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THE IMPACT OF GREEN INNOVATION PRACTICES ON ENHANCING SUSTAINABLE COMPETITIVE ADVANTAGE IN IRAQ.

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Abstract
To achieve the research goal, which is to diagnose and analyze the relationship between green innovation practices (in production and operations) and sustainable competitive advantage in the clothing factory, a hypothetical research model was developed that reflects the nature of the relationship and its impact on its variables. The research relied on the questionnaire, which made it the main tool for collecting data. The information was distributed to a sample of (86) employees and was tested using some statistical data tools. The study reached a number of points, the most important of which is that the exercise of obligations linked to the experience of a moral influence on the participants' subscriptions is prominent in the obligations' subscriptions, and confirms the obligations in production, and since a number of proposals were previously presented, the most important of which confirms this is the management of the garment factory by paying attention to green practices through... Conducting important green exercises to highlight the importance of concepts and standards that interrupt the environmental orientation that has become one that seeks to achieve a specific desire.
Keywords: Green, practices, clothing, factory, Najaf.

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1. INTRODUCTION

The impact of environmental protection on the competitive advantage of the garment industry in Najaf has remained largely overlooked by researchers until recent times. However, the increasingly stringent international regulations, environmental protection agreements, consumer advocacy, and environmental management practices within the garment factory have now become crucial factors. The industry's shift towards compliance with environmental standards and the acknowledgment of ecological pressures indicates that industrial factories should neither ignore nor overreact to these challenges. While many factories tend to evade or resist such pressures, they must recognize that embracing environmental responsibility can be leveraged as a catalyst to enhance their intrinsic green capabilities, foster green innovations, and strengthen their eco-friendly image, ultimately leading to a sustainable competitive advantage. Consequently, the researchers have identified the necessity to investigate these variables within the context of the ready-made garment factories in Najaf Al-Ashraf. The research was designed to address the following issue: "The competitiveness of the local and regional market and the weaknesses of implementing green innovation practices in sewing factories in Najaf." It is crucial to emphasize the gaps in the field of ecological innovation in the laboratory that is the subject of the study.

The study is organized into the following chapters: Chapter One covers the Research Methodology, Chapter Two outlines the Theoretical Framework, Chapter Three delves into the Practical Aspect, and Chapter Four presents Conclusions and Recommendations.

The researchers employed a descriptive-analytical approach to comprehensively delineate the research population and sample, while also meticulously examining and analyzing the interrelations between the primary variables and the subordinate variables underpinning the study.

2. LITERATURE REVIEW

2.1 The Concept of Green Innovation

Innovation has emerged as a crucial determinant for the survival of industrial organizations and serves as a strategic tool for maintaining a sustainable competitive advantage. It enables companies to strengthen their market position, enhance their brand reputation, outmaneuver competitors, achieve significant breakthroughs, and attract a broader customer base. Given the increasing emphasis on environmental responsibility, industrial entities are now compelled to develop green products and implement eco-friendly production processes to comply with stringent environmental regulations and gain a competitive edge through differentiation strategies. Innovation, in its essence, is defined as the creation of something novel—be it an item, method, idea, practice, or change—introduced to its user. Within organizational settings, innovation encompasses the development and implementation of novel ideas by employees, ensuring consistent adherence to established procedures over time, which is particularly pertinent to green innovation (Al-Abadi, 2022: 151).

According to Tseng et al. (2013), green innovation pertains to the creation of products or production processes specifically designed to address environmental challenges impacting the

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product lifecycle. It encompasses the development of new or modified products and processes that integrate technical, managerial, and organizational innovations to mitigate environmental harm. This includes advancements in technologies that promote energy efficiency, pollution prevention, waste recycling, eco-friendly product design, and enhanced environmental management of industrial institutions. Thus, green innovation can be understood as the systematic development and implementation of environmentally conscious processes and practices within an industrial organization.

Green innovations are fundamentally aimed at improving the efficiency of environmental management to comply with regulatory requirements and can be considered a specialized subset of all innovations. This category of innovation extends into uncharted territories by introducing groundbreaking products and gradually phasing out non-green alternatives and environmentally detrimental products and processes from the market (Alyahya et al., 2022). Wang et al. (2021) further elucidate that green innovation encompasses innovations that mitigate a company's environmental impact, thereby enabling it to command premium prices for eco-friendly products, bolster its industrial image, and penetrate new markets. Nevertheless, the green innovation process necessitates collaboration with suppliers in developing new products or refining innovation processes.

Kuo et al. (2022) define green innovation as the process of developing and implementing new products and processes that align with societal goals and minimize environmental damage throughout the entire production process and product lifecycle. Such initiatives not only enhance productivity but also elevate the institution's reputation and establish it as a trailblazing innovator in the field. Moreover, these efforts address environmental concerns and the various influencing factors.

Takalo et al. (2021) describe green innovation as a framework for evaluating the market performance of green products or processes by reducing the environmental impact of industrial institutions. By adopting green innovation practices, organizations can lower production costs, improve economic outcomes through reduced energy consumption, material reuse, and redefined production processes, and ultimately enhance their reputation and image in the eyes of their customers.

Fahad et al. (2022) emphasize that innovation must create value, whether through product or process innovation, by introducing new products or processes, generating increased revenue, enhancing stakeholder value, expanding market share, improving the institution's image, or bolstering green performance.

Green innovations differ from traditional innovations in that the latter are not explicitly developed to address sustainability challenges, whereas green innovations are specifically designed to meet the environmental demands of regulatory bodies or the ecological concerns of targeted customers. Green innovations are focused on fostering a sustainable competitive advantage (Al-Moussawi et al., 2021: 9). They can emerge through two distinct approaches: a reactive approach, which is driven by the need to meet industrial process requirements or heightened levels of environmental protection, and a proactive approach, which is motivated by objectives such as increasing profitability, cost efficiency, or advancing environmental development and green technologies. Ultimately, the pursuit of a sustainable competitive

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advantage remains a shared goal that integrates innovative activities (Sana'a, Ma'awad, 2019: 41).

2.1.1 The Importance of Green Innovation

Green innovation is vital due to its focus on reducing pollution, enhancing environmental performance, optimizing resource productivity, improving energy efficiency, minimizing waste, and lowering production costs associated with raw materials. The significance of green innovation can be encapsulated in the following points:

1. Commercial Advantage: It enables industrial enterprises to secure commercial benefits by creating sustainable, competitive products that stand out in the marketplace.
2. Financial Relevance: By fostering financial gains, green innovation enhances the competitive edge of industrial institutions, making them more resilient and economically viable.
3. Efficiency in Environmental Management: It plays a pivotal role in refining environmental management practices to meet regulatory requirements, acting as a bridge between ethical considerations and sustainable competitive returns.
4. Sustainable Competitive Advantage: In an era increasingly focused on environmental concerns, green innovation is a crucial factor in reinforcing sustainable competitive advantage.
5. Meeting Consumer Demand: It provides a significant opportunity to meet the growing consumer demand for environmentally responsible products without compromising the ecological balance.
6. Resource and Energy Efficiency: Green innovation enhances operational efficiency by optimizing the use of resources and energy, leading to more sustainable production practices.
7. Cost Reduction and Revenue Enhancement: It empowers industrial organizations to lower operational costs and increase revenue, thereby improving overall financial performance.

2.1.2 Dimensions of Green Innovation

Green innovation can be categorized into two primary dimensions:

1. Green Product Innovation: This involves the development of new products or the enhancement of existing ones to be environmentally sustainable. Such products are designed in accordance with environmental standards, utilizing eco-friendly raw materials and avoiding hazardous chemicals, particularly toxic substances, with an emphasis on recyclability or biodegradability. Research indicates that green product innovation entails the introduction of significantly improved products that are aligned with technological and environmental advancements, such as non-toxic raw materials, sustainable design, energy efficiency, pollution prevention, waste recycling, and waste reduction. It encompasses the innovative reimagining of product design, manufacturing, and marketing processes to achieve superior environmental performance. Additionally, this dimension involves modifying existing product designs to

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minimize environmental harm throughout the product's lifecycle, with potential external enhancements such as environmental labeling.

2. Green Process Innovation: This dimension focuses on transforming manufacturing processes and systems to produce environmentally friendly products, aiming to achieve goals such as energy conservation, pollution reduction, and waste recycling. It involves implementing innovative techniques to diminish the adverse environmental impact of production processes, including efforts to reduce emissions and hazardous waste during manufacturing, as well as recycling waste and emissions for reuse, and minimizing energy and raw material consumption. Green process innovation serves as a strategic tool to enhance environmental management practices within companies, allowing industrial production processes to realize a vision of environmental sustainability and operational efficiency.

2.1.3 Characteristics of Green Innovation

Jamal et al. (2023) developed a theory on the diffusion of innovations, which elucidates how new products, goods, or services are adopted by a target market over a specified period through defined communication channels. The theory highlights five attributes of new products that influence their acceptance or rejection by consumers:

1. Competitive Advantage: The perceived superiority of the product compared to existing alternatives in the market, which influences its acceptance. The product's relative advantages, whether economic or social, can significantly increase customer acceptance and awareness of the benefits it offers.
2. Compatibility: The degree to which consumers perceive the new product as consistent with their values, beliefs, experiences, and past needs. When there is a high degree of compatibility, adoption is more likely, even if it requires consumers to adapt to new technologies.
3. Simplicity: The extent to which the product is perceived as easy to understand and use. Products that are complex and challenging to grasp or operate tend to experience slower growth and hinder customer adoption, making it difficult for them to transition to new industrial systems.
4. Product Visibility and Communication: The opportunity for customers to interact with and experience the new technology firsthand, akin to the distribution of ATMs in factories, allowing customers to physically access and assess the innovation.
5. Trialability: The ability of customers to experiment with the innovation and evaluate its benefits before fully committing, which can significantly enhance the adoption rate.

2.2 Sustainable Competitive Advantage

2.2.1 The Concept of Sustainable Competitive Advantage

In today's highly competitive industrial landscape, modern enterprises aim not only to secure a competitive edge over other entities operating in the same field but also to distinguish

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themselves in the eyes of consumers, ensuring a continuous standard of excellence that resonates with customer needs. From the perspective of industrial enterprises, competitive advantage can be defined as "a superior position or unique attribute of the industrial entity resulting from the implementation of a specific competitive strategy." According to Liwafa et al. (2023), industrial competition has become increasingly intricate and unpredictable in the realm of global green management. As the development of most products and technologies shifts towards eco-friendly frameworks, incorporating environmental considerations into business strategies has led to profound changes in social systems and competitive dynamics.

The concept of sustainable competitive advantage was first introduced in 1984, focusing on strategies that enable organizations to maintain a competitive edge over time. Porter (1985) expanded on this notion by presenting a range of competitive strategies—cost leadership, differentiation, and focus—though he did not formally define sustainable competitive advantage (Khuzael et al., 2019:139).

De Oliveira Lima et al. (2024) emphasized that to achieve sustainable competitive advantage, companies must adopt distinctive strategies that generate unique value, which competitors cannot easily replicate. It is imperative for organizations to continuously seek new advantages that keep them ahead in the market while differentiating themselves through environmental consciousness. Companies are actively exploring various approaches and practices to address environmental challenges, particularly through innovative solutions that yield positive environmental outcomes.

In recent years, the notion of sustainable competitive advantage has become a cornerstone in the discourse surrounding the long-term relationship between industrial enterprises and the environment. The internal and external drivers of competitive advantage in industrial firms reflect the evolving nature of innovations related to products, processes, and operations. Consequently, innovation plays a crucial role in assessing the competitiveness of new green products and brands (Al Mubarak et al., 2023). Sustainability necessitates innovative efforts, encompassing the introduction or implementation of novel products, processes, marketing methods, production techniques, organizational strategies, or other practices in industrial operations or workplace organization (Suryantini et al., 2023).

While there is broad consensus among scholars and researchers on the critical role of environmental innovations in achieving sustainability and enhancing sustainable competitive advantage, definitions may vary based on differing viewpoints and the unique angles from which the concept is approached. Plesea et al. (2023) defined sustainable competitive advantage as a distinctive position or benefit that results from specific actions undertaken by a company or industrial organization, providing resilience against competitors and allowing for prolonged maintenance of this advantage. Similarly, Alsaif et al. (2024) described it as the development of new, more efficient, and effective methodologies in a given field compared to those employed by competitors. Gupta et al. (2022) further defined it as the enduring benefits arising from the implementation of unique strategies that create value which current or potential competitors cannot replicate simultaneously.

The researchers contend that sustainable competitive advantage is rooted in relationships, reputation, innovation, and strategic assets. They assert that for an organization to achieve

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sustainable competitive advantage, its products must be distinctly recognizable by customers as different from those offered by competitors. These differentiations must originate from resources inaccessible to competitors, and these resources should exhibit four key attributes: rarity, value, inimitability, and non-substitutability.

The topic of sustainable competitive advantage has emerged as a critical focus in strategic management, as recent studies indicate that its dimensions are rooted in several key aspects: efficiency, quality, responsiveness, and pricing.

2.2.2 The Dimensions of Sustainable Competitive Advantage:

It is important to acknowledge that academic discourse on sustainable competitive advantage offers diverse perspectives on defining its dimensions:

1. Efficiency: The foremost goal of any modern industrial organization is to maintain its presence in the competitive market for as long as possible. The organization's aims encompass the production of goods, generation of profits, provision of services, the positive influence on and retention of customers—all while minimizing costs. As noted by Liwafa et al. (2023) and Abbasi Kamardi et al. (2022), the efficiency of industrial organizations pertains to the judicious, effective, and resourceful utilization of available resources. It emphasizes the methodologies and processes through which these organizations achieve their predetermined objectives. These goals are realized through the optimal use of resources such as workforce, machinery, materials, and capital. Organizational efficiency is measured through a variety of indicators, including profits and losses, return on investment (assets), material and labor costs, waste management, and customer satisfaction levels.

2. Quality: For an organization to remain competitive, it must consistently produce high-quality products. Quality has become one of the foundational dimensions that organizations must address to meet diverse challenges and sustain a competitive edge in the market.

3. Responsiveness: In the contemporary business environment, responsiveness has become the most pivotal resource in cultivating a lasting competitive advantage. Successful organizations or industrial enterprises today are those that demonstrate and integrate robust responsiveness in areas such as product offerings, services, modern technologies, new product lines, and marketing strategies (Vlasenko, V. A., 2023:37).

4. Pricing: A strategic approach to pricing enables organizations to secure a sustainable competitive advantage through stringent cost management, thereby achieving higher profit margins than their competitors. This pricing strategy facilitates better cost monitoring and provides a competitive edge that other competing firms, which may lack such cost information, cannot replicate. Furthermore, the organization leverages internal data to drive cost reduction by ensuring the adoption of efficient production, distribution, and pricing mechanisms (Zhang et al., 2023).

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2.2.3 Determinants of Sustainable Competitive Advantage

Sustainable competitive advantage is defined by two pivotal factors:

1. Magnitude of Competitive Advantage: An industrial organization can achieve a sustainable competitive advantage by maintaining either a cost leadership position or a distinct product differentiation. The greater this advantage, the more effort rival organizations must expend to overcome it (Wang et al., 2023). Therefore, a more substantial competitive edge necessitates greater challenges for competitors, enhancing the organization's long-term market position.

2. Competitive Scope or Target Market: Broadening the scope of operations can lead to economies of scale compared to rival firms. For instance, the utilization of shared manufacturing facilities, collective technical expertise, and common distribution channels to serve various market segments, geographic regions, or related industries can result in significant cost efficiencies. Economies of scale are particularly realized when there are overlapping and interconnected links among the market segments covered by the organization's activities. Conversely, a narrower focus can also yield a competitive advantage by concentrating on a specific market segment, offering either the lowest cost or a uniquely differentiated product (Thi et al., 2023:7).

3. RESEARCH METHODOLOGY

3.1 Sample Demographics:

The analysis revealed that the majority of the sample (86 respondents) comprised males, representing 67%, while females accounted for 37%. In terms of educational attainment, 41% held a technical diploma, 22% possessed a bachelor's degree, 28% had a secondary school certificate, and 7% held a master's degree. Additionally, 28% had less than one year of professional experience, 39% had between one and five years, and 33% had more than five years of experience, as shown in Table 1.

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Table 1 Demographic factors of respondent

Demographic feature	Details	Number of views and their proportion	
Gender	Males	58	0,67
	Female	28	0,37
Educational qualification	Intermediate	24	0,28
	Technical diploma	35	0,41
	Bachelor's	19	0,22
	Master's	8	0,09
Years of service	Less than one year	24	0,28
	One to five years	34	0,39
	More than five years	28	0,33
Total		86	0,100

Source: SPSS V.28 Program Outputs

3.2 Instruments

The survey was conducted using a questionnaire consisting of three parts. The questionnaire consists of a total of 30 items, where the independent variable, green innovation practices, includes ten items adapted from Lang et al. (2022), and the dependent variable, sustainable competitive advantage, includes 20 items adapted from (Vlasenko, V. A., 2023:37) (Zhang et al., 2023).

All indicators were evaluated using a five-point Likert scale ranging from 1 "strongly disagree" to 5 "strongly agree" (Brakus et al., 2009; Hsieh & Li, 2008; Rageh Ismail & Spinelli, 2012). Part 3 collected demographic information, including gender, education level, and years of service.

3.3 Validity and Reliability of the Questionnaire

The correlation coefficient for green innovation practices is **0.919**, and for sustainable competitive advantage, it is **0.783**, both with a significance level of (0.000). The overall reliability of the questionnaire, as measured by Cronbach's Alpha, is (0.649) for the 35-item scale.

Table 2 provides a detailed overview of the questionnaire's validity and reliability.

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Correlations	**Green innovation practices**	**Sustainable competitive advantage**	**The questionnaire as a whole**
Pearson Correlation	0.919	0.783	1
Sig	0.000	0.000	
Reliability Statistics			
Cronbach's Alpha	0.641	0.400	0.649
N	10	20	30

Source: SPSS V.28 Program Outputs

4. RESULTS AND DISCUSSION

4.1 Descriptive Statistics of the Research Variables

The study analyzed two key variables: green innovation practices and sustainable competitive advantage, across 86 sample items. The independent variable, green innovation practices, recorded a mean score of 3.80 with a standard deviation of 0.54. Meanwhile, the dependent variable, sustainable competitive advantage, exhibited a mean of 3.31 and a standard deviation of 0.69. These results indicate that green innovation practices were the primary focus of the sample, achieving a relative importance of 76%, leaving a gap of 24%. In contrast, sustainable competitive advantage ranked second in priority, with a relative importance of 66% and a gap of 34%. The coefficient of variation for green innovation practices stood at 14%, whereas for sustainable competitive advantage, it was 21%, as detailed in Table (3) and depicted in Figure (1).

Table (3: Descriptive Statistics of the Research Variables

The attention gap	**Relative importance**	**Coefficient of variation**	**Standard deviation**	**Arithmetic mean**	**Variables**
24	**76**	**14**	**0,54**	**3,80**	**Green innovation practices**
34	**66**	**21**	**0,69**	**3,31**	**Sustainable competitive advantage**

Source: Output from the SPSS V.28 program

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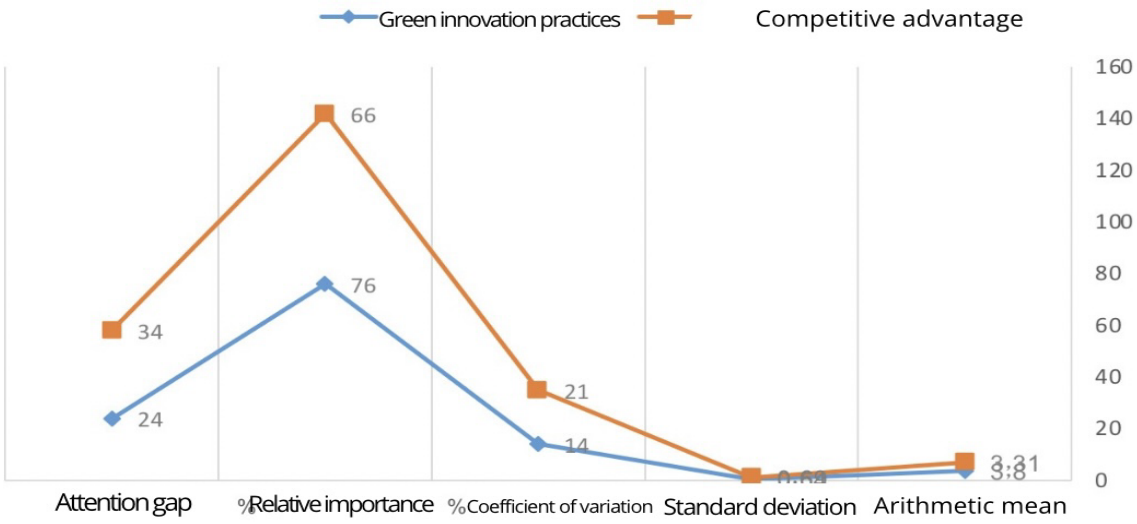

Figure (1: Depicts the descriptive statistics of the research variables.

4.2 Inferential Statistics and Hypothesis Testing

4.2.1 Correlation Test

The analysis indicates a statistically significant correlation between "Green Innovation Practices" and "Sustainable Competitive Advantage," with a correlation coefficient of 0.475** at a significance level of 0.000. This suggests that the more the Najaf Garment Factory focuses on green innovation practices, the more it enhances its sustainable competitive advantage. The positive nature of this relationship implies that to further strengthen its competitive edge, the factory should continue to invest in green innovation practices. Therefore, the primary hypothesis—"There is a statistically significant correlation between the dimensions of green innovation practices and sustainable competitive advantage"—is validated, as shown in Table (4).

Table (4) Correlation between the research variables.

Green innovation practices	Production process innovation	Green product innovation	Sustainable competitive advantage
0.475	0.430	0.470	Pearson Correlation
0.000	0.057	0.000	Sig (2-tailed)
86	86	86	n
correlation is significant at the 0.01 level (2-tailed).			

Source: SPSS V.28 Program Outputs

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4.2.2 Testing the Primary Research Hypothesis: "There is a significant influence of Green Innovation Practices on Sustainable Competitive Advantage"

The analysis revealed that the calculated F-value for the tested model was 24.430, surpassing the critical F-value of 3.984 at a degree of freedom (85) and a significance level of 0.05, with a correlation coefficient of 0.475**. As shown in Table (5), the explanatory power of the model was 0.225, indicating that Green Innovation Practices explain 22.5% of the variance in Sustainable Competitive Advantage, while the remaining 77.5% is attributed to other factors not included in the model. This suggests that the model is statistically robust and can be relied upon to explain variations in competitive advantage driven by Green Innovation Practices.

Independent variable	Competitive advantage							
	A	B	R	^2R	AR^2	P-value	T	F
Green innovation practices	2.067	0.301	0.475	0.225	0.216	0,000	4,943	24,430

Source: Output from the SPSS V.28 program

Moreover, the findings indicate a significant positive direct effect of Green Innovation Practices on achieving Sustainable Competitive Advantage, with a p-value of 0.000 and a calculated T-value of 4.943. All calculated T-values exceed the critical value of 1.996 at a 0.05 significance level and a degree of freedom of 85. These results demonstrate that the Najaf Garment Factory's commitment to Green Innovation Practices significantly bolsters its sustainable competitive advantage, contributing to further competitive achievements. Thus, the primary hypothesis— "There is a statistically significant correlation between Green Innovation Practices and Sustainable Competitive Advantage"—is confirmed, as represented by the following equation:

Competitive Advantage (Y) = 2.067 + 0.301 * (Green Innovation Practices)

Table (5) further illustrates that Green Innovation Practices account for 22.5% of the variations in competitive advantage, while the remaining 77.5% is due to other variables not captured in the model. The explanatory model is statistically sound and can be employed to explain the impact of Green Innovation Practices on competitive advantage, as shown in Table (5), which details the effect of Green Innovation Practices on Competitive Advantage (n=86).

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5. CONCLUSION AND SUGGESTIONS

Statistically Significant Correlation Between Green Innovation Practices and Sustainable Competitive Advantage:The study reveals a positive and significant correlation between the various dimensions of green innovation practices—such as green product innovation and green process innovation—and the organization's competitive advantage. This indicates that enhancing green innovation practices is closely linked to improving the company's competitive capabilities.
Significant Impact of Green Innovation Practices on Sustainable Competitive Advantage: The findings demonstrate that green innovation practices have a considerable effect on strengthening sustainable competitive advantage. This highlights that the adoption of green innovation strategies plays a crucial role in the ongoing enhancement of the company's competitive position.

6. RECOMMENDATIONS

To strengthen the sustainable competitive advantage of the Najaf Garment Factory through green innovation practices, the following recommendations are proposed: Formulate Green Innovation Strategies: Develop and implement strategies that incorporate environmentally friendly production techniques and recyclable materials. Emphasize Research and Development: Prioritize R&D to innovate new environmental solutions and establish collaborations with academic institutions and research centers. Enhance Employee Awareness and Skills: Conduct workshops and training programs to educate employees on the significance of green innovation and its practical implementation. Establish an Environmental Performance Monitoring System: Implement a system to track and evaluate the environmental performance of green innovation practices, with regular reviews to ensure continuous improvement. Provide Incentives and Expand Partnerships: Offer incentives for green innovations and broaden partnerships with environmental agencies and organizations dedicated to sustainability.

7. LIMITATIONS AND FUTURE RESEARCH

This research aimed to investigate the role that green innovation practices play in achieving a sustainable competitive advantage at the spatial level of the garment factory in Najaf. More specifically, the research aimed to investigate the impact of these practices on employees' demographic factors, such as gender, education, and the number of years of experience.
There are, however, some constraints that determine the scope of the investigation. These restrictions result from the nature of the research and the study's comprehensiveness.
The scope of the study is restricted to a ready-made garment factory in Najaf, which means that it is highly unlikely that the findings can be generalized to other factories or regions of the world.

Temporal limitations: Because the study is only concerned with the current period, it is difficult to analyze changes in practices and results that have occurred over a longer period.

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The research is primarily based on ideas about green innovation and sustainable competitive advantage, with a particular emphasis on these theories' influence on the level of demographic characteristics of employees. This is one of the limits of the research. It is possible, however, that additional pertinent theories can be investigated in subsequent research.

Limitations in the methodology: The data collection and analysis in this study were carried out using a particular collection of tools and methodologies, which may impact the reliability of the findings.

There are several limitations associated with demographic factors. The study is restricted to examining the impact of three primary demographic parameters, which are gender, education, and years of experience. Other aspects that may be related to each other are not considered.

Additionally, previous theoretical research on green innovation practices and sustainable competitive advantage has generally focused on the institutional or industrial level. Few studies have addressed the impact of these practices at the small manufacturing unit level, such as a garment factory. This is because most of these studies have focused on the organizational or industrial level.

As a result, this research contributes to bridging this knowledge gap by concentrating on the level of the garment factory and the influence of demographic factors on adopting environmentally friendly innovative techniques and attaining a sustainable competitive advantage.

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