The Role of Transformational Leadership and Job Satisfaction in Change Readiness in Petrochemical Industry of Saudi Arabia

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RESEARCH ARTICLE

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Abstract

Neglecting an organization's readiness for change may have a far-reaching influence on the success of a change process. Lack of readiness may create diverse barriers to a firm's success, through high levels of resistance and lack of commitment. This study investigates two factors that may impact organizational change readiness and business continuity, namely leadership and job satisfaction. There is considerable empirical and practitioner research examining the impact of leadership styles on an organization and/or individual's performance. Many studies have attempted to understand how job satisfaction influences an organization's well-being; however, limited studies have investigated the crucial economic petrochemical sector in general and in Saudi Arabia more specifically. Consequently, the aim of the study is to empirically address this gap. In doing so, it examines the relationship between transformational leadership, job satisfaction, and change readiness in the Saudi petrochemical industry context. The study utilized a quantitative approach via a survey to collect responses. The results reveal that change readiness increases if the job satisfaction of employees also increases and if leaders adopt the transformational leadership style. The findings have direct implications for HR practitioners in designing leadership development programs and job satisfaction initiatives. These would now need to include a new variable namely change readiness, if the desired outcomes of an organizational change program are to be achieved.

1. Introduction

This study aims to shed light on the challenges confronting leadership, namely the change readiness of employees and managers in general, and specifically when change is forced upon an organization as opposed to being a chosen strategy. In doing so, the study examines the relationship between leadership and change readiness in the petrochemical industry in Saudi Arabia. Chiefly, whether leadership style may enhance job satisfaction and change readiness thereby providing a generalizable solution to these challenges. The study claims significance as it is the first to examine the sector during the COVID-19 pandemic. At a time when many firms reported efficiency and performance complications. The pace of change resulting from multiple forces means organizations must keep changing and adapting in response. Kotter (2012) contended globalization has forced organizations to transform at unprecedented levels. When uncontrolled events such as the COVID-19 pandemic occur the need for change becomes even more acute (Rubeis & Marcin, 2020). Multiple theories, models, and frameworks have been hypothesized within the change management literature as

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vital, to ensuring successful organizational change (Choflet, Packard, & Stashower, 2021; Kanter, 1984, 2020; Kotter, 2012; Stacey, 2001). However, research indicates that historically, the majority of organizational change initiatives are doomed not to succeed (Armenakis et al., 2007; Kanter, 2020). During the COVID-19 pandemic, with a greater degree of uncertainty, the approaches to change management are required to be flexible, and adaptive and take a high degree of consideration for employees and their well-being (Aini, Adawiyah, & Darmawati, 2022; Amis & Janz, 2020; Asad & Kashif, 2021; Lozano & Barreiro-Gen, 2021).

As a result of the COVID-19 pandemic, the leadership issues observed related to, in general when under pressure to change, employees and managers were not ready. More specifically, when change occurred unexpectedly, uncertainty increased, and the urgently needed modus operandi changes faltered. After reaching the second-highest export value of refined petroleum and chemical products in 2018, by 307,696 million SAR (equivalent to 82,052 million USD) at a rate of (28%) of the total exports the petrochemical industry suffered significant negative consequences during the COVID-19 pandemic (Saudi General Authority for Statistics, 2020). The decrease in demand, the disruption in the supply chain, workforce safety concerns, and the lowered productivity levels, combined caused customers, suppliers, and the wider community significant hardships (Rubeis & Marcin, 2020). Consequently, this leads to major international problems between supplier firms and buyers. Accordingly, organizational structures and business processes in the petrochemical industry were forced to change in order to resolve the resulting problematic supply-chain gaps. Specifically, they needed to adapt how they served their customers and managed their workforce, how the workplace needed to be restructured and organized, and how employees worked and interacted with each other (KPMG, 2020, 2021). The requirement to develop effective and innovative change management processes became more crucial and urgent.

In order to better understand the issues confronting the industry this study utilized a quantitative survey approach. Thereby, addressing the need for readiness to change, in order to better understand the issues at hand and provide further insights for practitioners. In doing so the study aims to assist leaders to avoid similar problems in the future. The following sections summarize the extant literature, then describe the methods followed, summarize and discuss the results of the study, and conclude with recommendations.

2. Literature review

At the time of this research, there were limited studies addressing the issue of change in volatile environments that include unexpected change as occurred during the COVID-19 pandemic.

However, the COVID-19 pandemic has forced a multitude of organizations to modify their modus operandi and to adapt their responses to the crisis situation (Dean, 2022). Boland, De Smet, Palter, and Sanghvi (2020) contend the need to respond immediately to migrate to a new way of working has resulted in organizational changes never before envisaged, and rarely found in the most rigorous business-continuity plans. These pressing changes resulting from the COVID-19 pandemic require adaptive capabilities to enable firms to preserve their competitiveness (Dean, 2022). These capabilities require leaders of specific skills and mindsets. The empirical research undertaken over the last century, on organizations and organizational life acknowledges the valuable learning gained from prior theoretical work (DiMaggio & Powell, 1983; Meyer & Rowan, 1977; Ritzer, 2005). Ancillo del Val Núñez and Gavrila (2021) argue that prior research can provide an important base for work examining organizational change in the current environment and that leadership spearheads this transformation (Maisyura, Aisyah, & Ilham, 2022). Consequently, the authors anchor their study on prior empirical research as a firm foundation for further investigation.

2.1. Change readiness

Change is a process that consists of multiple events and deliverables (Choflet et al., 2021; Kanter, 1984, 2020). One of the first to create a change management model was Lewin (1947), who deems change as a process consisting of three pillars, namely the current state, the vision of the desired state, and a plan to transition from the current state to the desired one. Lewin was followed by Bandura (1986) who put forth the Social Cognitive Theory that highlighted self-efficacy and cognitive processes as agents of behavior change. Subsequently, Kotter (2012) proposed a framework of eight steps to ensure successful change management. These steps conclude by anchoring new approaches in the organizational culture. Additionally, Stacey's (2001) Complexity Theory proposes a systems-oriented approach to change management, recognizing the inter-connectedness of organizations and the need for adaptive, flexible strategies, the importance of feedback self-organization and emergent behaviors. Later on, Cooperrider and Whitney (2005) proposed

the Appreciative Inquiry Theory that focuses on identifying and building the organization's existing strengths and successes through four stages. Finally, Reason and Bradbury's (2008) Action Research Theory integrates process orientation and ongoing cycles for planning, action and reflection (systems). The development of the multiple models is proof of non-universality resulting from organizational complexities in time, resources, processes and behavioral factors. These discrepancies among the models are inconclusive, requiring further study and analysis. Therefore, every change initiative should recognize and acknowledge the barriers to successful change. Barriers may include the organization's culture, processes, politics, employee resistance, non-readiness, and a lack of leadership (Kotter, 2012). Successful change programs have two common characteristics. First, they follow a process designed to overcome the barriers to change and provide the momentum to push through. Second, the change is led rather than managed by outstanding leadership and readiness to change (Choflet et al., 2021; Kanter, 1984; Kotter, 2012). Holt, Armenakis, Field, and Harris (2007, p. 235) defined readiness for change as:

A comprehensive attitude that is influenced simultaneously by the content (i.e., what is being changed), the process (i.e., how the change is being implemented), the context (i.e., circumstances under which the change is occurring), and the individuals (i.e., characteristics of those being asked to change) involved. It collectively reflects the extent to which an individual or a collection of individuals is cognitively and emotionally inclined to accept, embrace, and adopt a particular plan to purposefully alter the status quo.

Despite the above propositions, it is important to note that individuals may experience diverse states of change readiness at different times. The content, the process, the context, or the individual's personality (Armenakis, Harris, and Mossholder, 1993; Kanter, 2020; Nemteanu, Dinu, & Dabija, 2021; Self, 2017) influence this instability and diverse response to the same factor. Several theories have attempted to discuss and explain change readiness. First, Prochaska and DiClemente (1983) proposed the Transtheoretical Model of Change, arguing that there are stages for change readiness, and that change readiness can be improved by tailoring interventions to the individual's stage of change. Second, Ajzen's (1991) Theory of Planned Behavior hypothesized that change readiness can be enhanced by increasing positive attitudes, social support, and perceived control over the change. Azjen's theory supports Bandura's (1986) Social Cognitive Theory

which argues that change readiness can be enhanced by increasing an individual's confidence in their ability to successfully navigate the change. Moreover, the Readiness for Change Model (Holt et al., 2007) proposes that change readiness is influenced by an individual's beliefs and attitudes (psychological readiness), skills and resources (behavioral readiness), and organizational support and environmental factors (contextual readiness). Finally, the Change Management Effectiveness Model posited by Beer and Nohria (2000) argues change readiness is influenced by several factors, including the organization's vision and strategy, the quality of leadership, the level of employee involvement, and the organization's capacity for change, both of which are roots for misalignment with previous research.

The success of implementing any of the above theoretical frameworks requires certain conditions. Armenakis et al. (1993) argue there are four main conditions of change readiness: (1) a capability to implement the change/self-efficacy, (2) the need, legitimacy, and organizational benefits of the change, (3) leadership support and commitment, (4) personal benefits from the change, or personal valence. The lack of awareness as to the preparedness for change may create barriers to success, such as increased resistance and lack of commitment (Armenakis et al., 2007; Kotter, 2012). Therefore, gaining every stakeholder's buy-in is vital if the risk of failure is to be minimized (Kanter, 2020; Self, 2017; Vakola, 2014). Thus, it is vital that change agents and leaders identify those factors influencing the level of readiness for change, thereby, determining the required actions to be taken (Holt et al., 2007). Consequently, it is clear that change drivers may include behaviors, activities, or events (Da Ros, Vainieri, & Bellé, 2023), Therefore, requiring further analysis. In this respect, many studies have attempted to identify the elements that may influence change readiness. Vakola (2014) posits that an individual's confidence in their change-related capabilities has a corresponding increase in their willingness to change. Readiness increases if high levels of trust in management, and healthy, positive communication exist (Parry, 1996; Santoso, Sulistyaningtyas, & Pratama, 2022). Moreover, along with organizational support (Aini et al., 2022), Vakola (2014) contends that if employees believe the changes are going to benefit them personally, they are more likely to engage positively with change processes. Furthermore, Vakola (2014) recommends appointing leaders with high change readiness abilities to increase the likelihood of change success. This is supported by the findings of Gigliotti, Vardaman, Marshall, and Gonzalez (2019) who found that

building a high level of trust in management positively impacts change readiness. However, they do advise trust takes time to build and embed as part of the organization's culture. In addition, the level of commitment of different organizational groups such as top management, supervisors, and workgroups, can impact change readiness in different ways (Aini et al., 2022; Seggewiss Straatmann, Hattrup, and Mueller, 2019). Seggewiss, Straatmann, Hattrup, and Mueller (2019) report that a change in advocacy on the part of these groups can support the relationship between commitment and an individual's change readiness. The commitment to top management has a stronger impact on employees' readiness, compared to supervisors and workgroups. Therefore, focusing on strengthening the commitment of top management better enhances the level of change readiness (Adiwijaya, Ribhan, and Hayati, 2023). Organizations fail to transform when they are unable to create a sense of urgency, form powerful collations, communicate a clear vision, remove obstacles to change, create short-term wins, and embed the change in the organization culture (Kotter, 2012). Thus, the multiple layers needed for change readiness and the diverse theoretical frameworks proposed in the extant literature put practitioners at a decision-making cross-road with an inconclusive literature. The effect of change readiness fluctuates with different variables including leadership style, the various job satisfaction facets, as well as other contextual settings, which requires deeper analysis.

2.2. The role of leadership

The impact of leaders as change agents and their leadership styles on organizations and individuals' performance has received measured attention from researchers. Kotter (2012) contends that 70%−90% of successful change initiatives are a result of effective leadership. Similarly, Sadarić and Škerlavaj (2023) report that leaders' championing the change process enhances their followers' readiness through engagement and communication. Studies show that transformational leadership has a positive impact on employees' performance, effectiveness, job satisfaction, and change management (Bass, 1990; Dumdum, Lowe, & Avolio, 2013; Hariadi & Muafi, 2022; McCombs & Williams, 2021; Parry, 1996; Parry & Proctor-Thomson, 2002; Santoso et al., 2022; Techo, 2021). Job satisfaction is often described as an emotional reaction to the job (Weiss, 2002). However, satisfaction is better considered as a cognitive reaction assessing whether a job is good or bad from a personal perspective and is affected by many variables at work including organizational

changes (Maamari, 2015; Maamari & Osta, 2021; Robbins & Judge, 2022; Spector, 1997). Spector (2020) expands this to include different facets of the role or job. This includes the ability of researchers to take account of different social, cultural and political aspects, thereby, providing a tool for studies conducted outside the global north domain (Maamari, 2015). In the current environment, this includes issues arising from the Covid-19 pandemic such as job insecurity and instability (Nemteanu et al., 2021), organizations with satisfied employees are more likely involved and motivated to positively support change, handle the changing job requirements, and generally perform better than dissatisfied employees (Nemteanu et al., 2021; Raziq & Maulabakhsh, 2015).

Furthermore, in line with Bass and Avolio (1994) and Graen and Uhl-Bien (1995), Bayraktar and Jiménez (2020) contend transformational leadership has a positive influence on change-related results as leaders inspire and motivate followers to achieve their full potential and embrace change. In parallel, Santoso et al. (2022) contend that transformational leaders have a critical role to play both during the pandemic and subsequently in ensuring change readiness, encouraging employees to be innovative and creative (adaptive), and strengthening employee engagement. Moreover, Bayraktar and Jiménez (2020) emphasize the role of self-efficacy in facilitating relationships and increasing change readiness by motivating employees to believe that they have the capabilities to cope with the change (Ghasabeh & Provitera, 2017). Consequently, self-efficacy is deemed vital in supporting the transformational leadership role across all levels and the magnitude of changes (Bayraktar & Jiménez, 2020).

On the other hand, according to Holten and Brenner (2013), different leadership styles are required during different stages of the change process. They report transformational leadership as crucial during the initial stages of change. They argue that leaders need to build momentum and ensure the readiness and support of the participants. This, knowing that articulating the vision and communicating the required information is vital to ensuring full engagement and commitment on the part of those involved (McCombs & Williams, 2021; Parry, 1996). Other researchers argue that using transactional leadership at this stage may hinder success and demotivate employees to participate in change initiatives (Ghasabeh & Provitera, 2017). Therefore, as Holten and Brenner (2013) and Santoso et al. (2022) contend, developing transformational leadership competencies in the organization contributes to the organization's capacity to deliver successful

transformations. Moreover, Maisyura et al. (2022) deem transformational leadership the most suitable style to use when implementing change, and Adiwijaya et al. (2023) report a significant influence of transformational leadership on change readiness through employees' commitment.

Other scholars such as Hussain, Khan, and Hasan (2017) emphasized the important role of leadership competencies in increasing readiness for change. Building these competencies provides confident leaders who can overcome challenges. Furthermore, uncertainty and unexpected events, caused followers look up to leaders and expect them to adapt to the changing environment (Javed, Naveed and Malik., 2022). In addition, job satisfaction leads to more readiness for change and may be a result of the outstanding leadership of change in addition to the quality of the work environment. Moreover, Hussain et al. (2017) further contend the importance of development programs for managers to build their leadership competencies reflecting how they lead change initiatives. Finally, Se'u, Hina, and Setiawan (2023) concluded from their study that during the COVID-19 pandemic, transformational leadership had a partially positive effect on employees' performance while change readiness had a negative effect. The factored effect of COVID-19 has still not been fully analyzed as a crisis situation necessitating adaptability. These contradictory results and the fast developments in the world socioeconomic spectrum, the race to control energy sources and clean water resources, are forcing many firms to fall behind due to adaptation abilities. The above literature tends to highlight that these abilities may not be the sole solution in the absence of a suitable leadership style, and the appropriate approach to change readiness. Thus, the need for this study.

The scale developed by Armenakis et al. (1993) supports those involved with change to measure change readiness. This supports the development of strategies designed to ensure change success. In their journey to build a scale to measure individuals' readiness to change, Armenakis et al. (2007) identified the role of different factors related to the context, content, and process of change in change readiness. Positive factors consisted of locus of control, general attitudes toward change, perceived communication climate, perceived management ability, participation in the change planning, job satisfaction, and effective commitment. Negative factors consisted of rebelliousness while the non-related factors included turnover intentions (Self, 2017).

However, despite the petrochemical sector's major role in world economies, studies focusing on the relationship between the sector and change readiness are scarce and few focus on the impact of a disruptive event of the magnitude of the Covid-19 pandemic (Ali et al., 2022; Al-Tahitah et al., 2021; De Kock & Slabbert, 2003; Salem, Musharavati, & Hamouda, 2015) and digital transformation (Schiuma, Schettini, Santarsiero, & Carlucci, 2022). The more recent studies are economic in nature, focusing on growth and market analysis, rather than on employees. Few combine the variables found in this study nor discuss the change in volatile conditions such as COVID-19. Additionally, there is a paucity of research conducted in Saudi Arabia.

This study aims to fill the gap by examining the responses in the petrochemical sector to the pandemic, specifically, leadership and change readiness, in an environment traditionally known to be slow in change and adaptation (Morrison & Conaway, 2006). The independent variables being examined, are the scope of the effect of transformational leadership and job satisfaction. The dependent variable is change readiness (see Fig. 1). In doing so, the study seeks to determine the level of satisfaction in the petrochemical industry of Saudi Arabia and the relationship to leadership style in organizations in the industry, during the Covid-19 period. Consequently, this gave rise to the following research question:

Do perceived transformational leadership and employees' job satisfaction affect the change readiness of petrochemical firms?

As a result, two hypotheses will be tested to answer:

● *H1:* Transformational leadership has a positive relationship with change readiness under a crisis situation like COVID-19.

● *H2:* Job Satisfaction has a positive relationship with change readiness under a crisis situation like COVID-19.

3. Methodology

In light of the shortage of studies investigating change readiness in volatile environments, and the effect of leadership and employee satisfaction, this study utilized an online survey approach targeting employees in Saudi Arabian petrochemical companies. The sector of petrochemicals in Saudi Arabia is important due to its economic contribution was mandated to continue operating under the
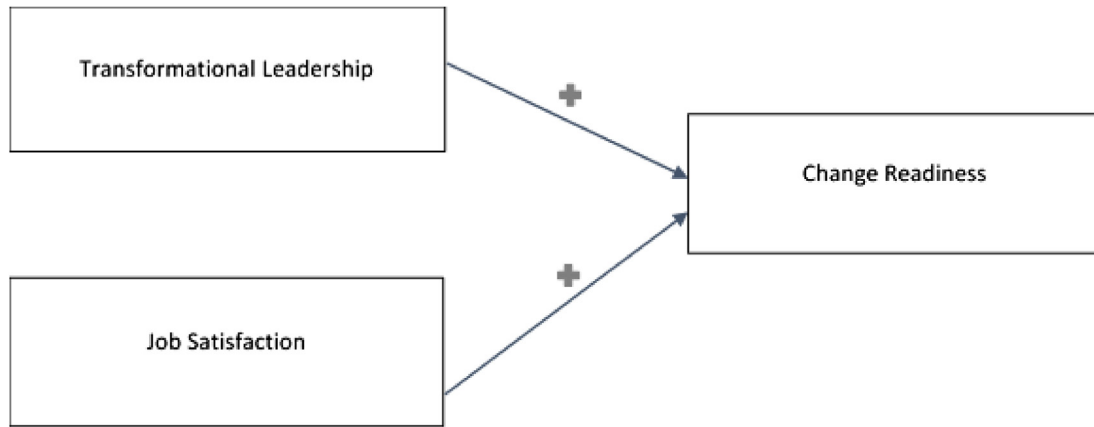
Fig. 1. - Research model.

prevailing COVID-19 conditions owing to its critical importance to the international energy supply market.

Having a clear problem at hand, with clear factors to test, the researchers opted for following a positivist approach and quantitative research and the survey technique to investigate the hypotheses at hand. As is common in surveys participants were able to make comments at the end of sections, when and where they felt it was necessary to explain more fully their response. Moreover, the survey method is an ideal data collection method for studies that seek a large number of responses. It also provided an element of personal safety as the study was conducted during the Covid-19 pandemic. The following sections detail the sample, the data collection process and the data analysis.

3.1. Sample

The target population was employees in the Saudi Arabian petrochemical industry. The total GDP of Saudi Arabia in 2021 reached USD 833.54b, with employment reaching 3.7 million. Its sector of petrochemicals contributes 67% of the national economy (Statista, 2021) with 45,800 employees and 2.6 million indirect employments (General Organization for Social Insurance, 2022). Moreover, Saudi oil production alone is responsible for 13.203% of the world oil supply (U.S. Energy Information Administration 2022) boosting its global importance due to the unequivocal global inherent risk of operational interruption's effect. This important sector in an aspiring economy that is cash rich deserves further scrutiny and understanding as it gears toward achieving a new national vision -Vision 2030- aiming at diversifying income sources. Moreover, during the pandemic, the sector adapted its work methods in order to guarantee a continuous and sustainable uninterrupted supply of raw materials to the market (ARAMCO 2022 Report). The leadership decisions taken to handle the crisis were communicated via electronic platforms and implemented across the multiple continuously operating departments during the pandemic. These decisions had a direct effect on thousands of employees who were not necessarily ready for such changes in their modus operandi, and who had to go to work while other citizens were confined to their homes through lockdowns enforced by the government.

The research sample was collected through nonprobability convenience sampling and consisted of 205 employees in Saudi Arabia's petrochemical companies, from which the researcher collected N = 120 complete surveys. The minimum sample size as per G*Power (Faul, Erdfelder, Lang, & Buchner, 2007) was 107 using a confidence level of 95%, error = 5%, and effect size f_2 = 0.15. The completed responses satisfy the minimum required sample size.

3.2. Data collection

The collection of data occurred via a survey administered online through Survey Monkey. The survey introduction stated the purpose of the study, and provided an explanation of the processes undertaken to ensure the confidentiality of participants and their responses. This anonymity included the companies employing the participants. The survey consisted of four sections: demographic information, then three measures collecting information as follows: First, Spector's (1997) Job Satisfaction Score Survey (JSSS), an instrument designed to measure overall employee satisfaction. JSSS measures nine aspects of job satisfaction: pay, promotion, supervision, fringe benefits, contingent rewards, operating procedures, coworkers, nature of work, and

communication. A 6-point Likert scale is used to rank each aspect starting from "1 = strongly disagree" to "6 = strongly agree". Second, the Multifactor Leadership Questionnaire 5x (MLQ) which measures the employees' perceptions of their leaders' style. The MLQ (Multifactor Leadership Questionnaire) 5X rater version, is a 45-item survey adapted from Bass and Avolio (1994). A 6-Likert frequency scale is used to rank each item starting from "1 = Not at all" to "6 = frequently, if not always". The survey measures leadership behaviors and classifies each leadership style. Specifically, the identification of the level of transformational leadership occurring in managers. Third, a Change Readiness survey. Change Management Readiness was measured using a 25-item survey devised by (Armenakis et al. 1993) and further refined by (Holt et al., 2007). The instrument measures four dimensions of change readiness: change-specific efficacy, appropriateness of change to the organization, management support for the change, and personal valence. A 7-point Likert scale ranks each dimension starting from "1 = strongly disagree" to "7 = strongly agree".

3.3. Data analysis

The data was analyzed in two parts. First, the data was examined to identify the demographic statistics. Second, the MLQ(5x) was utilized to measure the different leadership styles. The responses were entered into Microsoft Excel for analysis. The first step was to decode responses to numerical values to prepare the data for analysis. Inferences on the population were made based on the results. To understand employees' Job Satisfaction levels, their perception of their leader's styles, and their readiness for change, descriptive statistics were calculated. Besides this, regression analysis was used to study the relationship between the constructs as per the research model. The data was coded for statistical analysis at the level of significance of 95%

$(p < .05)$ and entered into the Statistical Package for Social Sciences software (SPSS 26.0) for analysis. The data was analyzed for reliability. Cronbach's alpha of all the constructs showed acceptable reliability levels ranging from 0.761 to 0.873.

4. Results

The data is analyzed using a number of statistical tools, (1) beginning by descriptive statistics, then (2) demographic characteristics of the respondents, followed by (3) the summary statistics of the leadership, analyzing the prevailing leadership technique; (4) summary statistics of job satisfaction, to highlight the different facets of job satisfaction and the level of satisfaction in each; (5) the change readiness statistical analysis; followed by correlation analysis and linear regression analysis.

The data is first analyzed for descriptive statistics in order to build a general understanding of the respondents participating in the study. Table 1 summarizes these statistical results. These show that the data is generally centered.

Second, the data is analyzed for the demographic characteristics of the respondents. The results show that a majority (75%) of participants were males while 24% were females. According to the labor market report of 2020 Q2 that was published by the Saudi General Authority for statistics, female participation in the Saudi labor force reached 31.4% in 2020 Q2. Therefore, the percentage of females was representative. Second, the age distribution of the respondents shows that 40% were 30 years or younger, 38% between 31 and 39, 16.6% between 40 and 49, 2.5% in their fifties, and 2.5% in their sixties. Third, almost half of the participants (43%) were individual contributors, 20% were team leads, 18% were managers, 3.3% were senior managers, and 14% worked on other levels of their organizations. Therefore, the sample consisted of diverse groups within the petrochemical sector of Saudi Arabia. Finally, all the participating respondents in the

Table 1. Descriptive statistics.

		Age	Gender	EducLev	Status	Position	Sector
N	Valid	120	120	120	120	120	120
	Missing	0	0	0	0	0	0
Mean		1.8917	1.2500	2.1833	1.0083	2.2417	1.0000
Median		2.0000	1.0000	2.0000	1.0000	2.0000	1.0000
Std. Deviation		0.94198	0.43483	0.53426	0.09129	1.40823	0.00000
Skewness		1.140	1.169	0.145	10.954	0.882	
Std. Error of Skewness		0.221	0.221	0.221	0.221	0.221	0.221
Kurtosis		1.411	-0.644	0.082	120.000	-0.485	
Std. Error of Kurtosis		0.438	0.438	0.438	0.438	0.438	0.438

study were from the petrochemical sector. The mean and the standard deviation were included in the descriptive statistics to determine the average satisfaction level of participants (IV), the level of transformational leadership perceived among the participants' leaders (IV), and the degree of change readiness (DV).

Third, the data is analyzed for the prevailing leadership technique. Table 2 shows the rating summary for the full range of Leadership sub-constructs and dimensions as measured by the MLQ(5x). The most perceived leadership style is transformational leadership (M = 2.25), followed by transactional leadership (M = 2.1), and finally passive avoidant leadership (M = 1.3). Inspirational motivation (M = 2.36) and idealized influence (Attributed) (M = 2.33), which are two dimensions of transformational leadership, in addition to the transactional dimension of contingent reward (M = 2.28) were the most identified behaviors followed by the petrochemical industry leaders. The least identified behaviors were laissez-faire (M = 1.25) and passive management by exception (M = 1.43), which are part of passive avoidant leadership. As a result of the above, it was decided to drop from the study the transactional and passive-avoidance leadership techniques due to low rating and to follow through in this study using transformational leadership only.

Fourth, the data is analyzed for the most prevailing facet of job satisfaction and the overall score of satisfaction. According to Paul Spector (1997, 2020), if the score of overall satisfaction or one of its facets equals 4 or more, then the employee is satisfied, whereas a score of 3 or less demonstrates dissatisfaction, and scores between 3 and 4 demonstrate ambivalence. Participants showed 3.8 average total satisfaction which indicates overall ambivalence that slightly leans towards satisfaction. The participants were mostly satisfied with the nature of work, supervision, and coworkers. They showed ambivalence

towards the remaining facets of job satisfaction, namely communication, pay, contingent rewards, fringe benefits, promotion, and operation conditions (see Table 3). The most satisfying aspect of the job for petrochemical industry employees is the nature of work. They feel that their job is meaningful as they like doing what they do at work, have a sense of pride in doing their job, and enjoy their job. The least satisfying aspect of the job for the participants was operating conditions. Although the participants did not report overall dissatisfaction, the least favorable factors were excessive regulations, paperwork, workload, and procedures that hindered the ability to get the job done.

Fifth, the data is analyzed for change readiness statistics. The highest-rated aspect of employee change readiness was appropriateness (M = 4.98), which measures how convinced employees are about the value of pursuing the change by the organization and whether the change is justifiable, followed by change efficacy (M = 4.93), which measures how capable they think they are to handle this change. The least rated aspect was management support (M = 4.67), which measures their perceptions of leadership commitment and communication about this change. The total change readiness reported by the petrochemical employees was moderate (M = 4.87). Overall, the change readiness was moderate in the sub-facets of change readiness, namely perceived appropriateness of the change, availability of management support, change efficacy, perceiving the change as personally beneficial, and perceived overall change readiness (see Table 4).

To further analyze the data at hand, the researchers analyzed for correlations among the constructs. For this analysis, the SPSS program was utilized to analyze for bivariate correlations (see Table 5). They create a total for every one of the constructs remaining at hand. The correlation results show that transformational leadership is highly positively correlated with leadership effectiveness (R^2 = .907; Sig.=.000; p<.01), weakly positively

Table 2. Summary statistics for leadership.

	Variable	Mean	SD
A	**Transformational Leadership**	2.25	0.81
1	Idealized Influence (Attributed)	2.33	0.97
2	Idealized Influence (Behavior)	2.27	0.89
3	Individualized Consideration	2.07	0.87
4	Inspirational Motivation	2.36	0.95
5	Intellectual Stimulation	2.22	0.87
B	**Transactional Leadership**	2.11	0.67
1	Contingent Reward	2.29	0.95
2	Management by Exception (Active)	1.93	0.80
C	**Passive Avoidant Leadership**	1.35	0.88
1	Laissez-faire	1.26	0.95
2	Management by Exception (Passive)	1.44	0.94

Table 3. Summary statistics for job satisfaction.

	Variable	Mean	SD
1	Nature of Work	4.644	0.082
2	Supervision	4.319	0.103
3	Coworkers	4.152	0.086
4	Communication	3.752	0.100
5	Pay	3.658	0.103
6	Contingent Rewards	3.635	0.096
7	Fringe Benefits	3.613	0.100
8	Promotion	3.544	0.090
9	Operating Conditions	3.131	0.065
	Total Satisfaction	3.828	0.063

Table 4. Summary statistics for change readiness.

	Variable	Mean	SD
1	Appropriateness	4.98	1.11
2	Management Support	4.68	0.98
3	Change Efficacy	4.93	0.97
4	Personally Beneficial	4.69	1.33
5	Overall Change Readiness	4.87	0.86

correlated with change readiness (R^2 = .228; Sig.=.0012; p<.05) and moderately positively correlated with job satisfaction (R^2 = .462; Sig.=.000; p<.01). The results also show that leadership effectiveness is positively weakly correlated with change readiness (R^2 = .311; Sig.=.001; p<.01) and moderately positively with job satisfaction (R^2 = .551; Sig.=.000; p < .01). Finally, the results show that change readiness is positively moderately correlated with job satisfaction (R^2 = 0.394; Sig.=.000; p < .01). As the results show acceptable intercorrelation ratios, the all the variables were kept at hand and analyzed for regressions.

Finally, the data is analyzed using linear regression to test the model at hand. To investigate the relationships and proposed hypotheses the authors conducted inferential statistics through running a multiple regression analysis (see Table 6 below).

The first step in analyzing the results of the multiple regression is checking the assumptions starting with multicollinearity. The correlations between the independent and dependent variables are .311 for leadership, and .394 for job satisfaction, with Sig. of both .000 at p<.05. Additionally, the correlation between the independent variable is .551 with Sig.=.000, and VIF = 1.436. Thus, both variables are retained. The normal P−P Plot shows that the points

lie in a reasonably straight diagonal line and the scatterplot shows a rectangular plot with a concentration around the zero point (see Fig. 2). The second step is to analyze the correlation between the variables indicated by the value of Multiple R (R = .410) (see Table 5 above). As a result, we can conclude that the variables have a moderately strong positive correlation. This suggests that the values of each variable move in the same direction, with a standard error of 19.785853, indicating an acceptable level of reliability. The null hypothesis assumes that there is no relationship between the variables and change readiness. The significance F is .000 which indicates that the null hypothesis should be rejected. The standard errors in the coefficients table are relatively small which confirms the reliability of this model. The predictive contribution of the model, Beta is .135 for Leadership and .319 for job satisfaction, meaning that the strongest contribution to explaining the dependent variable comes from the latter. The Significance level for job satisfaction is .002, indicating a very strong statistical significance to this model, and .184 for transformational leadership. Since it is larger than 0.05, this variable doesn't reflect statistical significance in this model. Moreover, this model contributes to 16.8% of the total change readiness (see Table 4). The remaining 83.2% can be linked to other factors that can be investigated in future research. Adding more variables can enhance the predictability of this model.

To summarize, a unit change in change readiness was caused by a 31.9% increase in job satisfaction and 13.5% in transformational leadership. While 16.8% of the variation in change readiness is impacted by these variables, a significant

Table 5. Correlations.

		Age	Gender	Educ Lev	Status	Position	Transform Leader	Leader Effectiv.	Change Ready	Tot JSS
Age	Pear Corr	1.000	-0.405**	0.090	−0.087	0.077	0.141	0.135	0.113	0.172
	Sig. (2-tailed)		0.000	0.329	0.344	0.404	0.126	0.141	0.219	0.060
Gender	Pear Corr	-0.405**	1.000	−0.018	−0.053	−0.099	0.090	0.125	0.088	0.039
	Sig. (2-tailed)	0.000		0.845	0.566	0.280	0.327	0.174	0.337	0.669
Educ Lev	Pear Corr	0.090	−0.018	1.000	−0.032	−0.015	0.013	−0.006	0.172	−0.117
	Sig. (2-tailed)	0.329	0.845		0.732	0.873	0.885	0.949	0.061	0.204
Status	Pear Corr	−0.087	−0.053	−0.032	1.000	0.180*	-0.253**	-0.223*	−0.115	−0.035
	Sig. (2-tailed)	0.344	0.566	0.732		0.049	0.005	0.014	0.212	0.706
Position	Pear Corr	0.077	−0.099	−0.015	0.180*	1.000	0.107	0.113	0.045	0.192*
	Sig. (2-tailed)	0.404	0.280	0.873	0.049		0.244	0.218	0.623	0.036
Transform Leader	Pear Corr	0.141	0.090	0.013	-0.253**	0.107	1.000	0.907**	0.228*	0.462**
	Sig. (2-tailed)	0.126	0.327	0.885	0.005	0.244		0.000	0.012	0.000
Leader Effective	Pear Corr	0.135	0.125	−0.006	-0.223*	0.113	0.907**	1.000	0.311**	0.551**
	Sig. (2-tailed)	0.141	0.174	0.949	0.014	0.218	0.000		0.001	0.000
Change Ready	Pear Corr	0.113	0.088	0.172	−0.115	0.045	0.228*	0.311**	1.000	0.394**
	Sig. (2-tailed)	0.219	0.337	0.061	0.212	0.623	0.012	0.001		0.000
Tot JSS	Pear Corr	0.172	0.039	−0.117	−0.035	0.192*	0.462**	0.551**	0.394**	1.000
	Sig. (2-tailed)	0.060	0.669	0.204	0.706	0.036	0.000	0.000	0.000	

Table 6. Multiple regression analysis.

Regression Statistics						
Multiple R						0.40
R Square						0.16
Adjusted R Square						0.14
Standard Error						0.80
Observations						120.00

ANOVA						
	df	*SS*	*MS*	*F*	*Significance F*	
Regression	2.00	13.78	6.89	10.89	0.00	
Residual	117.00	74.04	0.63			
Total	119.00	87.82				

	Coefficients	*S.E.*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	2.99	0.41	7.26	0.00	2.17	3.80
Job Satisfaction	0.45	0.12	3.80	0.00	0.22	0.69
Transformational Leadership	0.06	0.10	0.63	0.53	−0.14	0.27

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	57.354	1.812		31.651	0.000	53.766	60.943		
	TotJSS	0.345	0.074	0.394	4.654	0.000	0.198	0.492	1.000	1.000
2	(Constant)	72.961	12.163		5.998	0.000	48.866	97.056		
	TotJSS	0.209	0.092	0.239	2.264	0.025	0.026	0.392	0.617	1.621
	TransfrmLder	-0.238	0.291	-0.173	-0.817	0.416	-0.814	0.339	0.154	6.503
	TranactLdr	-0.491	0.474	-0.113	−1.035	0.303	−1.431	0.449	0.574	1.743
	PassiveAvoid	-0.652	0.382	-0.189	−1.709	0.090	−1.408	0.104	0.561	1.784
	LeaderEffectiv	0.713	0.520	0.292	1.372	0.173	-0.317	1.742	0.151	6.628

[a] Dependent Variable: Change Ready
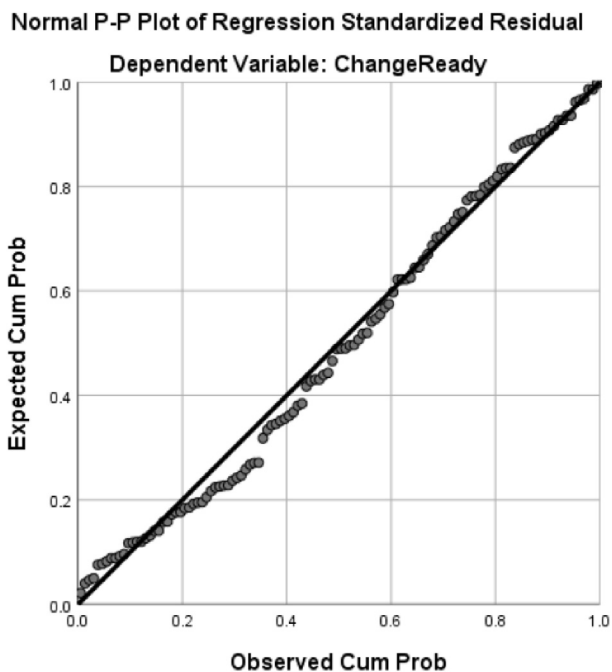
Fig. 2. P−P plot of regression standardized residual.

percentage of the variation (83.2%) can be clarified by other variables that are not covered in this model. The results show that our first hypothesis is weakly supported while the second is moderately supported. The multiple regression resulting model formula is as follows:

Change Readiness = 47.458 + 0.329 Transformational leadership +0.280 Job Satisfaction.

5. Discussion

The results of the data analysis show that both factors, namely transformational leadership and job satisfaction, affect organizational change readiness at different levels, in volatile, complex, uncertain and ambiguous (VUCA) environments. The effect of transformational leadership on change readiness in the petrochemical industry is positive. This is similar to what Kanter (1984), Parry (1996), Parry and Proctor-Thomson (2002), Kotter (2012), and Choflet et al. (2021)) report. They all highlight transformational leadership as an important common characteristic needed to overcome barriers to

change, while Armenakis et al. (1993), and Armenakis et al. (2007) report it as a solution to contextual and personality issues. More importantly, the transformational leader's role affects the followers' commitment and readiness to change (Hussain et al., 2017; McCombs & Williams, 2021; Seggewiss et al., 2019; Yuan et al., 2022), as change is led rather than managed (Choflet et al., 2021). Thus, transformational leadership is sought to have a major effect on change readiness. Moreover, this supports Vakola (2014) who argues that when employees believe in the personal benefit derived from this change, they are more likely to positively embrace it, especially where leadership support and commitment are available (Armenakis et al. 1993). This suggests that employees working in teams may derive other benefits for their unit through ambidexterity, which in turn tends to increase effectiveness (Dean, 2022).

The weak effect of managerial transformational leadership on change readiness in the Saudi context may be due to social and organizational cultural dynamics. First, in light of the Vision 2030 set forth by the government, society in general today might be attributing change and readiness to change, to the vision and goals set by the ruling authorities, which is in line with Holt et al. (2007) Readiness for Change Model, attributing thereby legitimacy and valence (Armenakis et al., 1993). The launch of the Vision has excited the Saudi community about change, aligning with Beer and Nohria's (2000) argument about additional influences. This recognition is fueled by The-World-Bank (2021)'s report about the major positive changes occurring in the Saudi context, at the legal, business and social levels. The Saudi authorities, in response to Vision 2030, are revamping the rules, regulations, and processes, modernizing and automating the possible, and driving the country toward digitization (Zygiaris & Maamari, 2023). Therefore, the general mood in the environment can be considered extremely positive to the enactment of change (Da Ros et al., 2023). What remains is to prepare for change driven by the nature of the manager's role as a leader in adaptation, in VUCA contexts (Javed, Naveed, & Malik, 2022).

Second, as a largely oligopolistic sector, governed by a few firms, tight managerial control is exercised in the name of quality control, world supply-chain continuity, and other major geo-political and economic-political factors. These largely politicized concepts weigh on the level and margin of innovation accorded to individuals, under the umbrella of governance (Maamari & Doumet, 2022). This behavior is more likely observable in a crisis situation where the leader on the ground or in the field is faced with unexpected change and is expected to make the right choices or to be effective, as seen with Covid-19. Thus, shifting to applying design thinking might prove beneficial under volatile environments, allowing a bottom-up change process (Hvidsten, Rai, & Todnem, 2023.).

Moreover, the results show that employees' job satisfaction explains 45% of their change readiness. This is in line with the findings of (Bass, 1990; Bass & Avolio, 1994; Dumdum et al., 2013; Khan, Khan, Zubair, & Rizwan, 2022; Parry & Proctor-Thomson, 2002; Techo, 2021; Yuan et al., 2022). The power of job satisfaction in driving employee engagement and commitment to organizational goals is proven in the extant literature (Nemteanu et al., 2021; Raziq & Maulabakhsh, 2015; Yuan et al., 2022). The employees of the Saudi petrochemical industry are not removed from this, as satisfied employees are more motivated and involved. Thereby, able to handle, accept and support change when it occurs. The sector provides excellent compensation and benefits, as well as superior training and other benefits. Therefore, the promise of change to ensure sustained profitability and market adaptation should not be feared. Moreover, linking the increase in transformational leadership to improved acceptance and management of change is not surprising to see, as employees enjoy high levels of job satisfaction and high levels of readiness to change (Hariadi & Muafi, 2022; Parry & Proctor-Thomson, 2002; Santoso et al., 2022). However, the theoretical promise that transformational leadership inspires and energizes employees to innovate through novel techniques of change readiness at work and in decision-making seems overshadowed by the effect of job satisfaction on employees' readiness for such a role. Thus, management may use the principles of Appreciative Inquiry Theory focusing on building the existing strengths on hand.

6. Conclusions

The primary contribution of this study is to fill the gap in the literature by examining the relationship between leadership, job satisfaction and change readiness in the Saudi Arabian petrochemical sector. Prior to this research study, it was unclear to what extent transformational leadership and job satisfaction influenced change readiness in general, irrespective of job satisfaction, and none focusing on the petrochemical sector. Thus, this study contributes to the body of knowledge by linking the two independent variables to change readiness, in addition to investigating an important economic sector within a previously neglected context, Saudi

Arabia. It also contributes to the body of knowledge in the change management literature by examining these relationships during a time of unforeseen turbulence that caused radical changes to how firms operate and created an uncertainty that threatened the continuity of the world supply chains, particularly those impacting the petrochemical sector.

As Amis and Janz (2020) and McCombs and Williams (2021) contend the updated practices and processes required as a result of Covid-19 determined the status quo, 'business as usual models' would no longer suffice. Moreover, these changes can only be successfully implemented in organizations where leadership and change readiness are aligned to a level that supports increased job satisfaction. However, the participants did not identify change readiness as being critical nor did they expand on the concept in the survey comments section. In addition, there appeared to be a lack of awareness of the urgency confronting organizations. Second, survey responses indicated a preference for the hierarchical system and to 'push up' any perceived problems rather than discuss them openly. Again, a sign of classical/transactional leadership (Avery, 2005). This, is despite the anonymity provided by this study. Third, social distancing and quarantine restrictions created a limitation for the study as the researchers were prevented from conducting focus groups or face-to-face briefings to help clarify the findings of the survey. Communication was a challenge throughout this period for firms as well as there was a reliance on electronic platforms for meetings, such as Zoom and Microsoft Teams. Consequently, this impacted the awareness and engagement of the participants. Fourth, the Covid-19 restrictions precluded the ability of firms to provide the critical training and workshops needed. This resulted in many employees seeking peer support and help at the expense of completeness and accuracy of the situation. And finally, the large discrepancy in understanding change readiness by the different receiver-end constituents forced the researchers to elaborate on the differences more during the data collection process.

6.1. Future research directions

The first recommendation for future research is the identification of those additional factors that would enhance the predictability of this model. The second recommendation is to conduct further research regarding how the two variables impact each dimension of change readiness: appropriateness, management support, change efficacy, and personal valence. Further research is recommended to identify how each dimension of job satisfaction (pay, promotion, supervision, fringe benefits, contingent rewards, operational procedures, co-workers, nature of work and communication) and transformational leadership (idealized influence, inspirational motivation, individualized consideration and intellectual stimulation) impact overall change readiness, especially with the introduction of artificial intelligence in communication and work settings.

6.2. Managerial implications

There are implications for organizations, managers and human resource professionals. First, organizations undertake initiatives with the aim of increasing employee job satisfaction. It is recommended they start with an assessment of the overall satisfaction levels by measuring each facet of job satisfaction. This should include consideration of the extrinsic factors such as those that promote dissatisfaction with pay, benefits, contingent rewards, operating conditions, communication, and supervision. At the same time, they could also address the intrinsic (motivators) because their presence increases satisfaction and can be considered as success factors for leaders. For example, satisfaction arising from job design, promotions, recognition, and involvement in decision making. An added factor should include how the COVID-19 pandemic has changed employee perceptions pertaining to job satisfaction.

Second, an assessment of leadership styles should be conducted upon the selection of change leaders. Leaders who exhibit transformational leadership behaviors should be targeted to become involved in change leadership. Leaders and change agents have a responsibility to communicate in a manner that will ensure that all stakeholders understand and support the change. This includes the different modes of communication that have developed post-COVID-19.

Following the recommendation of Armenakis et al. (2007) stakeholders need to be assured change is needed (discrepancy), doable (efficacy), and correct (appropriateness). This has become more critical post Covid-19 where there is still much uncertainty. This includes reassurance the change is supported by a leadership who will provide the time and resources to make it successful (management support), and that employees have their interests considered (personal valence) (Armenakis et al., 2007). Three strategies are recommended to convey the change message effectively. First, persuasive communication, with the change agent directly communicating the change message through multiple communication channels. Second, active participation is ensured

by engaging the audience in the decision-making process or the actual activities of the planning or implantation. Three, information management by communicating relevant information from not only internal sources but also external sources and expert opinions. Given the preference highlighted earlier for the classical hierarchical forms of leadership this necessitate a significant change in leadership in the petrochemical sector. While the worst impact of the Covid-19 pandemic has lessened, the findings of this paper are still relevant in the volatile, uncertain, complex and ambiguous (VUCA) world confronting the Saudi Arabian petrochemical industry.

Conflict of interest

The author declare having no conflict of interest from publishing this study.

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