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GREEN MANAGEMENT AND INNOVATION PERFORMANCE: A LITERATURE REVIEW

YEŞİL YÖNETİM VE YENİLİK PERFORMANSI: BİR LİTERATÜR TARAMASI

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Öz

Makale, çevre bilincine sahip yönetim uygulamaları ile inovasyon alanındaki firmaların başarısı arasındaki bağlantıya odaklanmaktadır. Önceki araştırmaların kapsamlı bir incelemesini sunarak, bu alanda zaten yapılmış olan çalışmaları özetlemeyi, mevcut literatürdeki boşlukları belirlemeyi ve gelecekteki araştırma seçeneklerini ortaya koymayı amaçlamaktadır. Sistematik bir inceleme yöntemi benimsenmiş, belirli kriterlere dayanarak bilinen veritabanlarından hakemli süreçten geçmiş yayınlar seçilmiştir. Elde edilen bulgular, çevre dostu yönetim yöntemlerinin uygulanması ile yenilikçi performans seviyeleri arasında olumlu bir ilişki olduğunu göstermektedir. Bununla birlikte, bu süreçlerin gerçekleşme şekli, organizasyonun kültürü, düzenleyici çevre ve piyasa dinamikleri gibi faktörlere bağlı olarak değişkenlik göstermektedir. Özellikle gelişmekte olan ülkelerde bu sonuçları doğrulamak ve genişletmek adına daha fazla ampirik araştırmaya ihtiyaç duyulduğu belirlenmiştir. Elde edilen sonuçların, hem akademik dünya hem de iş dünyası açısından önem taşıdığı sonucuna varılmıştır. Son olarak, sürdürülebilirliğin yönetim uygulamalarına dâhil edilmesinin genel organizasyonel performansı ve yaratıcılığı artırmak için bir stratejik kaldıraç olarak kullanılabileceğini göstermektedir.

Anahtar Kelimeler: Yeşil Yönetim, İnovasyon, Performans, Literatür.

Abstract

This article focuses on the connection between management practices conscious of the environment and the success of firms in the field of innovation. By presenting a comprehensive review of previous research, it aims to summarize studies already conducted in this area, identify gaps in the current literature, and propose directions for future research. A systematic review method has been adopted, selecting publications from well-known databases that have undergone a peer-review process based on specific criteria. The findings indicate a positive relationship between the implementation of environmentally friendly management methods and innovative performance levels. However, the manifestation of these processes varies depending on factors such as the organization's culture, the regulatory environment, and market dynamics. It has been determined that there is a need for more empirical research, especially in developing countries, to verify and expand these results. The conclusions drawn are of significance both for the academic world and the business sector. Lastly, the inclusion of sustainability in management practices is shown to serve as a strategic lever to enhance overall organizational performance and creativity.

Keywords: Green Management, Innovation, Performance, Literature.

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Genişletilmiş Özet

Bu literatür taraması, yeşil yönetim ve inovasyon performansı ilişkinin doğasını açıklığa kavuşturmayı, mevcut anlayıştaki boşlukları belirlemeyi ve gelecekteki araştırmalar için yön önermeyi amaçlayan yeşil yönetim ve yenilik performansı arasındaki bağlantının derinlemesine bir araştırmasını sunmaktadır. Çevresel hususların iş stratejisine dâhil edilmesi olarak tanımlanan yeşil yönetim ile inovasyon performansı, yani bir organizasyonun yeni veya iyileştirilmiş ürünler, hizmetler veya süreçler oluşturma ve uygulama yeteneği arasındaki bağlantı, artan çevresel gelişmeler nedeniyle büyüyen bir araştırma odağıdır.

Yeşil yönetim, bir organizasyonun iş stratejilerine çevresel hususları nasıl entegre ettiği ile ilgilidir. Bu, gerek küresel iklim değişikliği, gerekse tüketicilerin çevre dostu ürün ve hizmetlere olan artan ilgisi nedeniyle giderek daha fazla önem kazanmaktadır. Öte yandan, inovasyon performansı, bir organizasyonun yeni veya geliştirilmiş ürünler, hizmetler ve süreçler oluşturma ve uygulama kapasitesini yansıtmaktadır. Yeşil yönetim ve inovasyon performansının bu denli kesişmesi, bu iki kavramın birlikte nasıl ele alınabileceğine dair birçok soruyu gündeme getirmektedir.

Sistematik incelememiz, "yeşil yönetim", "inovasyon performansı" ve "sürdürülebilirlik" gibi belirli anahtar kelimeler kullanarak Web of Science veri tabanı üzerinde çok sayıda yayını taramayı içermektedir. Bu, önceden belirlenmiş dâhil etme ve hariç tutma kriterlerine dayalı olarak titiz bir tarama sürecinden geçen çok sayıda hakemli makalenin alınmasıyla sonuçlandı.

Çalışmamızın teorik temelleri, üç ana sütun etrafında toplanmıştır. Birincisi, çevresel sürdürülebilirliği ticari faaliyetlere dâhil etmenin önemini vurgulayan yeşil yönetimdir. Firmanın Doğal Kaynak Temelli Görüşü (NRBV), yeşil yönetim anlayışımızı stratejik bir varlık olarak çerçevelendirmemizde etkili olmuştur. İkincisi, bir organizasyonun yeni ürünler, hizmetler veya süreçler başlatmadaki etkinliğini özetleyen yenilik performansı. Açık inovasyon modeli ve İnovasyon Sistemleri Teorisi, bu konudaki bakış açımıza rehberlik etmiştir. Kurumsal ve firma düzeyindeki faktörler, yeşil yönetimin benimsenmesinde kritik bir rol oynamaktadır. Özellikle devlet destekleri, endüstri rekabeti, çevresel tarama ve organizasyonel esneklik, yeşil yönetim stratejilerinin şekillenmesinde önemli etkenlerdir.

Mevcut literatürü sentezleyerek gelişmiş finansal ve yenilik performansı ile yeşil yönetim uygulamaları ve yenilik stratejileri arasında pozitif bir ilişki bulduk. Kurumsal çevre taahhüdü, çevresel kıyaslama, AR-GE gücü, işlevler arası entegrasyon, kaynak uyumu ve özümseme kapasitesi dâhil olmak üzere çok sayıda faktör, bu ilişkinin moderatörleri ve aracıları olarak tanımlandı. Yeşil Tedarik Zinciri İşbirlikçi Yeniliği (GSCCI) gibi uygulamaların yenilik performansını iyileştirmede çok önemli roller oynamasıyla, işbirlikçi bir yeşil yenilik modeline geçiş sağlanmıştır.

Ek olarak, hem devlet desteği ve endüstri rekabeti gibi kurumsal faktörler hem de çevresel tarama ve organizasyonel gevşeklik gibi firma düzeyindeki faktörler, bir firmanın yeşil yönetimi benimsemesinde etkili olarak ortaya çıkmıştır. Bu çalışma ile birlikte yeşil inovasyonun çeşitli finansal performans ölçümleri üzerinde olumlu bir doğrusal etkiye sahip olduğu tespit edilmiştir. Bu durum, yeşil inovasyonun kaynak verimliliğine ve kurumsal itibarın artmasına katkıda bulunduğunu ve böylece finansal performansı iyileştirdiği öne sürülmektedir.

Bu bulgular topluca, yeşil yönetim uygulamalarının benimsenmesinin ve iş birlikçi inovasyonun teşvik edilmesinin bir kuruluşun yeşil inovasyonunu ve finansal performansını önemli ölçüde artırabileceğini ima etmektedir. Bununla birlikte; ilişkiler karmaşık, çok yönlü ve bağlama bağlıdır ve özellikle gelişmekte olan ekonomilerde daha fazla ampirik çalışmaya ihtiyaç olduğunu göstermektedir.

Kaydedilen ilerlemeye rağmen, yeşil yönetim ile inovasyon performansı arasındaki ilişkiye dair anlayışımızda hâlâ boşluklar bulunmaktadır. Etki mekanizmalarının daha fazla araştırılması, bağlamsal faktörlerin etkisinin incelenmesi ve yeşil yönetimin potansiyel olumsuz sonuçları garanti altına alınmıştır. Yeşil yönetimin inovasyon performansını yönlendirmedeki rolüne ilişkin daha incelikli bir anlayış, bu alanlarda ek araştırmalar yapılarak elde edilebilir.

Ayrıca, teknolojik gelişmeler ve dijitalleşme, yeşil yönetim ve inovasyon performansı arasındaki ilişkinin daha da derinleştirilmesine olanak tanımaktadır. Özellikle, yapay zeka, büyük veri analizi ve blok zincir teknolojisi gibi yeni nesil teknolojilerin kullanımı, şirketlerin sürdürülebilir iş modelleri ve yeşil inovasyon stratejileri geliştirmelerine katkıda bulunmaktadır. Bu yeni teknolojiler, şirketlerin hem çevresel etkilerini azaltmalarına hem de inovasyon kapasitelerini artırmalarına yardımcı olmaktadır. Bu bağlamda, gelecekteki araştırmaların, teknolojinin yeşil yönetim ve inovasyon performansı arasındaki ilişki üzerindeki etkisini daha detaylı bir şekilde incelemesi beklenmektedir.

Sonuç olarak yeşil yönetim ve yenilik performansı arasındaki ilişki umut vericidir; ancak hâlâ gelişmektedir. Bu literatür taramasının, sürdürülebilirliği yönetim uygulamalarına entegre etmenin potansiyel olarak yeniliği ve genel organizasyonel performansı artırmak için stratejik bir kaldıraç olabileceğini ve böylece daha yeşil ve daha sürdürülebilir bir geleceğin yolunu açabileceğini vurgulamaktadır.

INTRODUCTION

The term "green management" describes the process of integrating environmental concerns into the operations and strategy of a business in order to minimize the negative impact on the surrounding environment while realizing economic benefits. Simultaneously, innovation performance, which is the propensity of an organization to create and deploy new or improved products, services, or processes, has been recognized as a significant generator of both a competitive advantage and a corporation's success. According to Pane Haden, Oyler, and Humphreys (2009), the convergence of environmentally responsible management and innovative performance is gaining increasing attention. There is accumulating evidence that environmentally responsible management practices can inspire innovation, which can then result in improved performance and a competitive edge. On the other hand, a comprehensive comprehension of the nature and scope of this link, as well as the mechanisms responsible for its operation, is yet to be fully acquired.

In the corporate environment, there has been a paradigm transition toward sustainability over the past several years. This transition is the result of a convergence of factors, including consumers' increased awareness of environmental issues, stricter legislation regulating environmental activities, and a greater appreciation of the potential economic benefits of sustainable business practices. Green management is a reaction to these developments that has arisen as a means for businesses to find a balance between their economic goals and their environmental obligations (Alfred and Adam, 2009). In the same vein, the fast shifting landscape of the corporate world has elevated the significance of innovation to a level not seen before. Organizations that are capable of innovating successfully are in a better position to respond to changes, grasp new possibilities, and keep their advantage over other businesses. Despite the growing importance of both green management and innovation performance, there remains much that is unknown about the relationship between these two constructs. Although some studies have found a positive relationship between green management and innovation performance, others have reported mixed or even negative results (Molina Azorn et al., 2009). Furthermore, the mechanisms through which green management influences innovation performance are not well understood. Does green management stimulate innovation by creating a supportive organizational culture, by providing new opportunities for product and process innovation, or through some other means? And under what conditions is the impact of green management on innovation performance most pronounced? This evaluation of the relevant research will attempt to provide answers to these and other similar concerns. It is believed that shedding light on these difficulties will yield significant information for scholars and practitioners interested in utilizing green management to boost innovation performance.

This literature study was conducted with the intention of synthesizing the previous research that has been conducted on the connection between environmentally responsible management and effective innovation. In this paper, we will attempt to present a complete assessment of the current state of knowledge in this field, highlight gaps in the existing body of literature, and recommend avenues for future study. This review has three main goals: first, to understand the influence that green management practices have on innovation performance; second, to determine the elements that mediate or modify this connection; and third, to investigate the implications of these results for both theory and practice. We think that by accomplishing these goals, we will be able to contribute to the creation of a deeper and more comprehensive knowledge of the role that environmentally responsible management plays in propelling innovative performance.

1. METHODOLOGY

To conduct this evaluation of the existing research, a methodical search technique was employed. This has allowed us to compile an exhaustive and objective body of pertinent studies. The search was conducted using a variety of databases, such as Web of Science, Scopus, and Google Scholar, in order to get results that were comprehensive and representative of the academic literature on the subject. In order to narrow down the results of our search, our search method included the use of several keywords and Boolean operators. The terms "green management," "innovation performance," and "sustainability" were used most often in the research. In order to create search strings, the Boolean operators "AND" and "OR" were used to combine the aforementioned terms. One of the search terms that was utilized, for instance, was "green management" AND "innovation performance." This search term was devised

with the intention of retrieving studies that particularly study the connection between environmentally responsible management and the level of innovation achieved. In addition to performing keyword searches, citations were also tracked to locate papers pertinent to the inquiry. This required going through the reference lists of studies that emerged from the keyword search to locate additional publications potentially missed in the initial search. The search was restricted to English-language papers that have been through a peer-review process. In order to collect the most comprehensive collection of research possible on the subject, we did not place any limitations on the publishing date. Studies that did not explicitly evaluate the link between green management and innovation performance were not included in this review. Neither were studies that provided insufficient data on their methodology or conclusions. After the search was finished, the found papers were vetted based on the titles and abstracts of the research they included. After that, a full-text review was performed on the papers that had previously been determined to be eligible for inclusion. Our analysis of the research literature is based on the extraction and synthesis of the data from the studies that were included in the analysis.

To ensure that the studies included in this literature review were of high quality and relevant to the topic at hand, a list of inclusion and exclusion criteria was devised.

1.1. Inclusion Criteria

1. The research must directly analyze the link between environmentally responsible management and innovative performance in order to be relevant to the topic. Studies that focused on similar but separate subjects were excluded from this review.
2. The research must be published in a publication that allows for peer review before it can be considered legitimate. This criterion was used to guarantee that the results are both valid and rigorous from an academic standpoint.
3. The paper must be written in English and published in that language. Because of the review team's limited linguistic capability, it was imperative that this criterion be implemented.
4. Availability of the complete text: It is required that the complete text of the research be made accessible. Studies that were only accessible in the form of abstracts or summaries were not included in the evaluation since these types of documents do not give enough material for a comprehensive analysis.

1.2. Exclusion Criteria

Non-Empirical Studies: Reviews, opinion articles, editorials, and reviews of other studies, as outlined by Smedslund (1994), were not included in this category. This review primarily focused on the empirical studies that provide evidence-based insights into the connection between environmentally responsible management and innovative performance (Dan, 2017). Studies, as suggested by Mehta et al. (2018), that did not provide adequate information on their methodology or conclusions were not considered as they did not meet the inclusion criteria. This is because, according to Desurvire and Thomas (1993), the validity and reliability of the results of such studies cannot be adequately evaluated due to the limitations of the research design. Studies that focus on green management or innovation performance in isolation, without analyzing the link between the two, were not included in the analysis as suggested by Howson (1979), since they were considered to be off-topic.

When the first search was complete, the titles and abstracts of all the papers that were found were examined to evaluate whether or not they were relevant to the review's subject matter. After that, a complete text review was performed on the papers that had satisfied all of the inclusion criteria while also failing to satisfy any of the exclusion criteria. The conclusions of this review of the literature were informed, in part, by the data that was gathered, analyzed, and synthesized from this research.

The data extraction and synthesis was carried out in several stages to ensure a comprehensive and systematic analysis of the selected studies.

1.3. Data Extraction

Once the research that met the inclusion and exclusion criteria was determined, the next step of the procedure, collecting the necessary data, was embarked upon. Data was gleaned from each of the selected studies as follows:

1. The author(s) of the study and the year it was published: This information will serve as a reference for each research.
2. The goal of the research is to get an understanding of the reason for doing it.
3. The methodology refers to the understanding of how the study was carried out, which includes the research design, sample, methods of data collecting, and procedures for data analysis.
4. Identifying the primary outcomes of the research to determine the primary outcomes of the research linked to the connection between environmentally responsible management and innovative performance.
5. Concluding Remarks and Future Directions: in order to have an understanding of the wider implications of the results of the research.

In order to guarantee that the correct information was extracted from the data, the procedure was carried out separately by two members of the review team. Any inconsistencies that were found in the data that was retrieved were handled via debate and reaching an agreement.

1.4. Data Synthesis

Following the data extraction, a thematic synthesis of the results obtained from the selected studies was carried out. This involves noting any contradicting results or outliers and identifying common themes and trends throughout all of the research.

Our review goals served as a compass during the process of synthesis. To be more specific, our goal was to find answers to the following questions:

1. According to the research that has been done so far, what kind of connection does the concept of "green management" have with regards to how well an organization innovates?

Our conclusions from the literature review are based on the outcomes of this synthesis process, which provides a full and nuanced knowledge of the link between environmentally responsible management and innovative performance.

2. THEORETICAL BACKGROUND

2.1. Green Management

The practice of incorporating environmental factors into the operations and strategies of a company is referred to as "green management," also known as "environmental management" or "sustainable management" (Molina-Azorín et al., 2009). It entails making a commitment to minimizing negative effects on the environment and fostering a culture of sustainability, not just within the organization's own operations but also across the entirety of the value chain, from the company's suppliers to its end users (Alfred and Adam, 2009). Green management practices may encompass a broad variety of activities, such as decreasing waste and emissions, saving energy and water, obtaining materials sustainably, and designing goods for recyclability or biodegradability (Bernauer et al., 2006). Some examples of these types of activities are included below.

A number of different theories and models have been suggested to explain and provide direction for green management (Huang and Jim Wu, 2010). Among them, the Natural Resource-Based View (NRBV) of the firm is significant, as it expands the conventional Resource-Based View (RBV) to include natural resources as a crucial strategic asset (Armstrong and Shimizu, 2007). According to the NRBV, firms may gain a competitive edge by enhancing their competencies in the realms of environmental management and sustainable practices (Chang, 2020).

2.2. Innovation Performance

Innovation performance, defined as the degree to which a business successfully conceives and implements the introduction of new or significantly enhanced goods, services, or procedures, is a fundamental driver of competitive advantage and corporate success (Chen and Hung, 2014). This is especially critical in today's rapidly changing business environment (Bernauer et al., 2006). Specifically, it plays a significant role in business success. Performance in the realm of innovation can be assessed using a variety of metrics, such as the number of newly developed goods or patents, the rate of innovation, and the financial benefits derived from it (Farza et al., 2021).

Several theories and models have been proposed to explain and enhance innovation performance (Huang and Li, 2018). One of the most prominent models is the Open Innovation model, which posits that businesses can enhance their innovation performance by leveraging both internal and external ideas and technologies (Shu et al., 2020). This is one reason for its widespread popularity. The innovation systems theory, another commonly referenced model, underscores the importance of interactions and linkages between diverse actors (such as businesses, educational institutions, and government agencies) in fostering innovation (Hong et al., 2019).

2.3. Green Management and Innovation Performance

Research is expanding in a field that focuses on the relationship between environmentally responsible management and the ability to innovate. Some academics believe that by introducing novel obstacles and opportunities, cultivating a culture that values creativity and education, and enhancing the company's reputation as well as its connections with many stakeholders, green management may develop an environment that is conducive to innovation. This perspective is supported by theories such as the Porter Hypothesis and the Green Innovation Model (Bernauer et al., 2006). The Porter Hypothesis postulates that well-designed environmental regulations can spur innovation and competitiveness. The Green Innovation Model postulates that businesses can achieve a "double dividend" of environmental and economic benefits through green innovation. However, the nature and scope of the link between environmentally responsible management and innovative performance, in addition to the processes by which it occurs, are still issues of study that is now being conducted.

3. LITERATURE REVIEW

3.1. Green Management

The concept of green management has been extensively studied in the literature, with a focus on its definition, implementation, and impact on organizations.

3.1.1. Definition and implementation of green management

Integration of environmental concerns into the daily operations of a company as well as its overall business strategy is the definition of "green management" (Alfred and Adam, 2009). It entails making a commitment to minimizing negative effects on the environment and fostering sustainable practices at every stage of the value chain (Hallam and Contreras, 2016). Green management practices may encompass a broad variety of activities, such as decreasing waste and emissions, saving energy and water, obtaining materials in a sustainable manner, and designing goods for recyclability or biodegradability (Ma et al., 2018). Some examples of these types of activities are included below.

Changes in organizational culture and values, in addition to modifications in operational procedures and practices, are often required for successful green management adoption (Loknath and Azeem, 2017). Several studies have been conducted to investigate the elements that either help or hinder the process of implementing green management (Hong et al., 2019). Some of these factors include leadership commitment, staff involvement, regulatory pressures, consumer demand, and access to resources and skills (Hallam and Contreras, 2016).

3.1.2. Impact of green management on organizations

According to the findings of several studies, environmentally responsible management can result in a variety of positive outcomes, such as cost savings, improved operational efficiency, a strengthened reputation, and increased consumer loyalty. For example, Delmas and Toffel’s (1995) research revealed that businesses with excellent environmental management practices had lower expenses and higher profitability than their less environmentally conscious competitors (Delmas and Toffel, 2004). Even after controlling for other factors, this remained true. However, there are situations in which ecological management has a negative impact. Several studies have identified "greenwashing," which refers to the practice of making false claims about the environmental benefits of a product or service, as a potential barrier and disadvantage. This includes high implementation costs, opposition from workers or other stakeholders, and the risk of "greenwashing." Despite these challenges, the overwhelming majority of research indicates that green management has the potential to be a strategic asset for businesses, contributing to the long-term viability of the environment and the success of businesses. However,

specific outcomes may depend on a variety of company characteristics, such as its industry, size, and geographic location, as well as the type, scope, and degree of green management techniques it employs.

3.2. Innovation Performance

Innovation performance is another area that has been extensively studied in the literature, with a focus on its definition, measurement, and impact on organizational performance.

3.2.1. Definition and measurement of innovation performance

Innovation performance refers to the effectiveness of an organization in developing and implementing new or improved products, services, or processes (Shu et al., 2020). It is a multifaceted concept that can be measured in various ways. Some studies focus on output measures, such as the number of new products or patents (Huang and Li, 2018), while others focus on process measures, such as the speed of innovation or the efficiency of the innovation process (Guan and Chen, 2012).

Several factors have been identified in the literature as key drivers of innovation performance. These include the organization's internal capabilities, such as skills, knowledge, resources (Jakšič and Marinč, 2019), its external environment, such as market conditions, competition, regulations (Bernauer et al., 2006), and its innovation strategy, such as focus on incremental versus radical innovation, open versus closed innovation (Shu et al., 2020).

3.2.2. Role of innovation in organizational performance

Research has focused a lot of attention on the part that innovation plays in the overall success of organizations. The success of an organization in terms of innovation has been shown to have a positive correlation with the performance of the organization in terms of other metrics of performance, including profitability, market share, and growth. As an example, Wagner, Fillis, and Johansson (2013) conducted a research in which they came to the conclusion that innovation had a favorable association with both financial and nonfinancial success in small and medium-sized businesses (SMEs). In a similar vein, a research that was conducted by Bahadır, Bharadwaj, and Parzen (2009) found that businesses that had a high level of innovation were more likely to achieve better performance in terms of sales growth and market share. On the other hand, there is not always a clear causal link between innovation and performance. According to the findings of certain research, the effect of innovation on performance may be impacted by a variety of variables, including the kind of innovation (for example, product innovation as opposed to process innovation), the industry that the company operates in, the competitive climate, as well as the timing and management of the innovation process. In spite of these complications, the general agreement in the academic literature is that innovation is a significant driver of organizational success and a crucial source of competitive advantage in today's fast changing business environment. This is true even though innovation may present a number of challenges.

3.3. Green Management and Innovation Performance

The intersection of green management and innovation performance is a growing area of research. Several studies have explored the relationship between these two constructs and the impact of green management on innovation performance.

3.3.1. Studies exploring the relationship between green management and innovation performance

The majority of research that have investigated the connection between green management and innovative performance have shown a favorable association between the two concepts. For instance, a research conducted by Fai Pun (2006) showed that businesses that adhered to stringent environmentally responsible management procedures had a higher propensity to be creative. Similarly, Christmann (2000) conducted a research in which they discovered that environmentally friendly product innovation was favorably connected with environmental management techniques. These studies demonstrate that green management may encourage innovation by producing novel problems and possibilities, developing a culture of creativity and learning, and boosting the company's reputation as well as its interactions with other stakeholders. However, the type and extent of this connection, as well as the mechanisms through which it functions, may vary depending on a variety of circumstances. These elements include the firm's industry, size, and geographical location, as well as the quality and extent of

its green management practices. In addition, the nature and extent of this relationship can also vary depending on the mechanisms through which it operates.

3.3.2. Impact of green management on innovation performance

Examining how environmentally responsible management affects an organization's capacity for innovation has received considerable attention in the academic literature. According to a number of studies, environmentally responsible management may result in a variety of positive outcomes, the most notable of which are an increased capacity for innovation, an increase in product quality, and an increase in market performance. For example, Nguyen et al. (2016) discovered that businesses with comprehensive environmental management procedures had superior market performance and a higher propensity for innovation. Similarly, a 1997 study conducted in Florida revealed that environmentally conscious businesses had a higher rate of sales growth and profitability (Holdsworth, 1997), as well as a higher propensity to introduce new products and procedures. There is, however, no assurance that environmentally responsible management would result in enhanced innovation performance. Several studies have identified "greenwashing," which refers to the practice of making false claims about the environmental benefits of a product or service, as a potential barrier and disadvantage. These problems and drawbacks include high implementation costs, opposition from workers or other stakeholders, and the danger of "greenwashing." In spite of these obstacles, a broad agreement can be found in the academic research that green management has the potential to be a strategic advantage for firms, contributing to both the environmental sustainability and the innovative performance of such organizations. However, further study is required so that the nature and scope of this link, in addition to the processes by which it acts, may be comprehended in its entirety.

4. SYNTHESIS OF FINDINGS

The synthesis of findings from the reviewed literature reveals several key insights into the relationship between green management and innovation performance. Database filters were used to narrow down search results based on criteria such as publication date, language, document type (e.g., journal articles, conference papers, books), and subject areas. This helps us to focus on the most relevant and recent literature. The information related to this research is presented in great detail in Table 1.

Table 1. Database Filters of Web of Science

Article	Editorial Material	Early Access	Review Article
Book Chapters	Proceeding Paper	Book Review	Meeting Abstract
Letter	Book	Discussion	Data Paper

According to the results of the keyword search in the total web of science database, 11 articles were identified. Table 2 contains detailed information about these studies.

Table 2. Search Results

Title of the article	Year of the article	Authors of the article	Number of citations	Summary of the article
The effects of organizational factors on the success of green new products: Evidence from high-tech industries in Taiwan	2010	(Huang and Jim Wu, 2010)	97	This research examines the elements that determine the success of green new product development (GNPD) and its effect on financial performance. GNPD stands for "green new product development." 181 high-tech businesses in Taiwan, including those in the electrical, electronic, and information sectors, provided the information that was gathered for this study. Based on the data, it seems that a good influence on financial performance may be attributed to corporate environmental commitment, environmental benchmarking, R&D strength, and cross-functional integration. In addition to this, the performance of innovative green products has a favorable effect on the performance of the company's finances.

Collaborative green innovation in emerging countries: a social capital perspective	2012	(Chen and Hung, 2014)	80	This research delves into the impact of environmental collaboration spanning across organizational boundaries on green innovation, employing the perspective of social capital. The study utilized structural equation modeling to scrutinize the innovation outcomes of 237 Taiwanese firms, with precautions taken to reduce the effects of common method variance. The results showcase that both structural and cognitive capital exert a positive effect on relational capital, which consequently plays a pivotal part in green management and fosters increased innovation. This research implies that for the realization of efficient green innovation, corporations should utilize their social capital to acquire competitive edge via environmental collaboration.
The Moderating Role of relational bonding in green supply chain practices and performance	2017	(Li and Huang, 2017)	39	The purpose of this research is to investigate the influence that relational bonding has on the efficacy of green innovation and the function that relational bonding plays in the context of green supply chain management. This study presents relational bonding as a possible moderating element, even though earlier research has investigated the influence of green supply chain practices on the performance of green innovation. According to the results, a beneficial effect on green innovation performance may come from relational bonding as well as environmentally friendly supply chain strategies. In addition, it was shown that relational bonding moderates the association between green supply chain practices and green innovation performance. This finding suggests that the strength of this relationship might vary based on the quantity of relational bonding that exists.
How resource alignment moderates the relationship between environmental innovation strategy and green innovation performance	2018	(Huang and Li, 2018)	40	This research analyzes the impact that resource alignment plays in green supply chain management, specifically focusing on the moderating influence that resource alignment has on the connection between environmental innovation strategy and green innovation performance. Previous studies have shown the positive effects that environmental innovation may have on performance, but the function of resource alignment has not been investigated to its full potential.
The sources of green management innovation: Does the internal efficiency demand pull or does the external knowledge supply pull?	2018	(Ma et al., 2018)	41	In comparison to other types of innovation, such as technical innovation, the field of innovation in environmentally responsible management has received far less attention. The purpose of this study is to determine the characteristics that encourage creativity in environmentally responsible management and the effects that this innovation has on the performance of businesses. An operational definition of green management innovation is provided in this research based on a survey of the relevant literature, and hypotheses on the linkages between green management innovation, its antecedents, and its effects are also presented. The mining sector in China provided us with 267 complete and genuine surveys, which allowed us to gather the necessary data. According to the results, unlike technical innovation, which is driven by market pull and technology push, green management innovation is predominantly driven by external knowledge supply. This is in contrast to technological

				innovation, which is driven by market pull and technology push. The research came to an interesting conclusion in that it did not find that the need for increased internal efficiency had a major impact on the development of green management.
Green supply chain collaborative innovation, absorptive capacity, and innovation performance: Evidence from China	2019	(Hong et al., 2019)	60	This research investigates the notion of collaborative green supply chain innovation (GSCCI), which refers to the process by which businesses located throughout the supply chain work together to find solutions to issues pertaining to green management. The purpose of this article is to propose a conceptual model that may be used to comprehend the connection between GSCCI, absorptive capacity (the capability of an organization to perceive, digest, and apply new information), and innovative performance. The conceptual model was examined via the lens of multiple regression analysis in this research, which was carried out using data collected from 206 foreign trade organizations located in China. According to the findings, collaborative innovation between companies, between organizations and the government, and between organizations and institutions has a considerable favorable influence on the performance of innovation. It was discovered that absorbent capacity has a considerable favorable influence on the performance of innovation.
Corporate Sustainable Development Strategy: Effect of Green Shared Vision on Organization Members' Behavior	2020	(Chang, 2020)	20	This research investigates the notion of green shared vision (GSV) from the point of view of corporate green management using expectancy-valence theory, organizational identity theory, and psychological ownership theory. In addition to this, it investigates the influence that GSV has on the mental state and actions of front-line R&D and sales personnel. According to the data, it seems that improving a company's Organizational Citizenship Behavior for the Environment (OCBE) may occur when the company focuses on environmental concerns, develops its GSV, and then implements this vision in different elements such as product design, processing, marketing, and management. These are only few of the areas that can be affected. This, in turn, may enhance the performance of environmentally friendly management, attract environmentally conscious customers, and realize sustainable consumption objectives.
Why firms go green and how green impacts financial and innovation performance differently: An awareness-motivation-capability perspective	2020	(Shu et al., 2020)	25	This study uses the framework of awareness, motivation, and competence to analyze the ways in which firm-level variables, such as environmental scanning and organizational slack, and institutional factors, such as government backing and industry competitiveness, impact a company's decision to implement green management practices. In addition to this, it distinguishes between the effects of environmentally responsible management on financial performance and innovation performance. According to the findings of the research, environmental scanning and organizational slack both contribute to environmentally responsible management. These beneficial links are strengthened by government assistance, but the influence of environmental

				scanning on environmentally responsible management is weakened by industrial competitiveness. In addition, it was discovered that environmentally responsible management improved innovation performance more dramatically than financial performance.
How to Shape an Organization's Sustainable Green Management Performance: The Mediation Effect of Environmental Corporate Social Responsibility	2020	(Chang, Yeh, and Li, 2020)	10	In the context of Corporate Social Responsibility (CSR) addressing environmental challenges, this research presents a novel concept to investigate the influence of Green Shared Vision (GSV) on Employee Environmental Performance (EEP) and Green Product Development Performance (GPDP). Fewer studies have concentrated on the environmental elements of CSR, even though it is a prevalent issue in global corporate governance and is often used to evaluate the financial success of a business as well as its corporate image.
Does it pay to go green? The effect of environmental innovation on corporate financial performance	2021	(Farza et al., 2021)	43	Within the context of the need that the global economy has for synergy between ecological responsiveness and business models, this research investigates the link between environmentally friendly technological innovation and the financial success of businesses. The research that is being done focuses on German HDAX enterprises from 2008 to 2019 and is developing a measurement for environmentally friendly innovation. In this research, the linear link between green innovation and financial performance metrics including return on assets, return on invested capital, and the market-to-book ratio is put to the test with the use of a two-step Generalized Method of Moments (GMM) method and penalized-spline estimate.
How do enterprises achieve sustainable success in the green manufacturing era? The Impact of Organizational Environmental Identity on green competitive advantage in China	2023	(Chen and Cao, 2023)	0	The purpose of this research is to analyze how manufacturing organizations might obtain a green competitive advantage by focusing on internal motivation and identity views. Within the context of the Natural Resource-Based View, this model employs the "Resource-Capability-Competitive advantage" paradigm. The assumptions were put to the test via the use of hierarchical regression analysis and bootstrapping analysis. The data for the research came from 112 Chinese manufacturing businesses that were listed on the Shanghai Stock Exchange. According to the results, the link between an organization's environmental identity and its green competitive advantage is positively mediated by the behaviors associated with green innovation. In addition, slack resources (resources that are unused but could be used more effectively) not only positively moderate the interaction between organizational environmental identity and green product innovation behaviors, but they also moderate the mediating role of green product innovation behaviors in the main effect. This is because unused resources have the potential to be used more effectively.

4.1. Identification of Patterns, Relationships, or Trends

A clear pattern emerging from the reviewed literature is the positive relationship between green management and innovation performance. This relationship appears to be robust in a variety of contexts and settings. However, the strength and nature of this relationship can vary depending on various factors, such as the quality and extent of the firm's green management practices and the firm's industry and competitive environment.

Based on the search results, green management practices and innovation strategies are positively associated with improved financial and innovation performance. This relationship is influenced by various factors, including corporate environmental commitment, environmental benchmarking, R&D strength, cross-functional integration, and resource alignment. Green innovation is increasingly shifting towards a collaborative model. Environmental collaboration between organizational boundaries, facilitated by social capital, significantly improves innovation performance. Green Supply Chain Collaborative Innovation (GSCCI) also plays a crucial role in improving innovation performance. Relational bonding and absorptive capacity play a significant role in green management. Relationship building moderates the relationship between green supply chain practices and green innovation performance. Absorptive capacity, on the other hand, mediates the relationship between collaborative innovation and organizations and between organization-institution collaborative innovation and innovation between organizations and institutions performance. Both institutional factors (like government support and industry competition) and firm-level factors (such as environmental scanning and organizational slack) influence a firm's adoption of green management. Government support strengthens the positive relationships between these firm-level factors and green management, while industry competition attenuates the effect of environmental scanning on green management. Green innovation has a positive linear effect on various measures of financial performance, suggesting that green innovation contributes to resource efficiency and improves corporate reputation, which in turn improves financial performance. These findings collectively suggest that adopting green management practices, fostering collaborative innovation, strengthening relational bonding and absorptive capacity, and aligning institutional and firm-level factors can significantly enhance a firm's green innovation and financial performance. In addition, promoting GSV and ECSR can further improve the performance of green management and contribute to sustainable management.

4.2. Discussion of Conflicting Findings

Although most of the studies found a positive relationship between green management and innovation performance, some studies reported mixed or even negative results. These contradictory results suggest that the relationship between green management and innovation performance is complex and may be influenced by several variables. To reconcile these contradictory findings and develop a more nuanced understanding of the relationship between green management and innovation performance, additional research is required.

5. IMPLICATIONS

5.1. Practical Implications for Organizations

These literature review’s findings have a number of practical implications for organizations. First, they propose that green management is a strategic asset that contributes to both environmental sustainability and innovation performance. Organizations that invest in green management practices may be able to obtain a competitive advantage by creating innovative products, services, or processes to satisfy the rising demand for environmentally responsible options. Second, the findings emphasize the significance of a supportive organizational culture and leadership commitment in the implementation of green management practices and promotion of innovation. Organizations may need to invest in training and development to develop the necessary skills and capabilities and to foster a culture that rewards innovation and sustainability. Lastly, the findings suggest that the effect of green management on innovation performance can be influenced by a number of variables, including the firm's industry, size, and geographic location, as well as the quality and extent of its green management practices. When developing green management strategies and practices, organizations may need to consider the factors listed above.

5.2. Policy Implications

The findings may have policy implications as well. They suggest that well-designed environmental regulations can stimulate innovation and competitiveness, supporting the "green growth" theory of economic development. There may be a need for policymakers to consider how to design and implement environmental regulations in a manner that encourages firms to invest in green management and innovation. In addition, the findings emphasize the role of external factors, such as market conditions and consumer demand, in promoting green management and innovation. It may be necessary

for policymakers to consider how to foster an environment that encourages firms to employ green management practices and pursue innovation. This could include measures like providing incentives for green innovation, promoting awareness and demand for green products and services, and facilitating collaboration and knowledge sharing between businesses, research institutions, and other stakeholders.

CONCLUSION

This literature review has provided a comprehensive summary of the current state of research on the connection between green management and innovation performance. The principal findings indicate a positive correlation between the adoption of green management practices and enhanced innovation performance. However, the mechanisms through which this occurs are complex and context-dependent, including organizational culture, regulatory environment, and market dynamics. These findings are significant because of their implications for academia and industry. For academia, these findings emphasize the need for additional research to thoroughly comprehend the nature and scope of the relationship between green management and innovation performance, as well as its underlying mechanisms. Incorporating sustainability into management practices may serve as a strategic lever for businesses to increase innovation and overall organizational performance. Nevertheless, despite the advances made in this field of study, there are still many open questions. There is a need for additional research into the mechanisms of influence, the impact of contextual factors, and the potential negative results of green management. Future research in these areas could contribute to a more nuanced and holistic understanding of the role of green management in driving innovation performance. In conclusion, the state of research on green management and innovation performance is promising but is still evolving. As the importance of sustainability and innovation continues to grow in today's rapidly changing business environment, this area of research is likely to become increasingly relevant and impactful. Insights and advancements are eagerly anticipated from future research.

Although the expanding corpus of research on green management and innovation performance, several research gaps remain. These voids present opportunities for future research to contribute to our comprehension of this crucial topic. Future research could, for instance, investigate the role of organizational culture in fostering green management practices and innovation. In addition, research could investigate the effect of government policies and regulations on the adoption of green practices by businesses and the innovation outcomes that result from this adoption. While a substantial quantity of research has already been conducted on green management and innovation performance, there are still several areas that require additional study. Future research can progress our comprehension of how businesses can effectively promote sustainable practices and spur innovation in this crucial area by examining the impact of organizational culture and government policies and regulations. Ultimately, the feedback underscores the need for additional research in the fields of green management and innovation performance. By investigating the role of organizational culture and government policies and regulations, valuable insights into how businesses can promote sustainable practices and foster innovation can be yielded. The conclusion emphasizes the significance of advancing our comprehension of this topic to facilitate more efficient and sustainable business practices.

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Yazar Katkı Beyanı*:1. yazarın katkı oranı %70, 2. yazarın katkı oranı ise %30'dir.*
Çıkar Beyanı*: Yazarlar arasında çıkar çatışması yoktur.*

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