



مركز الاستشارات والبحوث والتطوير
بأكاديمية السادات للعلوم الإدارية

مجلة البحوث الإدارية

Journal of Management Research

علمية - متخصصة - مُدكّمة - دورية ربع سنوية

للسنة
الثانية والأربعين

Vol. 42, No.4; Oct. 2024

عدد أكتوبر 2024



jso.journals.ekb.eg

رئيس مجلس الإدارة
أ.د. محمد صالح هاشم
رئيس أكاديمية السادات للعلوم الإدارية

رئيس التحرير
أ.د. أنور محمود النقيب
مدير مركز الاستشارات والبحوث والتطوير

ISSN : 1110-225X

**The influence of green strategic leadership capability on
environmental and social performance of the Egyptian
manufacturing corporations listed in the Top 30 S&P-EGX-
ESG(2024)**

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2024

The influence of green strategic leadership capability on environmental and social performance—the moderating role of green organizational culture: Applied to the Egyptian manufacturing corporations listed in the Top 30 S&P-EGX-ESG (2024)

Abstract

The purpose of this paper is to investigate the influence of green strategic leadership capability on the environmental **and social performance of the Egyptian manufacturing corporations listed in the top 30 S&P-EGX-ESG (2024)**. Data was collected using a self-administered questionnaire applied to the senior managers of the top 30 EXG-ESG who have already participated in environmental and social initiatives by utilizing the critical sample technique. About 132 were collected and analyzed using SPSS-25 and the PROCESS macro (model 1) in SPSS developed by Hayes (2017).

The results of this research indicated that the three sub-capabilities underlying green strategic leadership capability—green foresight capability, green adaptive capability, and green absorptive capability—have a significant effect on the environmental and social performance of the sampled corporations. Also, the results confirmed the moderating effect of green organizational culture in the relationships between the green foresight capability and the environmental and social performance of the sampled corporations.

The study contributes to the body of strategic management and sustainability literature reviews by emphasizing the impact of green strategic leadership capability on the firm's environmental and social performance and highlighting the moderating effect of green organizational culture in the relationship between green strategic leadership capability and the corporation's environmental and social performance. To the best of my knowledge, this is the first study to evaluate the green strategic leadership capability framework suggested by Khan et al. (2024) in a field setting and determine whether it can enhance the sustainable performance of a company.

Keywords: Green strategic leadership capability, green foresight capability, green adaptive capability, green absorptive capability, green organizational culture , environmental performance, social performance, top 30 EGX-ESG(2024)

1. Introduction

Today firms are under increasing pressure from consumers, investors, and governments to prioritize sustainability in their business operations (Holden et al., 2017; Pappas et al., 2023). Growing public awareness and concerns over environmental sustainability have triggered businesses to incorporate sustainability into their strategies and objectives (Baumgartner & Rauter 2017). It also prompted scholars of management to identify the abilities and capabilities that companies and managers must have to enhance sustainable performance (van Kleef and Roome 2007; Hesselbarth & Schaltegger 2014). According to Khan. et al. (2024) and Anjali et al. (2023), firms can enhance their competitiveness and promote sustainable performance by developing green strategic leadership capabilities. The main purpose of green strategic leadership capability is to create an ecosystem in which the interests of all stakeholders are considered (Donald, 2009; Khan et al., 2024).

A great deal of research has examined different perspectives of environmental leadership, such as green leadership (e.g., Tan et al., 2015), green transformational leadership (e.g., Li et al., 2020), servant leadership (e.g., Zarei et al., 2022), charismatic leadership (e.g., Vlachos et al., 2013), and ethical leadership (e.g., Wang et al., 2017). The majority of these studies only take into account certain green leadership competencies, like the ability to predict the future (e.g., Laan & Erwee, 2012), the ability to absorb information (Flatten et al., 2011), the ability to be adaptable (Akgün et al., 2012), and the ability to innovate (Vicente et al., 2015). Despite its significance in research and practice, no studies have created a comprehensive framework that reaches an agreement on the fundamental GSLC capabilities that strategic leaders should exhibit to improve the firm's sustainable performance (Anjali et al., 2023; Khan et al., 2024). Given the prominence of green organizational culture in recent years, the relationship between green organization culture (GOC) and corporate performance is of increased concern for organizations worldwide (De Marchi, 2012). According to Tafaner's (2023) framework, culture-related moderators comprise the openness of organizational culture; shared values and managerial mindsets are key elements that could affect strategic foresight's outcomes.

The natural resource-based view (NRBV), which contends that business organizations must guarantee top managers have access to the appropriate technology, knowledge, and information to address environmental and social challenges, is the foundation of this study (Hart & Dowell, 2011; Chen et al., 2013; Barney, 2018; Khan et al., 2024). The study is also driven by institutional theory and stakeholder theory, which clarify how companies implement green values, practices, and philosophy to comply with regulation, avoid financial crises, and satisfy a variety of stakeholders (Rueda-Manzanares et al., 2008; Garcés-Ayerbe et al., 2019; Gunarathne et al., 2023). Thus, to encourage sustainability, corporate evaluations should take into account social and environmental factors in addition to financial success (Henderson, 2021).

The research will concentrate on Egyptian manufacturing firms included in the S&P/EGX-ESG index 2024, given the potential and challenges associated with sustainability in this sector. These businesses nevertheless have to deal with a number of environmental issues, like population expansion, water scarcity, and climate change, even when they meet the ESG eligibility requirements (Abdelmalak, 2024). In addition, they encounter challenges related to human rights, diversity, inclusion, and social responsibility (Kwasi et al., 2022). Their

progress towards sustainability is impeded by different economic factors such as little foreign direct investment and budget deficits (Ruchir & Adnan, 2024). Given the growing global trend toward sustainability and increasing awareness of its potential benefits on business reputation, competitive position, and financial performance, it is now essential for business organizations, especially those operating globally, to integrate sustainability initiatives into their mission, values, and strategic objectives by leveraging green strategic leadership capability (Adebanjo et al., 2016; Abdul-Rashid et al., 2017; Abdelmalak, 2024).

This study's unique contribution is to fill the knowledge gap by offering a comprehensive framework that clarifies how the three main dimensions of strategic leadership capability (green foresight, green adaptive capability, and green absorptive capability) contribute to improving the social and environmental performance of Egyptian manufacturing corporations listed in the top 30 EGX-ESG. Also, it shed light on the moderating effect of green organizational culture in the relationship between green foresight capability and firm environmental and social performance.

This paper is organized as follows: The next section describes the hypotheses on the relationships among green foresight capability, green adaptive capability, green absorptive capability, green organizational culture, and an organization's environmental and social performance. Then, methodology and empirical results will be presented, and finally, the conclusion and limitations of the study will be presented.

2. Literature review

The theoretical section will begin by presenting the basic concepts of the research and the theories supporting them, and then proceed to formulating the study hypothesis based on relevant literature review and ends with preparing the study model that explains the relationships between the independent and dependent variables.

2.1.Green strategic leadership capability

Recently, with the rising trend toward sustainability, both scholars and practitioners have believed that businesses and organizations need to understand the true nature of GSLC and align it to their environmental responsibility culture (Pappas et al., 2023; Anjali et al., 2023). although a number of GSLC dimensions have been identified by some studies, such as the ability to forecast the future with green foresight (Laan and Erwee, 2012), absorptive aptitude (Flatten et al., 2011), the adaptive capability to respond to environmental and social changes (Akgün et al., 2012), and the innovative capability to focus on products, technology, and strategic alignment (Vicente et al., 2015), they are still at odds over the core GSLC measures (Anjali et al., 2023).

Khan et al. (2024) suggest looking at strategic leadership potential in a sustainability context using the natural resource-based view (NRBV), which is an extension of the resource-based

approach in green strategic management. According to this theory, green strategic leadership to guarantee environmental and social sustainability, top managers must possess sufficient technology, knowledge, and information to tackle social and environmental issues and a solid understanding of how to create a community that places a high priority on reduce, reuse, and recycle (Yoon & Suh, 2021; Khan et al., 2024).

The Khan et al. (2024) framework identifies three key elements of green strategic leadership capability: green foresight capability, green adaptive capability, and green absorptive capability (Khan et al., 2024). Foresight capacity involves leveraging financial opportunities during crises to improve ecological performance and long-term competitiveness (Hart, 1995). Adaptive capability involves maintaining composure under pressure, responding effectively to environmental harm, and seizing green opportunities (Khan et al., 2024). Green absorptive capability enhances organizational learning and financial success (Dzhengiz & Niesten, 2020).

The effective embracing of these three sub-capabilities enables business organizations to promote long-term growth, foster a sense of environmental responsibility, and consider all stakeholder interests (Donald, 2009; Lin & Chen, 2017). It also plays a crucial role in comprehending and directing effective organizational responses by quickly recognizing and adopting three fundamental components: sustainable development, product stewardship, and pollution prevention (Schaltegger et al., 2019).

The three main constructs of green strategic leadership capability will be discussed deeply in the following section, besides the moderator variable, green organizational culture, and the dependent variables, environmental and social performance.

2.1.1. Green foresight capability

Green foresight capability is defined as the firm ability to employ a green mindset in managing processes and developing practices to best fit with current and future needs (Paliokait et al., 2015). **Green foresight capability** has two primary themes: 'green framer' and 'green tester'. A 'green framer' is concerned with the ability to change management styles according to the demands and circumstances of the natural environment, while a 'green tester' is about effective dealing with the new green trends (Laan & Erwee, 2012; Risiart et al., 2015; Khan et al., 2024).

According to Bennett and Lemoine (2014) and Hobday et al. (2020), green foresight futurism captures the idea of studying the future, learning from it, and integrating the acquired knowledge into present-day decision-making. With the velocity, uncertainty, and complexity of environmental changes of our time, identifying, observing, and interpreting factors that induce change, determining their implications, and triggering appropriate responses help to enhance an organization's sustainable performance (Rohrbeck et al., 2015; Yoon et al., 2018).

Sulasmi et al. (2020) confirm that green management style is intended to integrate the environmental goals and strategies with the corporate goals and strategies of the organization (Hines & Gold, 2015). Responsible management style contributes to broadly defined sustainable performance through sharing creation ideas (Idoko, (2021), focusing on

learning and continuous improvement (Sulasmi et al., 2020), and shaping responsible practices and behaviors (e.g., [Li et al., 2020](#); Widisatria & Nawangsari, 2021).

2.1.2 Green adaptive capability

In response to rising awareness of sustainability, the idea of "green adaptive capability"—which refers to the capacity to recognize and seize new technological and market opportunities efficiently and environmentally friendly—has evolved (Staber & Sydow, 2002). Capitalizing on green adaptive capability, business organizations could ensure speedy responses to market potential, recognize business prospects, and exercise effective problem-solving skills (Wang et al., 2015). Three core themes underpin green adaptive capability: 'green management system', 'green market', and 'green technology' (Akgün et al., 2012; Khan. et al., 2024).

A green management system, according to Pane Haden et al. (2009), is a strategy that promotes sustainability, waste reduction, social responsibility, and competitive advantage by integrating environmental goals and strategies into an organization's overall strategy (Hart, 2005). It goes beyond legal concerns, extending to incorporate green practices, green production, marketing, and design into organizational systems (Lee, 2009; Raut et al., 2019). An effective green management system motivates staff to adopt green practices, improves employee conditions, and increases social responsibility awareness among employees. This approach also benefits talent recruitment and retention (Zaid et al., 2018; Khan. et al., 2024).

Additionally, a green market is a strategy that focuses on reducing environmental damage and improving human health by promoting eco-friendly products (Tuominen et al., 2004; Khan. et al., 2024). Businesses are now aware of their social responsibility to prevent damage to both the environment and public health (Mayank & Amit, 2013). The green market offers businesses opportunities to develop eco-friendly products through product modifications, production process changes, packaging, labeling, and advertising strategies (Mantiaha, 2016). As a result, business organizations need to incorporate the green marketing mix into their strategies and objectives (Govender & Govender, 2016; Solihin et al., 2019; Sanidew and Paramita, 2018).

Furthermore, green technology aims to offer environmentally friendly and sustainable products and services, minimizing negative environmental impacts (Koutroumanis, 2011; Khan. et al., 2024). Businesses are currently under pressure to adopt greener practices, focusing on conserving resources, cultural legacies, and energy consumption (Sachin & Pujari, 2020; Hameed et al., 2021). Green technologies' implications, such as green energy, and green information technology, can help reduce waste, innovate products, and meet sustainability goals, ultimately creating sustainable sectors in society and the economy (Wang et al., 2019; Asadi et al., 2020).

2.1.3. Green absorptive capability

Green absorptive capability is a learning dimension of green strategic leadership, involving four tenets: green acquisition, green assimilation, green transformation, and green exploitation (Khan et al., 2024). Green acquisition involves acquiring external green knowledge, while assimilation involves knowledge exchange among organizational members (Zahra & George, 2002; Cooper & Molla, 2014). Green transformation involves transferring knowledge to the entire organization, and green exploitation leverages new green knowledge to create benefits in processes, products, and services (Kurucz et al., 2017; Ren et al., 2021).

Several articles have argued that employees and managers who demonstrate high commitment to gaining knowledge on sustainability are more likely to develop green absorptive capacity through which they could integrate external and cross-disciplinary environmental knowledge into the organization systems (Hashim et al. 2015; Borland et al. 2016; Buil-Fabregà et al. 2017). This integration and accumulation of knowledge has been shown to improve environmental function capabilities, like environmental product development and manufacturing (Dangelico et al. 2013), environmental R&D (Papagiannakis et al. 2014), and environmental supply chain capabilities (Oelze et al. 2016). Furthermore, Buil-Fabregà et al. (2017) have demonstrated that managers who possess the capacity to "acquire, assimilate, and exploit new information are more sensitive to environmental issues, such as climate change or green products and services," thereby facilitating the implementation of environmental measures within the organization.

Figure 1 green strategic leadership capability (GSLC) model



Source : Khan et al (2024)

2.2. Green Organizational Culture

Since the idea of green organizational culture GOC is still relatively new, its definition is continually changing (Al-Swidi et al., 2021). However, scholars contend that in order for a company to become capable of handling environmental issues, a significant change in organizational culture is required (Stead & Stead, 1992). The term "organizational culture" refers to the shared beliefs, values, norms, symbols, and social stereotypes about organizational management and shapes the standard behavior expected from individuals (Chang & Lin, 2015; Yang et al., 2017). Harris and Crane (2002) defined GOC as 'an extent to which the assumptions, values, symbols, and artifacts of an organization reflect the desire or need to operate in an environmentally sustainable manner. Epstein & Buhovac (2010) advocate that implementation of sustainability is dependent on organizational context.

According to Harris and Crane (2002), institutionalization of green culture in an organization requires raising the awareness of employees of the potential of green behaviors on an organization's performance. In their theoretical framework, Harris and Crane (2002) identified three dimensions and seven factors of GOC, respectively, degree, diffusion, and depth. The degree of cultural greening refers to the extent to which managers felt that green values and sensibilities are manifested in organizational creations and artifacts. As stated by Harris and Crane (2002), p. 222, "the diffusion of cultural greening refers to how widely managers believed these feelings and behaviors are exhibited throughout the organization (Harris & Crane, 2002, p. 222), while the depth of cultural greening refers to how deeply managers valued green initiatives" (Harris & Crane, 2002, p. 222).

The three dimensions were divided into seven components including industry macro culture, organizational barriers, alternative business philosophies, symbolic events, cultural fragmentation, and individual resistance to change (Al-Romeedy, 2023). Harris and Crane (2002) also found that some factors have a strong secondary effect on the dimensions of GOC. These secondary factors are linked to more than one of the three dimensions because of the proximity of factors. For example, it is evident that 'individual resistance to change' is related to the depth of organizational greening (primary factor), and at the same time, it has a secondary effect on the diffusion dimension of organizational greening (Chang & Lin, 2015)

Fifteen years later, Porter et al. (2016) revisited the Harris and Crane (2002) model and qualitatively demonstrated how organizations have progressed with respect to sustainability. However, the seven factors characterizing GOC remained the same and were found to play an important role in the 'internalization of a culture with embedded sustainability values' (Porter et al., 2016, p. 220).

2.3. Sustainable performance

Sustainability is identified by prioritizing multiple stakeholders' interests over profit maximization (Braccini & Margherita, 2018; Gunarathne et al., 2023; Khan et al., 2024). According to Hubbard (2009) and Suttipun et al. (2021), the concept of the triple bottom line (TBL), first proposed by Elkington (1994), provides the foundation for the perspective of

firms that seek to address the interests of several stakeholders. Hence, the term "corporate performance" has been expanded to include social and environmental aspects in addition to financial ones (Alt et al., 2015; Braccini and Margherita, 2018; Çankaya & Sezen, 2019; Alsayegh et al.2020).

In this context, [Brunton et al. \(2010\)](#) and [Tate et al. \(2010\)](#) argued that institutional theory is the most suitable fit for illustrating corporate sustainable performance within the social and environmental dimensions. It provides a framework for analyzing factors supporting organizational practices, such as tradition, history, culture, social environment, regulation, and economic incentives (Glover et al., 2014). Institutional pressure encourages businesses to incorporate environmental and social matters into their strategies, leading to improved sustainability performance (Gauthier, 2013).Stakeholder theory is also providing a starting point for investigations in a massive number of publications on corporate sustainability and sustainability management (Schaltegger et al., 2019; Valentinov et al., 2019; Freeman et al., 2021). Stakeholder engagement is a pivotal driver of sustainable performance (Herremans et al., 2016). In response to stakeholder concerns, corporations must include non-financial indicators in green CEO compensation, holding them accountable for their eco-friendly behavior and, consequently, their influence on sustainable performance (Al-Shaer & Zaman, 2019).

In the same vein, Hart (1995) and Gueler and Schneider (2021) proposed "a natural resource-based vision of the firm," which advised enterprises to use three interconnected strategies to gain a competitive advantage: pollution avoidance, product stewardship, and sustainable performance.

There have been a lot of studies exploring sustainability factors and drivers from different angle such as green vision and green absorptive capability (Chen et al., 2014), green adaptive capacity and green market (Mohammad et al., 2022), quality management practices (Abbas, 2020), proactive sustainability strategies and sustainability control systems (Wijethilake, 2017), green management and strategy (Loknath and Abdul Azeem, 2017), but the mechanisms driving successful corporate sustainable performance particularly from an internal organizational perspective, have not yet to be thoroughly explored (Khan et al., [2024](#)).

2.3.1.Environmental performance

Environmental performance is defined as the measurable results of the environmental management system (Centobelli et al., 2019; Çankaya & Sezen, 2019). It focuses on the consistency between the use and renewal of natural resources (Braccini and Margherita, 2018). A firm's environmental performance is influenced by different elements such as market pressures, government pressures, and management attitudes (Islam et al., 2020).

Numerous frameworks have been developed to support the hypothesis that effective environmental management practices lead to improved environmental performance. Most of these analytical frameworks are designed to enable businesses to meet their internal environmental performance management goals as well as the requirement to provide environmental information to external stakeholders (Buhr & Gray, 2012; Albertini, 2016;

Jiang et al., 2018). Albertini (2016) suggests that non-objective indicators—which demonstrate the efforts businesses take to lessen the impact of their operations on the environment—should be combined with objective indicators, which highlight the extent to which environmental practices reduce pollution caused by the firm to ensure the effectiveness of the measurement system. Ilinitich et al. (1998) advocate two axes of internal/external and procedures/results, respectively, should be used to measure environmental performance based on four main dimensions: organizational systems, stakeholder relations, regulatory compliance, and environmental targets.

The internal system was designed to improve the performance of the environment by capitalizing on four main factors: environmental mission statements that demonstrate how much the organization values and prioritizes environmental protection in its culture, values, and policies (Ammenberg et al., 2002; Bataineh, 2006; Latan et al., 2018); updated environmental audit programs that assess how well the organization's operations adhere to national and international environmental regulations (Cho et al., 2012); a strong environmental office that oversees the enforcement of laws and environmental regulations (Ilinitich et al., 1998); and, finally, providing financial incentives to employees who undertake environmental initiatives. This encourages sustainable practices and improves adherence to environmental regulations (Wang & Wheeler, 2005).

Stakeholder relations comprise the second group of environmental indicators, as stated by Ilinitich et al. (1998). It addresses the relationship that the business has with its several external stakeholders, including its investors, customers, employees, vendors, and the business community (Jabbour et al., 2020). It is believed that valuable stakeholder-oriented procedures could broaden to encompass more sophisticated initiatives, such as establishing citizen advisory panels and working together to perform joint research into sustainable environmental management practices (García-Sánchez et al., 2019; Yin et al., 2020).

Regulatory compliance refers to the act of conforming to legal or official environmental requirements and policies (Schaltegger & Hörisch 2017), while environmental targets aim to monitor unexpected effects of a company's operations on society at large, such as releases of hazardous materials into the air, water, or soil, and also associated costs for legal and insurance protection (Heal, 2005; Çankaya & Sezen, 2019). Murty et al. (2006) state that violations of environmental regulations frequently result in tickets, fines, and penalties for the corporation.

.2.3.2.Social performance

Social performance is defined as the impact that an organization has on the social systems within which it operates (Wang & Dai, 2018; Hertel et al., 2020). Some scholars argue that social performance reflects the level of stakeholder satisfaction (Arvidson & Lyon, 2014; Nicholls, 2018; Ormiston, 2019). A wide variety of concepts have been used to describe and measure social performance by management scholars, for example, social responsibility (Renouard, 2011; Sadeghi et al., 2016), social impact (e.g., Stephan et al., 2016; Rawhouser et al., 2019), social value (Di Domenico et al., 2010; Goh et al., 2016), and public value (Stoker, 2006; Meynhardt, 2009). All of these concepts mean different things to different people (Rawhouser et al. 2019). Hertel et al. (2020) argue that social impact seems to be an

outward-looking approach as it refers to the intended positive effects on target beneficiaries, while social responsibility is an inward-looking approach as it indicates the extent to which the inputs and activities are in line with common environmental, social, and governance (ESG) standards.

Measuring and reporting social performance and social impact is important not only for organizations but also for a range of stakeholders (Arvidson & Lyon 2014; Nicholls 2018; Ormiston 2019). Practically, academic researchers have measured corporate social impact using several techniques, such as survey questionnaires, content analyses of annual reports, expert evaluations, and regulatory compliance data (Deegan, 2002; Makau, 2024). However, there has been comparatively little research on the social effects of manufacturing corporations. This is partly because it can be challenging to identify social performance (SP) indicators that are widely accepted, suitably comparable, and quantitative (Slaper and Hall, 2011; Sutherland et al., 2016). Henao et al. (2017) fill this gap by offering an application framework that various industrial companies can use as a reference to thoroughly assess their social impact.

This framework identifies a three-layer approach with various indicator sets that aims to achieve four parameters: measurability, relevancy, comparability, and dependability (Zhang et al., 2017). The baseline layer comprises two main categories: the first is labor practices and work conditions, which include many indicators such as wages and economic compensation (Bernhardt and Pollak (2016), employment rate (Chen et al. (2015), employee empowerment (Ishaq Bhatti et al. (2014), and nondiscrimination and equality policy (Docekalová, 2013). The second category highlights worker welfare and development. Obviously, it goes beyond some legal requisites and seeks to point out the efforts that the company is making to protect its employees and improve their life quality (Henao et al., 2017). The mid-level layer tracks the impacts of the company's decisions, actions, or policies on its community (Henao et al., 2017; Sutherland et al., 2016; Zhang et al., 2017). Finally, the high-level layer assesses the impacts that the company might generate on those not necessarily directly related to it, such as the company's assistance for research and technology development aimed at improving people's quality of life (Ishaq Bhatti et al., 2014; Sadeghi et al., 2016).

Furthermore, the Henao et al. (2017) framework suggests a sixth proposed category transversal to all three levels of metrics, called feedback mechanisms. This category indicates that the company must have appropriate paths, practices, and procedures to deal with complaints and feedback from different stakeholders in a confidential, proactive, and diligent manner (Distelhorst et al., 2017; Ishaq Bhatti et al., 2014).

3. Hypothesis development

3.1. Green foresight capability and environmental and social performance

Green foresight capability, according to Yoon et al. (2018), allows business organizations to be more proactive by keeping an eye on and analyzing external environment trends and drivers of change, as well as by spotting potential opportunities to enhance the firm's environmental performance (Yoon et al., 2021; Widisatria & Nawangsari, 2021). Organizations could also develop a highly sensitive environmental management system by employing the green future to clarify corporate environmental mission, objectives, and policies that prioritize environmental protection (Sulasmi et al. 2020; Khan et al. 2024), which, in turn, enhances conformity to environmental regulations, minimizes environmental impacts, and enhances environmentally friendly products and services (Burns, 2021).

In addition, business organizations with a green mindset are better able to pinpoint the social change-causing factors, see the opportunities these changes present, adapt their current mission and goals to incorporate the latest social knowledge, and foster the appropriate organizational response (Rohrbeck et al., 2015; Burawat, 2019). According to Sulasmi et al. (2020), there is a positive correlation between an organization's social agility and the awareness of social duties among all stakeholders. Furthermore, the ability to predict the future promotes the creation of scenarios and a shared vision for the company's social actions (Widisatria & Nawangsari, 2021). These actions boost the organization's social impact because they benefit not only the local community but also society as a whole (Zaid et al., 2018; Yoon et al., 2018). These arguments direct to the following hypotheses

H1.Green foresight capability is positively associated with environmental performance

H.2.Green foresight capability is positively associated with social performance.

3.2. The moderation effect of green organizational culture in the relationship between green foresight capability and environmental and social performance

The literature on shared values in strategic foresight processes highlights their moderating effect, either favorably or adversely, on the outcomes of foresight activities. Numerous scholarly works demonstrate that organizations need a common set of values in order to build a foundation for cooperating effectively as they approach the future (Gattringer & Wiener, 2020; Sarpong, et al., 2013). Shared values encourage communication and joint vision, which favorably affects the results attained (Haarhaus & Liening, 2020; Sarpong & Maclean, 2016).

Wang (2019) states that a leader's environmental values and beliefs greatly enhance the impact of their green foresight capability on a firm's environmental performance. Reputable environmental statements from senior management within a firm encourage employees to be

environmentally conscious and participate in pro-environment actions (García-Machado & Martínez-Ávila, 2019; Norton et al., 2015). In order to create a shared green vision and effectively communicate it to the workforce, a pattern of fundamentally shared beliefs about environmental management and environmental issues is helpful (Tepe, 2015). This sequence of beliefs will then work in concert to achieve the environmental policies, goals, and initiatives (Porter et al., 2016).

Moreover, an abundance of research has illustrated the ways in which green values, beliefs, and attitudes can stimulate socially conscious employee behaviors and increase their engagement in carrying out the green initiatives and foresight of top management(e.g. (Chen et al. (2015; Porter et al., 2016; Küçükoğlu and Pınar, 2018;). This helps improve the image of the organization among different stakeholders and shows it is socially responsible (Yang and Gong, 2020). Thus, the following hypotheses can be developed.

H.3. Green organizational culture moderate the relationship between green foresight capability and environmental performance

H.4. Green organizational culture moderate the relationship between green foresight capability and social performance

3.3.Green adaptive capability and environmental and social performance

According to Zaid et al. (2018) and Khan et al. (2024), an adaptive green management system enables employees to modify their behavior to support the internal environment system and successfully comply with regulatory standards. It also encourages workers to adopt eco-friendly behaviors. In addition, the green market helps businesses adjust to consumers' increasing environmental awareness and inclination to buy eco-friendly products (Govender and Govender, 2016; Falasca et al., 2017). Ultimately, green technology promotes the prudent use of natural resources, reduces negative environmental effects, and promotes lean production (Bhardwaj & Neelam, 2015; Inman & Green, 2018; Sachin & Pujari, 2020).

In addition, numerous studies have shown that having green adaptive capability improves an organization's capacity to meet customer needs with high-quality products, make morally sound socially responsible decisions, and improve employee satisfaction with a safe and healthy work environment. All of these factors contribute to an organization's improved corporate image (e.g., Zaidet al., 2018; Raut et al., 2019; Yang and Gong, 2020). Furthermore, sustainable technologies support the growth of digital infrastructure, generate employment possibilities across numerous industries, and benefit multiple communities (Bhardwaj & Neelam, 2015; Wang et al., 2019). So it can be hypothesized that

H.5.Green adaptive capability is positively associated with environmental performance

H.6.Green adaptive capability is positively associated with social performance.

3.4.Green absorptive capability and environmental and social performance

According to Bhupendra and Sangle (2017) and [Khan et al. \(2024\)](#), a firm's regulatory compliance and stakeholder interactions can be strengthened by generating sustainability-oriented learning through sharing ideas on sustainability inside the organization and aligning individual behaviors with operational processes. In addition, by proficiently obtaining and utilizing green knowledge, firms can enhance their capacity to optimize resource utilization, reduce waste, and increase energy efficiency (Lichenthale, 2009; Buil-Fabregà et al., 2017).

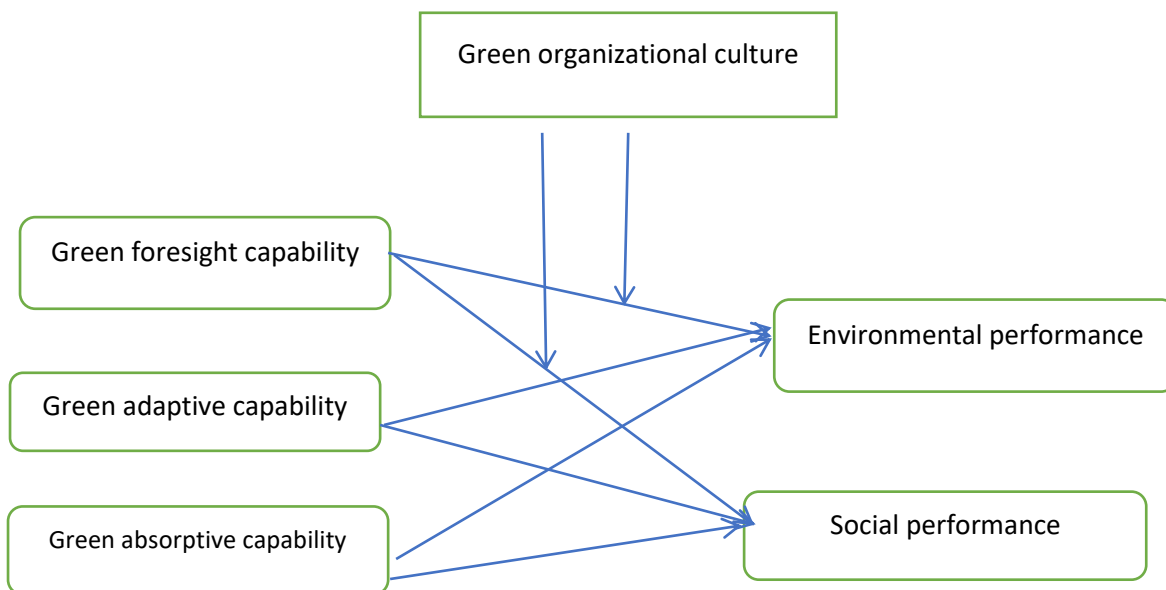
Furthermore, the company's green absorptive capacity helps to assimilate environmentally conscious information, which enables it to focus on social concerns and facilitate the adoption of policies and behaviors meant to satisfy all parties involved (Chen et al. 2015; Hashim et al. 2015; Borland et al. 2016). Bhupendra and Sangle (2017) demonstrated that firms can enhance their capacity to produce novel, eco-friendly products that suit the changing tastes of environmentally conscious consumers by skillfully acquiring and integrating green information and processes (Tully et al., 2014).So the following hypotheses can be formulated.

H.7. Green absorptive capability has a positive impact on environmental performance

H.8 Green absorptive capability has a positive impact on social performance

Depending on the above discussion the following model will be developed

Figure 2 research model



Source : Prepared by the researcher

4. Methodology

This section explains the techniques that were used in gathering data and analysis that are relevant to the research by presenting sampling and sample size, types of data, data collection methods, and data analysis techniques.

4.1 Sample and data collection

The study is identified as descriptive, and it used the quantitative method to examine and evaluate the correlations between the primary variables included. The study was conducted in the setting of the Egyptian manufacturing corporations listed in top 30 S&P/EGX-ESG index (2024). To collect data, the self-administered questionnaire was distributed electronically to the seniors in sampling corporations by using critical case sampling. This method sounds more relevant as it helps identify managers who actually participated in CSR initiatives (Onwuegbuzie and Collins, 2007). Table 1 shows the sampled corporations. The questionnaire is divided into two sections; the first section shows the basic information of the respondents, including gender, age, qualifications, work experience, and position, and the second section demonstrates the measurement items, including the green foresight capability scale, green adaptive capability scale, green absorptive capability scale, green organizational culture scale environmental performance, and social performance. The researcher emailed the survey directly to relevant seniors after ensuring their agreement through telephone calls or organized meetings.

A seven-point scale ranging from 1 “strongly disagree” to 7 “strongly agree.” was used to measure the independent variables, green foresight capability, green adaptive capability, and green absorptive capability, the moderating factor green organizational culture and the dependent variables, environmental performance and social performance. A total of 150 questionnaires were issued, and 132 valid questionnaires were collected, for an effective rate of 89.3%. The data collection for this study took place from August to October 2024. Biographical details of the respondents are shown in Table 2.

Table 1 Egyptian manufacturing Corporations listed in Top 30 S&P/EGX-ESG index (2024)

Corporations Name	
Edita Food Industries S.A.E	Taqa Arabia
Juhayna Food Industries	Ibnsina Pharma
Oriental Weavers	Lecico Egypt
Dice Sport & Casual Wear	Cairo For Investment And Real Estate Developments-CIRA Edu
Sidi Kerir Petrochemicals – SIDPEC	Six of October Development & Investment (SODIC)
Abou Kir Fertilizers	GB Corp
Tenth Of Ramadan Pharmaceutical Industries&Diagnostic-Rameda	Emaar Misr for Development
Misr Chemical Industries	Orascom Construction PLC
Misr Fertilizers Production Company – Mopco	Egypt Aluminum

Source : <https://www.egx.com.eg/en/EGX-And-Sustainability.aspx>

Table 2 Demographic characteristics of respondents

Items	Characteristics	Frequency
Gender	Male	95
	Female	37
	Total	132
Age	40-50	27
	50 and above	105
	Total	132
Qualification	Bachelor's	65
	Master's	37
	PHD	30
	Total	130
Work experience	7-10 years	25
	Above ten years	117
	Total	132
Position	Human Resources manager	8
	Social responsibility manager	12
	Operational manager	9
	Strategy –marketing	12
	Legal affairs manager	10
	Supply chain manager	13
	Knowledge management	11
	Environmental engineering manager	15
	Logistics –safety manager	9
	Strategy –marketing	7
	Planning performance	11
	Corporate brand management	10
	Quality managers	9
	Finance managers	5
	total	132

Source ; Spss output

4.2.Measures

. To measure green foresight capability, green adaptive capability, and green absorptive capability, we utilized the scale introduced and validated by Khan et al. (2024), supported by the literature review of, e.g., Rwee (2012), Paliokait' et al. (2014), Staber and Sydow (2002), Akgün et al. (2012), Flatten et al. (2011), and Cooper and Molla (2014). The moderating variable green organizational culture has been measured according to the scale of Harris and Crane (2002), which highlighted seven main components including industry macro culture, organizational barriers, alternative business philosophies, symbolic events, cultural fragmentation, and individual resistance to change. The environmental performance has been measured by adapting the scale of Ilinitch et al. (1998), which includes four main dimensions:

organizational systems, stakeholder relations, environmental impacts, and regulatory compliance. Social performance, measured by adopting the scale introduced by Henao et al. (2017) and supported by a lot of literature reviews (e.g., Chen et al., 2015; Distelhorst et al., 2017; Sutherland et al., 2016; Distelhorst et al., 2017; Zhang et al., 2017). It emphasizes six main categories of indicators, including labor practices and work conditions, worker welfare and development, community relations, consumer protection, broader impact on society, and feedback mechanisms.

4.3 Data analysis techniques

Data were analyzed through SPSS-Statistics software 25 version . The mean and standard deviation have been used for the descriptive statistics of sample data. The internal consistency and dependability of the measuring scales were examined using Cronbach alpha test. Confirmatory factor analysis has been utilized to assess the measurement scales' convergent and discriminant validity. To assess the multivariate collinearity between variables we used the Variance Inflation Factor (VIF). The Pearson correlation coefficient has been used for measuring the correlation between variables and simple regression analysis to investigate the direct relations between the dependent and independent variables.

Finally In order to test the moderating effect of green organization culture in the relationship between green foresight capability and the environmental and social performance of the sampled corporations we utilized the PROCESS macro (model 1) in SPSS developed by (Hayes, 2017) as it is simple and effective to perform mediation and moderation analysis, avoiding sample size limitations and degree of freedom.

4.4 Data Analysis

4.4.1 Reliability and Validity

Cronbach's coefficient alpha has been used to measure the scale reliability. As shown in Table 6, the coefficients of Cronbach's alpha of the instruments are all higher than 0.7 (ranging from 0.826 to 0.886). This indicates that the reliability of the scale is acceptable (Nunally, 1978). Validity content has been reviewed by experts in the strategic management field. We conduct structural validity analysis to test whether each set of items is a valid indicator of the construct. As shown in Table 3, the factor load for each item is higher than 0.5 and all the items in each scale load on a single factor. These results suggest that each factor is valid as a construct (Nunally, 1978).

Also the study applies AVE to measure discriminate validity and convergent validity (Fornell and Larcker, 1981). If the square root of the AVE of a construct surpasses the associations between the construct and the other ones, it implies that the discriminative validity is acceptable. The square root of the AVE of every construct in Table 3 exceeds the correlations between the construct and the other ones in Table 3. Thus, the discriminant validity of the measurement is acceptable. Next, if the AVE of a construct exceeds 0.5, it signifies that the convergent validity of the construct is adequate. The AVEs of the five constructs are 0.67,

0.637, 0.71, 0.59, and 0.82 in Table 3, which a surpass 0.5. Hence, the convergent validity of the measurement is acceptable

Table 3 Factor loadings and Cronbach's results .

Constructs	Factor loadings	Reliability Cronbach's a	AVE	The Square Root of AVE
Green foresight		0.879	0.67	0.829
GF1	.832			
GF2	.875			
GF3	.867			
GF4	.829			
GF5	.843			
Green organizational culture		0.889	0.637	0.887
GOC1	0.898			
GOC2	0.832			
GOC3	0.821			
GOC4	0.868			
GOC5	0.828			
GOC6	0.860			
GOC7	0.845			
Green adaptive capability		0.836	0.71	0.827
GADC1	.834			
GADC2	.838			
GADC3	.832			
GADC4	.821			
GADC5	.819			
Green absorptive capability		0.891	0.59	0.758
GABC1	.898			
GABC2	.887			
GABC3	.876			
GABC4	.934			
GABC5	.856			
Environmental performance		0.904	0.82	0.886
EVP1	.909			
EVP2	.887			
EVP3	.895			
EVP4	.888			
EVP5	.843			
EVP6	.923			
EVP7	.956			
EVP8	.899			
EVP9	.865			
EVP10	.898			
Social performance		0.916	0.59	0.778
ESP1	.923			
ESP2	.888			
ESP3	.929			
ESP4	.919			
ESP5	.956			
ESP6	.923			
ESP7	.876			
ESP8	.987			
ESP9	.987			
ESP10	.890			

Source ; Spss output

4.4.2 Descriptive statistics and correlational analysis

The study's descriptive statistical results, presented using the mean and standard deviation, are displayed in Table 4. A mean score below 3.5 is regarded as low, between four and five as moderate, and over five as high on a seven-point Likert scale (Dolnicar & Grün, 2013). In terms of the independent variables, green absorptive has the lowest mean (4.50), whereas green foresight has the greatest mean (4.71). Environmental performance has the highest score mean (4.76) among the dependent variables, followed by social performance (4.50). All study factors are at a moderate level, according to the results. Table 4 reveals that all the dimensions of green strategic leadership capability are significantly related to environmental performance, with respectively $r = 0.518$ for green foresight, $r = 0.538$ for green adaptive, and $r = 0.593$ for green absorptive at $P = 0.05$. Also, the statistical results show that all the dimensions of green strategic leadership capability are significantly related to social performance, with respectively $r = 0.568$ for green foresight, $r = 0.512$, and 0.687 for green absorptive capacity at $P = 0.05$. The moderating variable green organizational culture has a positive significant relation with all the independent and dependent variables, the highest relation with green foresight capability at a value of 0.621^{**} and the lowest relation with social performance at a value of 0.598^{**} . at $P = 0.05$

Table 4 Descriptive statistics and correlation analysis,

No	Variables	Mean	St.D	1	2	3	4	5	6
1	Green foresight	4.71	82.0	1					
2	Green adaptive	4.60	87.5	0.614**	1				
3	Green absorptive	4.50	93.3	0.620**	0.610**	.1			
4	Environmental performance	4.76	88.3	0.518**	0.538**	0.593**	1		
5	Social performance	4.50	86.3	0.568**	0.512*	0.687**	0.627**	1	
6	Green culture	4.45	84.6	0.621**	0.545*	0.537**	0.567**	0.598**	1

t- Value Tabulate at level ($\alpha \leq 0.05$)

Source ; Spss output

4.4.3. Simple regression analysis

Before conducting simple regression analysis by SPSS 25 we first test the normality of the data by examining the normal probability–plot. The data points follow an approximately straight line, which suggests the data is normally distributed. To assess the multivariate collinearity between variables we used the Variance Inflation Factor (VIF). When VIF is less than 5, there is no multivariate collinearity problem between variables (Malhotra, 1999). As shown in Table 5, all the VIFs are within the limit of 5, indicating that multicollinearity does not have an influence on the least squares estimates. Then, regression analysis was used to test the relationship between the study variables. As shown in Table 5, the relationships between the three main dimensions of green strategic leadership capability ; green foresight capability and green adaptive capability and green absorptive capability and the

environmental performance have been confirmed with respectively the standardized coefficient (Beta) 0.618, 0.529 ,0.556 and the result are significant at 0.05 level. This provides an empirical evidence for supporting the H1 , H5, H7. Also, the relationships between the three main dimensions of green strategic leadership capabilities ; green foresight capability , green adaptive capability and green absorptive capability and the social performance have been confirmed with the standardized coefficient (Beta) respectively 0.543,0.419 ,0.532 and the result are significant at 0.05 level. Thus the H2, H6, H8 have been supported.

Table 5 simple regression analysis output

Dependent variable	Independent variable	R2	F	Sig.	VIF	Beta	t	Sig.	Hypothesis
Green foresight	Environmental performance	0.342	138.617	0.000	1.00	0.618	12.816	0.000	H1
	Social performance	0.301	139.525	0.000	1.00	0.543	8.834	0.000	H2
Green adaptive	Environmental	0.347	70.075	0.000	2.338	0.529	5.457	0.000	H5
	Social performance	0.338	95.345	0.000	3.217	0.419	6.567	0.000	H6
Green absorptive	Environmental	0.362	151.214	0.000	2.397	0.556	3.050	0.000	H7
	Social performance	0.358	140.114	0.000	2.876	0.532	4.342	0.000	H8

Source : Spss output

4.4.4. Moderation effects of green organizational culture:

To test the moderation effect of green organizational culture in the relations between green foresight capability and both the environmental and social performance of the sampled corporations, we utilized the Process Macro software (Model 1) developed by Hayes (2013). Firstly, we created centered values of the independent variable (green foresight capability) and the moderator (green organizational culture) by computing the mean of them, then subtract these means from their respective variables. Next, we multiplied the centered independent variable by the centered moderator. Finally, we run the regression analysis.

As seen on table 6, the first regression model, which included the centered independent variable (green foresight capability) and centered moderator (green organizational culture) explained 0.532 of the variance of environmental performance), $R^2 = .532$, $F = 60.99$, $p < .001$. The second model, which added the interaction term (GFC x GC), explained an additional.069 of the variance additional $R^2 = .069$, bringing the total variance to 0.601, $R^2 = 0.601$, with F change 20.10 $p < .001$.

The coefficients of the second model, as shown in Table 7, indicated that green foresight capability ($B = .540$, $SE = .183$, $t = 6.42$ $p < .001$) and green culture ($B = .1934$, $SE = .405$, $t = 5.63$ $p < .001$) had a significant effect on environmental performance. Also, the interaction term Inter (GFC x GC) predicted significantly environmental performance ($B = .249$, SE

..2756, $t = 3.23$, $p < .001$), indicating the green culture moderates the relation between green foresight capability and environmental performance which supported hypothesis (H3).

Table 6 Model summary variance values and statistics changes

Model	R	R-square	Std.Error of the estimates	Statistics changes				
				R square	F change	Df1	Df 2	Significant f change
Model 1 GFC+ GC	0.592	0.532	5.752	0.532	60.99	3	92	.000
Model 2 (GFC * GC)	0.633	0.601	3.752	.069	20.10	1	16	.000

Source : Spss output

Table 7 The coefficients (The moderation effect of green organizational culture)

Model 2	B	Se	t	P	LLCI	ULCI	Hypothesis
Constant	.7054	.2631	.5431	.0000	.1576	.2340	Accepted
Centered (Green foresight capability) GFC	.5401	.1839	6.42	.0000	.4167	.1715	
Centered (Green culture) (GC)	.1934	.4054	5.63	.000	.8987	.7861	
Inter (GFC x GC)	.2493	.2756	3.23	0.000	.0876	.0987	H 3

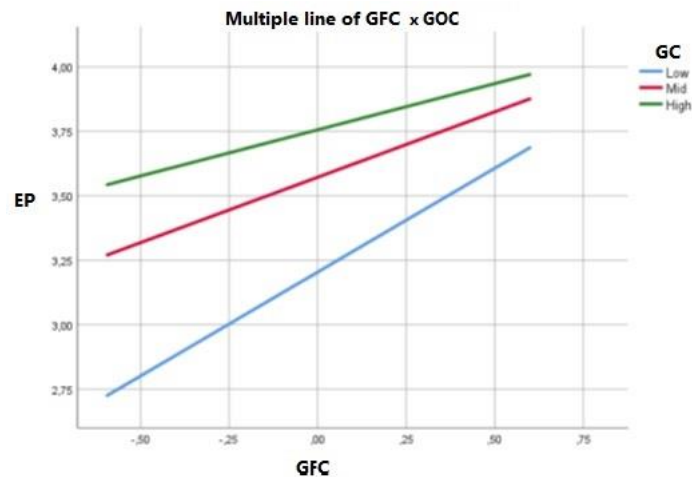
Source : Spss output

Dependent variable; environmental performance

b. predictors ;(constant),centered GC , centered GFC

C.. predictors ; (constant), centered GC ,centered GFC ,INT

Figure 2 the simple slope analysis - the moderating factor green organizational culture(GOC)-dependent variable environmental performance



The findings in Figure 2 reveal that Green foresight capability positively affects environmental performance in low, mid and high green organizational culture levels. However, Green foresight capability affects an organization environmental performance more with high green organizational culture which supported the hypothesis H 3.

Table 8 Model summary variance values and statistics changes

Model	R	R-square	Std.Error of the estimates	statistics changes				
				R square	F change	Df1	Df 2	Significant of change
Model 1	0.592	0.567	7.341	0.567	131.40	3	18	000
Model 2 (GFC * GC)	0.633	0.615	5.692	.048	18.19	2	15	000

Source ; Spss output

Table 9 The coefficients (the moderation effect of green organizational culture)

Model 2	B	Se	T	P	LLCI	ULCI	Hypothesis
Constant	.7423	.2422	.6321	.0000	.1421	.2167	Accepted
Centered (Green foresight capability) GFC	.4801	.1724	9.31	.0000	.4026	.1823	
Centered (Green culture) (GC)	.1723	.3531	7.43	.000	.9077	.6321	
Inter (GFC x GC)	.2031	.2187	5.95	.000	.0876	.0987	H 4

Source ; Spss output

Dependent variable; social performance

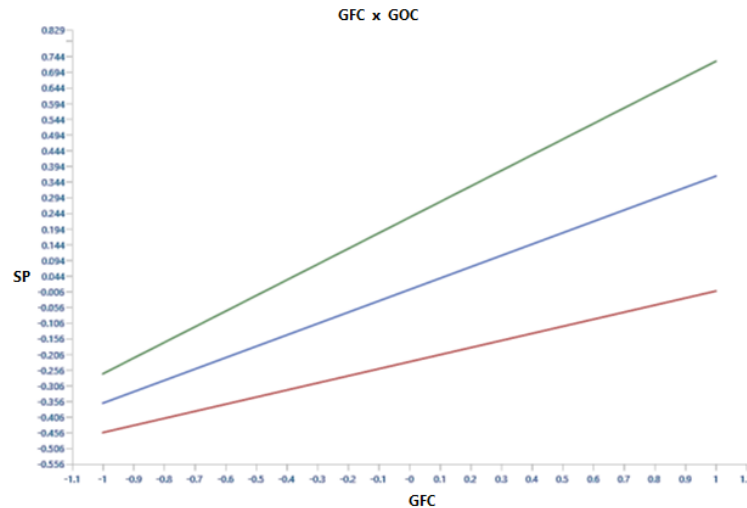
b. predictors ;(constant),centered GC , centered GFC

C.. predictors ; (constant), centered GC ,centered GFC ,INT

As shown in table 8 above in the first regression model which included the centered independent variable (green foresight capability)and centered moderator green culture explained 0.567of the variance on social performance , $R^2 = .567$, $F = 131.40$, $p < .001$. The second model which added the interaction term (GFC x GC) explained an additional .048 of the variance additional $R^2 = .048$ bringing the total variance to 0.615, $R^2 = 0.615$, with F change 18.19 $p < .001$.

The coefficient of the second model indicated, green foresight capability ($B = .480$, $SE = .172$, $t = 9.31$ $p < .001$) and green culture ($B = .1723$, $SE = .351$, $t = 7.43$ $p < .001$) had significant effect on social performance and the interaction term **Inter (GFC x GC)** also predicted significantly social performance ($B = .203$, $SE = .2187$, $t = 5.95$ $p < .001$) indicating the green culture moderate the relation between green foresight capability and social performance which supports the hypothesis (H4)

Figure 3 the simple slope analysis- The moderating factor organizational green culture (GOC)-dependent variable social I performance



As shown in figure 3 , the slope of the association between green foresight capability and social performance was relatively higher for organization with higher organization green culture , whereas the slope was relatively weaker when the green organizational culture was low. which supported hypothesis 4.

5. Discussion

This study investigates the influences of green absorptive capacity, green adaptive capacities, and green absorptive capability on firm environmental and social performance. Also, it investigates the moderating effect of green organizational culture in the relationship between green foresight capability and environmental and social performance. According to the previous analysis, the first dimension of green strategic capability—green foresight—can significantly promote the environmental and social performance of the sampled corporations. With the help of green futurism, senior managers could more accurately predict the forces behind environmental changes, assess how they would affect goals and plans, develop possible scenarios, and enhance environmental performance. The literature (e.g., Yoon et al., 2018; Burns, 2021; Khan et al., 2024) supports this conclusion. Subsequently, sensitivity to the indications of impending social change and the potential benefits it may bring enhances top managers' capacity to understand societal expectations of all stakeholders and develop appropriate strategies to deal with the different aspects of social performance, such as workplace health and safety, employee development, and broad community development. The literature (e.g., Zaid et al., 2018; Yoon et al., 2018; Widisatria and Nawangsari, 2021) is consistent with this result.

The statistical results also confirm that green organizational culture moderates the relationship between green foresight capability and firm environmental and social performance. The firm's environmental performance is greatly influenced by the values, beliefs, and attitudes of its leaders. Shared environmental values inspire staff members to

participate in environmental initiatives and be environmentally aware. Also, it helps motivate socially conscious employee behaviors, which enhance a company's reputation and promote social consciousness among stakeholders. The literature (e.g., Porter et al., 2016; Zhao et al., 2018; Gattringer & Wiener, 2020; Haarhaus & Lienen, 2020) is in line with these results.

Furthermore, the positive effect of green adaptive capability on both environmental and social performance has been confirmed. The adaptive management system helps create a more motivating climate so employees could behave in a more responsible way, update their environmental systems, and reconfigure their resources toward environmental objectives. The ideas (e.g., Bhardwaj and Neelam, 2015; Inman and Green, 2018; Sachin and Pujari, 2020) support this conclusion. With regard to social performance, promptly adapting to changes encourages employee participation in more socially positive initiatives, which maintains social responsibility and increases stakeholder satisfaction. These results are compatible with those of Wang and Chung (2017), Zaid et al. (2018), and Raut et al. (2019).

Finally, the findings showed environmental and social performance were influenced by the green absorptive capacity. However, green shared knowledge makes it easier to control employee behavior and piques their interest in finding innovative methods to solve environmental problems, enhance current environmental practices, and complete jobs in a more ecologically friendly manner. Organizations can also reduce waste, increase energy efficiency, and simplify resource use by effectively acquiring and applying green knowledge. This conclusion is supported by a lot of literature reviews (e.g., Bhupendra and Sangle, 2017; Fabregà et al., 2017; [Khan et al., 2024](#)), which argue that green learning is influential to improve the organization's environmental. Also, deeper learning and dynamic awareness of stakeholder preferences through absorption skills can improve a firm's compliance with rules and fortify its relationships with stakeholders. This will help the business establish a solid reputation, satisfy its workforce, and give itself legitimacy. A lot of literature (e.g., Hashim et al., 2015; Borland et al., 2016; Bhupendra and Sangle, 2017) is in agreement with this outcome.

6. Contributions

The finding of the study adds to the discussion around green strategic leadership capability (GSLC) and sustainable development, particularly in developing nations like Egypt. It offers policymakers a means to start environmental and socially conscious programs and green policies that will support green strategic leadership capacity and sustainable development in the industries at both the micro and macro levels. Some of the significant practical implications of the study will be displayed, as follows:

First, the study recommends that the Egyptian manufacturing corporations listed in the Top 30 EGX-ESG should embrace green foresight capability in order to encourage a sustainable future, cultivate a green culture, and implement responsible policies throughout their operating lines. During this stage, the organization's vision, mission, and goals must highlight the significance of sustainable development and connect it to financial and strategic goals like customer satisfaction, employee retention, capacity building, and organizational advantage strengthening.

Second, the Egyptian manufacturing corporations listed in the Top 30 EGX-ESG must strengthen their green adaptive capability to effectively respond to shifting environmental forces related to sustainability concerns like climate change, global warming, increased emissions, and growing consumer awareness of environmentally friendly products. Also, they need to coordinate their operational activities to be more compliant with regional and international standards for sustainable development.

Finally, the organization's capacity to gather green knowledge, assess its significance, and incorporate it with prior learning and experiences is ultimately crucial to raising employee awareness and modifying their behavior to become more socially and environmentally conscious. Relying on emerging green technology, rewarding compensation plans, and sustainability-oriented training programs could be crucial in boosting results for the environment and society.

8. Limitations.

There are a few restrictions on this study, though. Initially, the research is carried out within the context of one of the developing countries (Egypt). Therefore, future studies could look into confirming the present findings in different cultural contexts and analyzing how they affect the adoption of green strategic leadership capabilities.

Secondly, the study was conducted on Egyptian manufacturing corporations listed in the Top 30 EGX-ESG, a group of businesses that operate in a variety of industries, such as petrochemicals, construction, and orient waver, with a variety of characteristics. Therefore, it is advised to advance the research for more in-depth analyses of particular industries. This may offer the chance to pinpoint the particular drivers affecting the significance of GSLC in certain sectors. Third, more investigation into the connection between GSLC and social and environmental performance may be conducted using a more moderating and mediating variable like entrepreneurship orientation, environmental forces, and top management leadership style. Finally, this study considered only two dimensions of sustainability: environmental and social. Therefore, it is suggested to extend the analysis to include different dependent variables, such as economic performance and sustainable innovation.

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Appendix A

Dear Mr / Miss

Kindly filling out the following questionnaire on the impact of embracing the green strategic leadership capability on your corporation environmental and social performance. The moderating effect of green organizational culture. It is important to know that this data will be kept confidential and will only be used for scientific research purpose.

Section 1

- **Corporation Name :**
- **Type of industry :**
- **Gender :**
- **Age :**
- **Qualification:**
- **Work experience :**
- **Position:**

Section 2 (measurement items)

Please indicate how much you agree or disagree for each of the statements below, by selecting the appropriate responds. The item scales are seven-point Likert type scales with 1 = strongly disagree , 2 = disagree, 3 = some what disagree, 4, either agree or disagree =, 5 somewhat agree , 6 somewhat agree, 7, strongly agree= strongly agree.

Green foresight	Point
1. Our firm can test new green trends/products early.	
2. Our firm aware of huge green trends in society.	
3. Our firm can take advantage of nascent opportunities with green ideas.	
4. Our firm is able to consider how green trends interact.	
5. Our firm can focus on future questions related to green issues.	
Green organizational culture	
1. In my organization, managers believe that focusing on environment-friendly policies and practices has a positive influence on the financial performance of the company.	
2. Environmental values are placed at a high priority within the industry group to which my organization belongs.	
3. I believe that the internal processes in my organization are supportive of pro-environmental initiatives.	
4. Environmental values are equally emphasized across all the offices (locations) of my organization .	
5. The managers in my organization speak positively about green practices of the firm even during informal interactions over lunch or tea.	
6. The dominant business philosophy of my organization is to focus on green issues and environmental performance.	

7. In my organization, employees encourage adoption of green practices because they believe that green issues are critical for success.	
Green adaptive capability	
1. Our management systems can inspire people to develop green concepts.	
2. Our management systems are flexible enough to respond quickly to green issues.	
3. Our firm can regularly monitor changes in markets related to green issues.	
4. Our firm can frequently adopt new marketing techniques related to green issues.	
5. Our firm is able to capture green technical capabilities related to green issues.	
Green absorptive capacity	
1. Our firm can frequently search relevant green information concerning industry.	
2. Our firm can motivate the people to use information sources related to green issues.	
3. Our firm can structure, and use collected green knowledge.	
4. Our firm can absorb and distribute new green knowledge.	
5. Our firm can successfully link existing green knowledge with new insights.	
Environmental performance	
1. Our corporation have a well designed environmental management system indicating a high commitment for sustainable environmental performance.	
2. Our corporation is concerned with the integration of the environmental strategy with the core business strategy and objectives.	
3. Our corporation have Periodic environmental audits of facilities to ensure the compliance with the relevant statutory and internal requirements	
4. Our corporation have an appointing influential environmental offices taking on the responsibilities of ensuring that an organization is in compliance with environmental regulations	
5. Our corporation in concerned with considering Environmental performance a factor in executive compensation	Point
6. Our corporation is highly committed o building shight interactive relations with all stakeholder, including its shareholders, the local community, government, customers, suppliers, and industry	
7. Our corporation is in line with the disclosure of capital expenditures and of operations/maintenance expenses to all stakeholders	
8. The company have voluntarily enrolled in governmental environmental programs including as conducting cooperative research into more sustainable environmental	
9. companies have adopted industry environmental principles in order to reduce the pollution and emission and decrease of consumption for hazardous/harmful/toxic materials	

10. our corporation honorable record of regulatory compliance in terms of , fines, and penalties for violating regulatory requirements imposed	
Social performance	
1. The company has made a substantial effort in compliance with employees wages practices and work conditions	
2. The company has taken exceptional steps with regard to worker welfare and development including areas such as training and career opportunities	
3. The company has made notable progress in the promotion of women and minorities, particularly to line positions with profit	
4. The company strongly value employees satisfaction and motivation.	
5. Our corporation are highly committed to enhancing customer protection including quality assurance and privacy protection	
6. The company has an exceptionally strong community relationships contributing to society development such as education support and sponsorship	
7. Our corporation embrace all the recommend standards leading to mitigating the negative impacts on community (noise-odor)	
8. The company has undertaken labor rights-related initiatives emphasizing transparency and disclosure on human rights issues.	
9. The company has made a substantial effort to make charitable contributions abroad.	
10. Our corporation have appropriate mechanism to deal with complaints and feedback from different stakeholders in a confident manner	