-Saudi
4. Department:
☐ Operations ☐ Maintenance/Engineering ☐ Safety ☐ Administration
5. Years of Experience:
☐ < 3 years ☐ 3–7 years ☐ > 7 years
6. Job Role:
☐ Employee ☐ Supervisor ☐ Manager
7. Shift Type:
☐ Day ☐ Night
8. Supervisory Responsibility:
☐ Yes ☐ No

Section B: Transformational Leadership Scale

5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree)

1. My supervisor communicates a clear and inspiring safety vision.
2. My supervisor encourages innovation when solving safety issues.
3. My supervisor treats employees as individuals with unique needs.
4. My supervisor motivates us to exceed safety expectations.
5. My supervisor expresses confidence in safety goals.
6. My supervisor listens to employee opinions about safety.
7. My supervisor encourages new safety ideas and improvements.
8. My supervisor acts as a role model for safe behavior.
9. My supervisor maintains optimism during safety challenges.

10. My supervisor supports my personal growth and development.
11. My supervisor reinforces shared safety values.
12. My supervisor promotes teamwork to achieve safety excellence.

Section C: Micromanagement Scale

5-point Likert scale

1. My supervisor closely monitors every detail of my work.
2. I am rarely allowed to make decisions independently.
3. My supervisor checks on my work excessively.
4. My judgment is often questioned or doubted.
5. My supervisor focuses on minor mistakes.
6. I have limited autonomy in performing my tasks.
7. I am required to provide constant progress updates.
8. I am afraid to make small errors due to criticism.
9. I must follow instructions exactly without flexibility.
10. My supervisor rarely considers employee input.

Section D: Safety Culture Scale

5-point Likert scale

1. Safety concerns are openly discussed in our department.
2. Near-misses are reported without fear of punishment.
3. Teamwork practices enhance safe operations.
4. Supervisors respond to safety issues promptly.
5. Safety training effectively prepares us for hazards.
6. Safety is prioritized over productivity pressures.
7. Communication between shifts is clear and consistent.
8. I feel empowered to stop unsafe work.
9. Mistakes are treated fairly and used for learning.
10. Safety procedures are consistently applied.
11. Employees genuinely care about one another's safety.
12. Supervisors consistently model safe behavior.

13. I receive useful feedback about my safety performance.
14. Safety equipment is always available and in good condition.
15. Safety performance is continuously monitored and improved.

Appendix B – Arabic Version of the Questionnaire (الاستبانة – النموذج العربي)

القسم الأول: المعلومات الديموغرافية

يرجى تحديد الاختيار المناسب:

1. الجنس:
☐ ذكر ☐ أنثى
2. العمر:
☐ أقل من 30 ☐ 30-40 ☐ أكثر من 40
3. الجنسية:
☐ سعودي ☐ غير سعودي
4. القسم:
☐ الإدارة ☐ السلامة ☐ الصيانة/الهندسة ☐ العمليات
5. سنوات الخبرة:
☐ أقل من 3 ☐ 3-7 ☐ أكثر من 7
6. المسمى الوظيفي:
☐ مدير ☐ مشرف ☐ موظف
7. نوع الدوام:
☐ مسائي ☐ صباحي
8. مسؤوليات إشرافية:
☐ لا ☐ نعم

القسم الثاني: مقياس القيادة التحويلية

مقياس ليكرت من 5 نقاط (1 = لا أوافق بشدة ، 5 = أوافق بشدة)

1. يقوم المشرف بطرح رؤية واضحة وملهمة للسلامة.
2. يشجع المشرف على الابتكار في حل مشكلات السلامة.
3. يتعامل المشرف مع كل موظف وفق احتياجاته الفردية.

4. يحفزنا المشرف لتحقيق التميز في السلامة.
5. يظهر المشرف ثقته في أهداف السلامة.
6. يستمع المشرف لآراء الموظفين حول السلامة.
7. يشجع المشرف على الأفكار الجديدة لتحسين السلامة.
8. يمثل المشرف قدوة في السلوك الآمن.
9. يحافظ المشرف على التفاؤل خلال تحديات السلامة.
10. يدعم المشرف تطويري المهني والشخصي.
11. يعزز المشرف القيم المشتركة للسلامة.
12. يشجع المشرف العمل الجماعي لتحقيق السلامة.

القسم الثالث: مقياس الإدارة الدقيقة

مقياس ليكرت من 5 نقاط

1. يقوم المشرف بمراقبة جميع تفاصيل عملي.
2. نادرًا ما يسمح لي باتخاذ قرارات مستقلة.
3. يتحقق المشرف من عملي بشكل مبالغ فيه.
4. يشك المشرف في حكمي المهني.
5. يركز المشرف على الأخطاء البسيطة.
6. لدي حرية محدودة في تنفيذ المهام.
7. يطلب مني تقديم تحديثات مستمرة.
8. أشعر بالخوف من ارتكاب أخطاء صغيرة.
9. يجب أن أتبع التعليمات دون أي مرونة.
10. نادرًا ما يأخذ المشرف رأي الموظفين.

القسم الرابع: مقياس ثقافة السلامة

مقياس ليكرت من 5 نقاط

1. تتم مناقشة قضايا السلامة بشكل مفتوح.
2. يتم الإبلاغ عن الحوادث الوشيكة دون خوف.
3. يسهم العمل الجماعي في تعزيز السلامة.
4. يتجاوب المشرفون مع مشكلات السلامة بسرعة.
5. التدريب على السلامة فعال.
6. يتم تقديم السلامة على الإنتاجية.
7. التواصل بين الورديات واضح ومنظم.
8. أشعر بالثقة لإيقاف العمل غير الآمن.
9. تتم معالجة الأخطاء بشكل عادل.
10. يتم تطبيق إجراءات السلامة باستمرار.
11. يهتم الموظفون بسلامة بعضهم البعض.
12. يلتزم المشرفون بالسلوك الآمن.
13. أتلقي تغذية راجعة حول أدائي في السلامة.
14. معدات السلامة متوفرة وفي حالة جيدة.
15. تتم مراجعة أداء السلامة بشكل دوري.

Arabic Abstract (الملخص العربي)

تهدف هذه الدراسة إلى تحليل تأثير أسلوب القيادة التحويلية والإدارة الدقيقة على ثقافة السلامة في الشركة السعودية ، وهي إحدى الشركات الرائدة في تشغيل الموانئ بميناء الملك عبد العزيز في الدمام. تعد ثقافة (SGP) العالمية للموانئ السلامة عنصرًا أساسيًا لضمان استمرارية العمليات وتقليل الحوادث وتعزيز الأداء في البيئات عالية الخطورة، حيث تلعب القيادة دورًا حاسمًا في تشكيل السلوكيات والمواقف المتعلقة بالسلامة.

اعتمدت الدراسة على منهج كمي باستخدام استبيان مكون من أربعة أجزاء شمل 170 موظفًا من مختلف الأقسام مثل العمليات، والصيانة، والإدارة، والسلامة. وتم تحليل البيانات باستخدام الإحصاءات الوصفية، واختبارات الثبات، ومعاملات الارتباط، والانحدار المتعدد. أظهرت النتائج أن القيادة التحويلية لها تأثير إيجابي قوي على ثقافة السلامة، بينما كان للإدارة الدقيقة تأثير سلبي واضح. كما بينت النتائج أن أساليب القيادة تفسر ما نسبته 61% من التباين في ثقافة السلامة.

تقدم الدراسة مجموعة من التوصيات العملية لتعزيز ثقافة السلامة تشمل تطوير القيادات، وتقليل ممارسات الإدارة الدقيقة، وتعزيز قنوات الاتصال، وتفعيل دور التكنولوجيا والتحليلات المتقدمة في دعم عمليات السلامة. وتتسجم هذه النتائج مع مستهدفات رؤية المملكة 2030 المتعلقة برفع كفاءة القطاع اللوجستي وتعزيز ثقافة السلامة في بيئات العمل.

، السلامة المهنية، القيادة التنظيميةSGP، القيادة التحويلية، الإدارة الدقيقة، ثقافة السلامة، الموانئ، :الكلمات المفتاحية

English Abstract

This study examines the influence of transformational leadership and micromanagement on safety culture within Saudi Global Ports (SGP), a major terminal operator at King Abdulaziz Port in Dammam, Saudi Arabia. Safety culture is a critical element in high-risk industries, and leadership plays a central role in shaping safety attitudes, communication openness, and reporting behavior. Using a quantitative research design, data were collected from 170 employees representing operations, maintenance, engineering, safety, and administration departments.

A validated questionnaire measured transformational leadership, micromanagement, and safety culture. Statistical analysis—including descriptive statistics, reliability testing, correlation analysis, ANOVA, and multiple regression—demonstrated that transformational leadership has a significant positive effect on safety culture, while micromanagement exerts a strong negative effect. Together, leadership styles explain 61% of the variance in safety culture outcomes.

The study provides practical recommendations for leadership development, cultural transformation, technology integration, and enhanced reporting systems. It contributes to safety and leadership literature in the Saudi port sector and supports national goals under Saudi Vision 2030. The findings highlight the importance of leadership transformation in achieving a resilient, high-maturity safety culture in port operations.

Keywords: Transformational Leadership, Micromanagement, Safety Culture, Organizational Behavior, Port Operations, Leadership Development, Saudi Global Ports.

Midocean University
College of Management
Department of Business Administration



**The Effect of Transformational Leadership and
Micromanagement on Enhancing Occupational Safety Culture:
A Case Study at Saudi Global Ports (SGP)**

Prepared by: Ali Mohammad Almubarak
ID / 251001812

Supervised by:
Dr. Alfaisal AbdulHameed
Dr. Faiez Jarad

Year:2025