economies

Article

Management of Green Competitive Advantage: A Systematic Literature Review and Research Agenda

Rista Bintara [1,2,*], Winwin Yadiati [1], Muhammad Wahyudin Zarkasyi [1] and Nanny Dewi Tanzil [1]

[1] Faculty Economics and Business, Padjadjaran University, Bandung 45363, Indonesia
[2] Faculty Economics and Business, Mercu Buana University, Jakarta 11650, Indonesia
* Correspondence: rista21001@mail.unpad.ac.id

Abstract: The success or failure of a company is acquired from a competition, which requires a specific strategy to achieve competitive goals and benefits. One of these strategies is green competitive advantage (GCA) management, initially introduced in 2011, which is highly considered and identified as a management concept. Therefore, this study aims to evaluate a systematic review of GCA management. It emphasizes the analysis of trending literature, geography, and other factors influencing GCA. It also prioritizes the impact obtained when adopting GCA as a framework to support organizational sustainability. This study is the first literature review that presents GCA management. The results show that the application of green innovation and high environmental awareness led to the development of improved performance, a better competitive advantage, and sustainable business. This study highlights significant theoretical and practical contributions. From a theoretical perspective, it allows one to synthesize GCA outcomes to describe better how it affects organizations and the environment. From a practical perspective, it provides concrete implications for policymakers in defining the best mechanism for developing green innovation to achieve competitive advantage and business sustainability. Meanwhile, the actual outputs of this process are emphasized for practitioners, which subsequently enables easier access and increased GCA literacy for practitioners and stakeholders to encourage the selection of organizational GCs (green changes), especially concerning the role of GCA as a promotional and sustainable business framework.

Keywords: green competitive advantage; literature review; green innovation; sustainability

Citation: Bintara, Rista, Winwin Yadiati, Muhammad Wahyudin Zarkasyi, and Nanny Dewi Tanzil. 2023. Management of Green Competitive Advantage: A Systematic Literature Review and Research Agenda. *Economies* 11: 66. https://doi.org/10.3390/economies11020066

Academic Editors: Gheorghe H. Popescu, Tapas Mishra and Mamata Parhi

Received: 30 November 2022
Revised: 3 February 2023
Accepted: 6 February 2023
Published: 15 February 2023

1. Introduction

The emergence of various environmental governing regulations causes the lack of identification of several problematic conditions, especially for organizations having the potential to threaten ecological sustainability (Astuti and Datrini 2021). Using many natural resources, rapid worldwide industrial development causes serious environmental damage, leading to a decrease and increase in ecological quality and global warming, respectively. In this context, the impact of worldwide environmental conventions also changes the perspective of global industrial competition. These conventions include the following: (1) The Montreal Convention, (2) The Kyoto Protocol, (3) specific hazardous material restrictions, and (4) consumer environmentalism elevation (Chen 2011). However, many companies stated that organizational environmental management was an unimportant ineffective investment due to the inadequate understanding of the process as an essential development mechanism. According to some environmental reports, the occurrence of pollution emphasizes inefficient use of resources. In this case, companies seeking the adoption of environmental management (green innovation) have a significant advantage, indicating the enjoyment of more benefits toward the enhancement and development of green image and new markets (Chen 2008; Porter and Van der Linde 1995). Based on these results, environmental management was observed as one of the essential areas for corporate administration in the 21st Century (Chen and Chang 2013). This emphasizes

a company's willingness to futuristically possess a green competitive advantage and sustainable business.

Based on sustainable development, corporate responsibility prioritizes the single bottom line (SBL), namely, the company's value only reflected in economic conditions. This responsibility also focuses more on triple bottom lines (TBL), indicating that the values are reflected in economic, social, and environmental conditions. This prioritization is only due to the financial condition's inadequacy to ensure the sustainable development of the company's value. The TBL concept was also established by John Elkington in his book, "*Cannibals with Forks: the Triple Bottom Line of 21st Century Business*", where three important components of sustainable development were observed, namely (1) economic growth, (2) environmental protection, and (3) social equity. During subsequent development, this concept was reduced to the 3Ps, namely profit, planet, and people. In the financial sector, the actualization of the TBL, especially for the environment, only occurred when all market actors (stakeholders) played appropriate and consistent roles in achieving sustainable development (Nugroho et al. 2017). To obtain a green competitive advantage (GCA), the maintenance of environmental management is then observed as an effort toward business sustainability (Chen 2008). Some environmental factors have also been observed to develop competitive advantages, such as product innovation and a green reputation. These are subsequently used to meet stakeholder expectations regarding environmental issues (Benevene et al. 2021).

Green competitive advantage (GCA) was first introduced by Chen (2011) by exploring competitive advantage with green innovation or environmental management. Based on Chen (2011), the definition of GCA is a condition where a company occupies several positions regarding environmental management or green innovation. In this context, the organization's competitors are often unable to imitate the adopted environmental strategy, which leads to the achievement of sustainable goals and benefits. From this definition, it is clear that GCA is an essential thing that a company must achieve through various resources owned to improve performance better than competitors. Research conducted by Chen (2011), with the experimental object being Taiwanese SME manufacturing companies, showed that environmental, organizational culture and leadership, as well as green organizational identity, increased GCA. Other research explores the relationship between green intellectual capital and green competitive advantage by focusing on the construct of green innovation and environmental protection. Based on the results, green human, structure, and relational capital had valuable relationships with GCA (Nivlouei and Khass 2014). Furthermore, there are differences in research results that explore the relationship between green human capital, eco-innovation, and GCA. These results indicate that green human capital and eco-innovation increased GCA (Astuti and Datrini 2021; Nivlouei and Khass 2014; Widiyati and Murwaningsari 2021), although they did not have positive and significant effects, respectively (Kuo et al. 2021; Lastanti and Augustine 2022). These differences are futuristically interesting for subsequent analysis to provide literacy and additional confirmation for the improvement of the GCA concept.

Although interest in GCA has been a significant uprising trend in recent years, there has not been a literature review focusing on green competitive advantage. Hence, it is the objective of the present study to fill in this research gap and provide a comprehensive discussion of green competitive advantage using a systematic literature review (SLR). SLR is a strategy used to evaluate the important parts of the literature for a specific field. SLR may assist the study's aims by pointing out the studies of interest with similar scopes, appraising them fundamentally in their techniques and putting them together in a measurable format when it can make a contribution. A total of 25 relevant articles published from 2011 to 2022 were located for the systematic literature review in order to compile the most recent research on green competitive advantage. Therefore, this study aims to propose GCA as a framework for evaluating and promoting organizational sustainability using a systematic literature review process. In this context, a systematic literature review (SLR) is specifically conducted to answer the following research questions:

RQ1: What are the increasing trends and geographic analysis on GCA?
RQ2: What factors are able to increase GCA?
RQ3: What are the results for the organization when GCA is adopted?

The results show that the application of green innovation and high environmental awareness lead to the development of improved performance, a better competitive advantage, and sustainable business. This study highlights significant theoretical and practical contributions. From a theoretical perspective, it allows one to synthesize GCA outcomes to better describe how they affect organizations and the environment. From a practical perspective, it provides concrete implications for policymakers in defining the best mechanism for developing green innovation to achieve competitive advantage and business sustainability. Meanwhile, the actual outputs of this process are emphasized for practitioners, which subsequently enable easier access and increased GCA literacy for practitioners and stakeholders to encourage the selection of organizational GCs (green changes), especially concerning the role of GCA as a promotional and sustainable business framework.

This paper is structured as follows: Section 2 describes the literature review. Section 3 describes the research methodology, while Section 4 highlights the findings and discussions. Section 5 presents the study's conclusions and contributions. Finally, in the last section, we set out the limitations and future research agenda.

2. Literature Review

2.1. Resource-Based View (RBV) Theory

A resource-based view (RBV) is a managerial framework for determining organizational strategic resources to achieve a sustainable competitive advantage (Barney 1991; Ghozali 2020). This advantage highlights the merits of knowledge or an economy reliant on organizational assets, such as strategic resources. RBV was also initially pioneered by Penrose in 1959, where company resources were heterogeneous, with the available productive services originating from unique organizational assets (Kor and Mahoney 2004). This theory emphasizes internal organizational resources to identify the company assets, capabilities, and competencies with competitive advantage potential (Barney 1991).

A company is likely to have a competitive advantage regarding different strategy performances and possession of superior competitive resources. These resources need to be used as a source of sustainable advantage due to being valuable, rare, irreplaceable, and competitively inimitable (Barney 1991). They are also divided into three categories, namely tangible and intangible resources and human resource capabilities (Fahy and Smithee 1999). In this context, the capabilities emphasize the performance options of a company, using available organizational resources. In addition, the RBV approach states that the company achieves sustainable competitive advantage and obtains superior profits by controlling strategic tangible and intangible assets (Fahy and Smithee 1999).

2.2. Green Competitive Advantage (GCA)

The success or failure of a company is acquired from competition (Porter 1985), which requires a specific strategy to achieve competitive goals and benefits. This strategy prioritizes the achievement of success over the business competition with various competitors. Furthermore, a competitive advantage emphasizes the condition where a company's competitors are unable to imitate the ambitious strategy utilized for the achievement of goals and benefits (Barney 1991; Coyne 1986). This advantage is the primary source of a company's capabilities (Barney 1991), with environmental and social responsibility being a significant capability providing adequate organizational sustainability (Hart 1995). Therefore, environmental management is an essential element of corporate strategy, which should be considered a speciality regarding the RBV perspective (Hart 1995).

Based on Chen (2011), competitive advantage was explored with green innovation or environmental management, namely GCA (green competitive advantage) (Hart 1995; Husted and De Jesus Salazar 2006). This led to the definition of GCA as a condition where a company occupies several positions regarding environmental management or green

innovation. In this context, the organization's competitors are often unable to imitate the adopted environmental strategy, which leads to the achievement of sustainable goals and benefits (Chen 2011). The GCA measurement also uses eight items, namely (1) the company has a low-cost competitive advantage regarding environmental management or green innovation, compared to its main competitors, (2) the quality of the environmentally friendly products or services provided is better than those of its counterparts, (3) the company has better abilities to carry out R&D environment and green innovation than its main competitors, (4) the company has adequate abilities to manage the environment compared to its counterparts, (5) the company's profitability is better regarding the environmentally friendly products or services, (6) the company's development exceeds that of its competitors based on the environmentally friendly products or services, (7) the main competitors are unable to easily imitate eco-friendly products or services, and (8) the competitors are unable to easily replace their distinctive position on environmental stewardship or green innovation (Barney 1991; Husted and De Jesus Salazar 2006; Porter and Van der Linde 1995).

According to Chen and Chang (2013), a new construct was proposed to measure GCA using 8 to 11 items. The proposition of these three items is as follows: (1) the company is the initiator and occupant in several essential areas regarding green products or services, (2) the company's environmental image is better than that of its main competitors, and (3) the competitors are unable to easily imitate the ideas of the company environmental ideas. Based on this theory, several previous reports were used as references for this present literature review. This is due to the belief that GCA is capable of achieving sustainable business processes for various organizations. The results obtained are expected to ensure the development of improved organizational performance, a better competitive advantage, and a sustainable business.

3. Methodology

In this systematic literature review, a method emphasizing the four stages of determination was used, namely journal selection, time horizon, article selection, and analysis (Halim 2010).

3.1. Journal Selection

This was carried out through the following primary sources, SCOPUS, Web of Science, and Google Scholar. In this context, the main reason SCOPUS and Web of Science were selected as the document search bases was that they have the largest peer-reviewed literature database in the world. These websites have the advantage of easy document search compared to other document indexing sites (Burnham 2006). The second reason is that they have article collections with high-quality standards, which means they are effective at finding the most relevant results. In addition, Google Scholar was used to determine other GCA-related articles not indexed by SCOPUS and Web of Science.

3.2. Time Horizon

The utilized time horizon included all publications indexed from the beginning of green competitive advantage publication (Chen 2011), from 2011 to April 2022. This period was chosen because GCA was introduced and published for the first time by Chen in 2011. To learn more about trends and geographic analysis on GCA, the period up to 2022 was chosen in this study.

3.3. Article Selection

Based on the PRISMA workflow (Figure 1), the data collection process contained four steps.

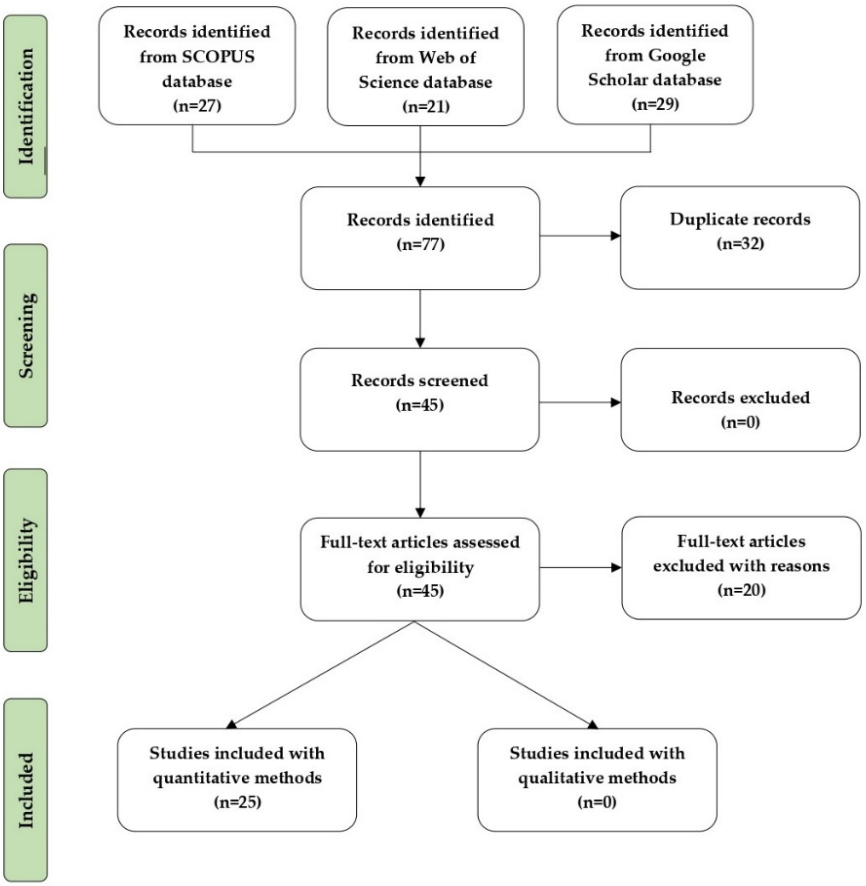

Figure 1. Article Selection Workflow.

Step 1 emphasizes identification, which is the use of a paper search in the SCOPUS, Web of Science, and Google Scholar databases, where the maintenance of various document sources is observed. In this process, the selection of keywords needs to be conducted to obtain relevant documents. This should be accompanied by filtering, which is often carried out through the observation of documents with specific criteria. These criteria commonly include document, author, and affiliation categories, with multiple varied and combined options used to easily search for specific alternatives. Regarding this analysis, the search process was performed by inputting the desired general keywords to determine the data emphasizing green competitive advantage. The keywords used were obtained from the title, and the keywords fields are {Green Competitive} AND {Competitive Advantage}. Papers written in the English language were also selected for use according to the search criteria. The inclusion and exclusion criteria set limited the type of journal articles to obtain documents that have been through a strict peer-review process compared to other document types (Table 1). We chose to derive data from the SCOPUS and Web of Science databases, which are known for their comprehensive coverage and the quality of the selected articles. Meanwhile, Google Scholar was used to determine other GCA-related articles not indexed by SCOPUS and Web of Science. When the eligibility criteria were met, the abstracts were then assessed for potential inclusion in the systematic review.

Table 1. Inclusion and exclusion criteria.

Inclusion Criteria	Exclusion Criteria
Article discussing GCA	Article not discussing GCA
Documents type: peer-reviewed journal articles	Conference proceedings, book chapters, etc.
Type of study: empirical	Review, conceptual paper, theoretical paper
Language: English	Non-English language

Step 2 prioritizes screening, which is the independent collection and review of all the selected documental references, with the duplicate papers subsequently removed. This was accompanied by Step 3, which focuses on eligibility, where the final list of eligible papers was identified. Since the selected database enabled the pre-selection of full-text availability, year, and publication language, this manual procedure mainly considered keywords and paper content. This indicated that the papers with non-empirical and unrelated contents were omitted. Meanwhile, Step 4 emphasizes inclusion, where the selection process enables the identification of papers in the review. Twenty documents were excluded for not matching and not being relevant to the investigated topic (Appendix A Table A1). Based on these descriptions, a total of 25, 9, 11, and 5 papers were obtained according to the research topic, SCOPUS, Web of Science, and Google Scholar, respectively.

3.4. Analysis

Recapitulation was carried out on several selected literature reviews to determine the scientific trends of GCA. These reviews were sourced from the publications indexed by SCOPUS, Web of Science, and Google Scholar. The selected publications were then carefully read and categorized according to topic relevance. Data analysis also contained the following four steps: (1) describing the chronological distribution of the publications, (2) analyzing the characteristics of the involved participants and organizations, and (3) evaluating the content of the publications according to the study question. In this process, the first two steps did not directly address the study question, although they provided the necessary context to interpret and identify GCA results and gaps. Based on Steps 1 and 2, data analysis utilized a descriptive evaluation between countries, as well as the participant and organizational characteristics, respectively. Meanwhile, the analysis prioritized an in-depth review of GCA in Step 3. Table 2 shows the study characteristics, participants, and GCA constructs for each selected publication.

Table 2. Paper, Study, and GCA construct characteristics in the selected papers.

Authors, Year	Countries and Regions	Publisher	Type of Organization	Number of Participants	GCA Construct
Chen (2011)	Taiwan	Emerald	SMEs Manufacturing Companies	138 CEO	Environmental Organizational Culture, Environmental Leadership, and Green Organizational Identity
Junquera et al. (2012)	Spain	Elsevier	Manufacturing Companies	110 Companies	Environmental Manufacturer–Client Cooperation
Chen and Chang (2013)	Taiwan	Springer	Manufacturing Companies	152 CEO	Environmental Commitment and Green Intangible Assets
Li (2014)	China	Omnie Science	Automotive Companies	24 Managers	Environment, Resource, Capability, and Knowledge
Nivlouei and Khass (2014)	Iran	Priyanka Research	Manufacturing Companies	90 Managers	Green Human Capital, Green Structure Capital, and Green Relational Capital
Lin and Chen (2017)	Taiwan	Springer	Manufacturing Companies	390 Employees	Green Knowledge Sharing, Green Service Innovation, and Green Dynamics Capabilities
Duffett et al. (2018)	South Africa	MDPI	Small, Medium, and Micro Enterprises (SMME)	237 Employees	Green Marketing Tools

Table 2. *Cont.*

Authors, Year	Countries and Regions	Publisher	Type of Organization	Number of Participants	GCA Construct
Lin et al. (2020)	Taiwan	MDPI	Manufacturing Companies	560 Employees	Green Market Orientation, Green Supply Chain Relationship Quality, and Green Absorptive Capacity
Zameer et al. (2020)	China	Elsevier	Manufacturing Companies	320 Managers	Green Creativity, Green Production, and Green Brand Image
Nuryanto et al. (2020)	Indonesia	Primrose HPG	Manufacturing Companies	177 Managers	Core Competence
Fatoki (2021)	South Africa	MDPI	Hotel Industry	190 Managers	Green Innovation, Internal Environmental Orientation, and External Environmental Orientation
Zameer et al. (2021)	China	Elsevier	Equipment Manufacturing Companies	294 Employees	Green Process Innovation and Environmental Orientation
Alam and Islam (2021)	Bangladesh	Springer Open	Apparel Firm in Bangladesh	268 Employees	E-Philanthropy, E-Community Involvement, E-Customer Wellbeing, and Green Corporate Image
Astuti and Datrini (2021)	Indonesia	Growing Science	Medium Manufacturing in Bali	72 CEO	Green Human Capital, Green Structural Capital, and Green Relational Capital
Widiyati and Murwaningsari (2021)	Indonesia	Ijosmas	Indonesian State-Owned Companies	169 Managers	Organizational Green Culture, Business Analytics, Collaborative Competence, and Eco-Innovation
Muisyo et al. (2021)	China	Springer Nature	Manufacturing Companies	372 Employees	Green Human Resource Management (GHRM)
Kuo et al. (2021)	Taiwan	Taylor & Francis	Hotel Industry	366 Employee	Eco-Innovation and Green Core Competence
Cao et al. (2022)	China	Emerald	Manufacturing Companies	370 Managers	Environmental Awareness and Green Ambidexterity Innovation
Zameer et al. (2022)	China	Emerald	Manufacturing Companies	388 Managers	Business Analytics, Environmental Orientation, and Green Innovation
Muisyo et al. (2022a)	China	Emerald	Manufacturing Companies	324 Employee	Green Abilities, Green Motivation, Green Opportunities, and Green Innovation Culture
Chen et al. (2022)	China	Hindawi Ltd.	Manufacturing Companies	341 Managers	Green Organizational Identity, Green Exploitative Innovation, and Green Exploratory Innovation
Chen (2022)	Taiwan	Premier Publishing	Manufacturing Companies	32 Managers	Corporate Green Strategy, Corporate Green Assets, and Corporate Green Technology
Muisyo et al. (2022b)	Malaysia	Emerald	Manufacturing Companies	96 Employees	Green Human Resource Management and Enablers of Green Culture

Table 2. *Cont.*

Authors, Year	Countries and Regions	Publisher	Type of Organization	Number of Participants	GCA Construct
Nuryakin and Maryati (2022)	Indonesia	Taylor & Francis	Batik SME's	223 Managers	Green Marketing Orientation, Green Innovation
Lastanti and Augustine (2022)	Indonesia	Trisakti	Not Declared	94 Managers	Green Intellectual Capital, Green Human Capital, Green Structural Capital, and Green Relational Capital

Note: GCA: Green Competitive Advantage, SMMEs: Small, Medium, and Micro Enterprises, SMEs: Small-Medium Enterprises.

4. Discussion and Results

Based on the analytical steps, the results are presented below and divided according to the three features utilized in this report, namely the year, characteristics, and an in-depth review, specifically those emphasizing GCA and its outputs.

4.1. Chronological Distribution of the Papers

In the chronological distribution of publications, an increasing trend was observed from 2011 to April 2022 (Figure 2).

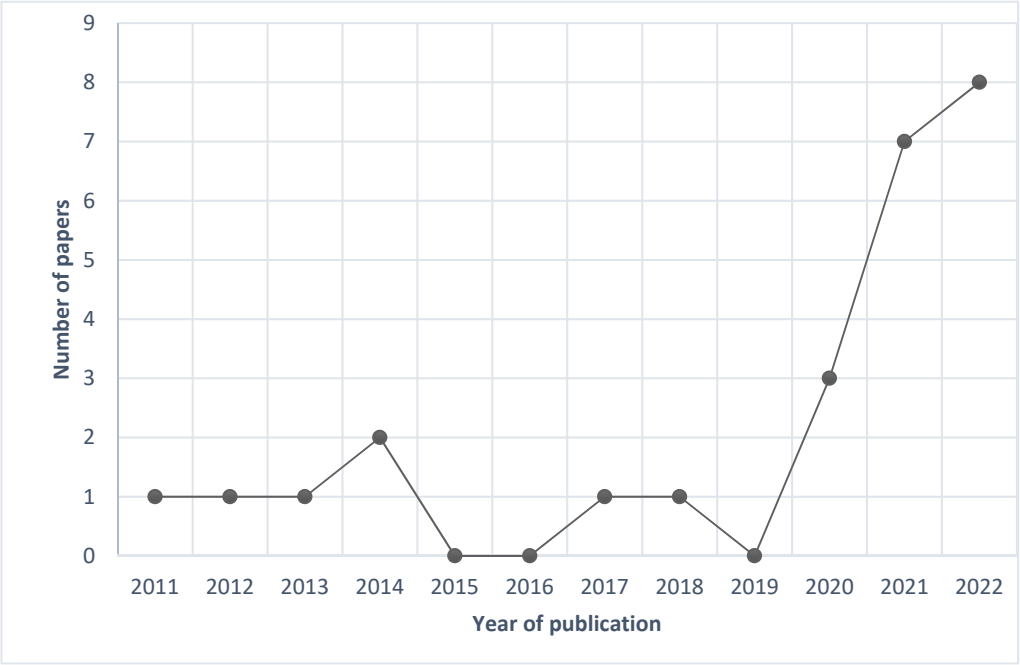

Figure 2. Chronological distribution of papers.

Since Chen (2011), only a few years have been observed for several scholars to become acquainted with this new concept. This showed an increasing trend of GCA analysis in 2011, 2012, 2013, 2017, and 2018, with one publication each. Moreover, two, three, seven, and eight publications were observed in 2014, 2020, 2021, and 2022, respectively. In this case, the analytical data for 2022 were only obtained until the first quarter of the year, with the most significant number of reports subsequently compared to previous years. This confirmed that more scholars were continuously interested in evaluating GCA as a framework for promoting organizational sustainability.

4.2. Studies Characteristics

In this report, three characteristics were analyzed, namely (1) the country responsible for data collection, (2) the organizational field used in the study, and (3) the type of employees involved in each organization. Based on the country of data collection (Figure 3a), the highest order was occupied by China (eight papers), accompanied by Taiwan, Indonesia, and South Africa, with six, five, and two publications, respectively. However, the last four countries only have one publication each, namely Malaysia, Spain, Iran and Bangladesh.

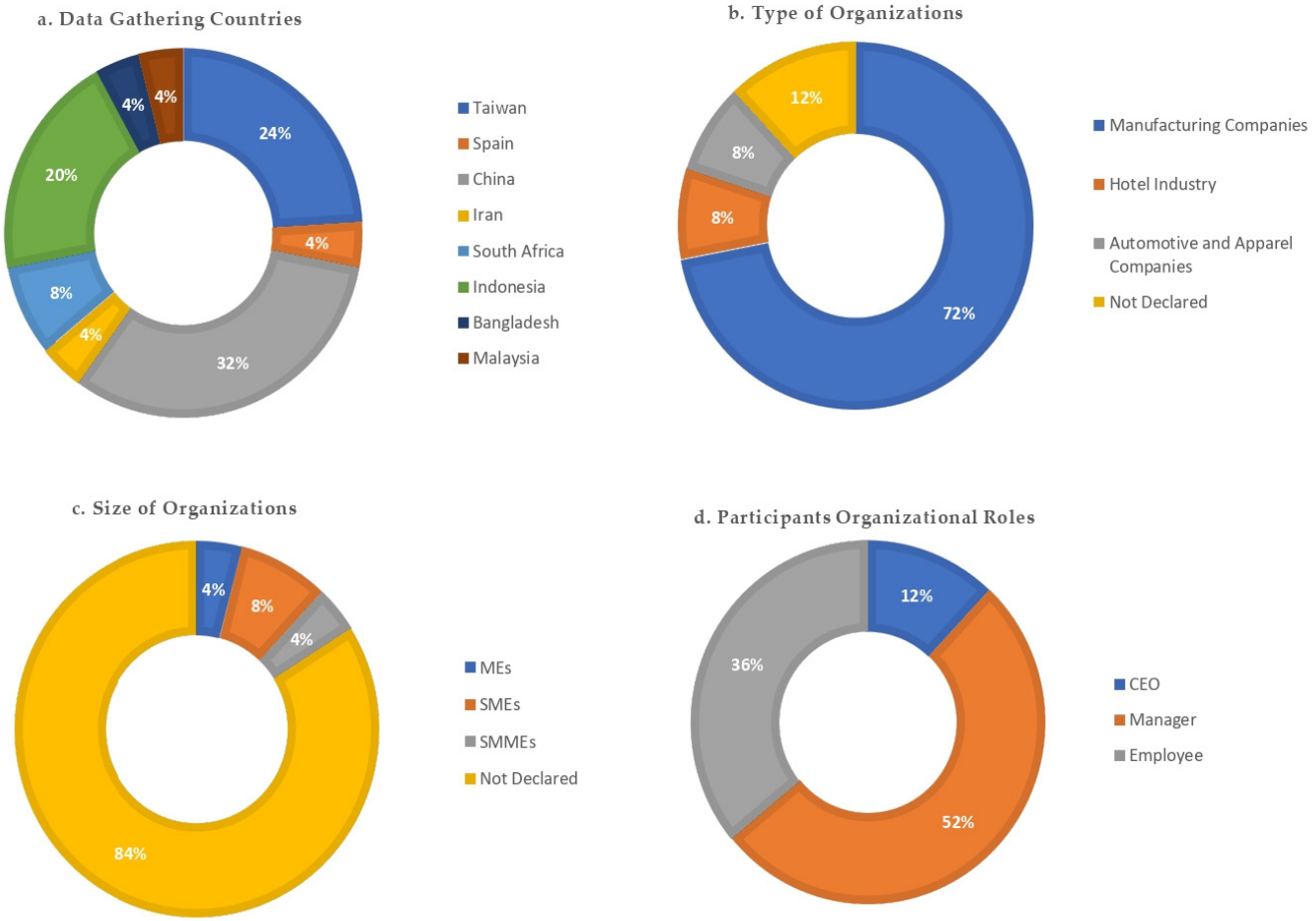

Figure 3. Studies' characteristics. (**a**) Data collection countries, (**b**) type of organizations, (**c**) size of organizations, and (**d**) participants' organizational roles. MEs = Medium Enterprises; SMEs = Small and Medium Enterprises; and SMMEs = Small, Medium, and Micro Enterprises.

According to the involved organizational areas (Figure 3b), 72% (N = 18) of the companies were manufacturers, with 8% each observed in the hotel (N = 2) and automotive (N = 2) industries. Meanwhile, the remaining three publications did not specify the field of the organization. This indicated that one publication was conducted in South Africa on small, medium, and micro Enterprises (Duffett et al. 2018), with the other two performed in Indonesia on Indonesian state-owned companies (Widiyati and Murwaningsari 2021) and an unknown firm (Lastanti and Augustine 2022), respectively. From Figure 3c, only 4 of the 25 publications provided information on the size of the participants' organizations. This indicated that one, two, and one publications emphasized MEs, SMEs, and SMMEs, respectively. However, the remaining 84% of papers (N = 21) did not specifically highlight the sample size. Most of these studies were also conducted in manufacturing industries and developing countries.

The final characteristic emphasized the types of employees selected as participants during the collection of data (Figure 3d). This showed that the analyzed publications only

involved CEOs (N = 3), managers (N = 13), and employees (N = 9), which provided the best information about their organization's environmental policies.

4.3. In-Depth Review

An in-depth review was conducted to obtain an understanding of GCA to answer the research questions. This review included five sections, namely (1) green innovation and GCA, (2) green intellectual capital and GCA, (3) GCA and sustainability, (4) GCA construct, and (5) further research opportunities.

4.3.1. Green Innovation and GCA

GCA is the exploration of competitive advantage through the implementation of green innovation or environmental management. According to the resource-based view (RBV), environmental and social responsibility is a resource or capability leading to a sustainable competitive advantage (Hart 1995). This indicates that environmental orientation substantially affects corporate green practice behavior as a strategic capability. In this process, the necessary resources and capabilities were promoted for the adoption of green practices. These results caused sustainable economic and environmental performance, ultimately leading to a feasible competitive advantage (Zameer et al. 2022).

Many companies often misunderstand and consider corporate environmental management an unnecessary and ineffective investment, which is quite harmful to organizational development (Chen 2011). However, some studies state that pollution only occurred due to the inefficient use of resources. In this case, the companies seeking to carry out environmental management had significant advantages, which led to higher benefits from green products. They also enhanced green images and developed new markets to obtain a competitive advantage (Chen 2008; Porter and Van der Linde 1995).

Based on this present review, extreme attention was devoted to the manufacturing industry due to several reasons. Firstly, the industrial sector is considered one of the main actors responsible for the environmental issues impacting sustainability. Secondly, the pressure exerted by consumers, stakeholders, and various regulations has forced the manufacturing industry to punctually switch to a green approach over other business sectors. Regarding the results, the orientation of the company described its business responsibility to the environment. This emphasized the importance of recognizing and minimizing the effects of companies on the environment. Subsequently, the application of green innovation or environmental management in different organizations ultimately and critically caused a sustainable competitive advantage. This proved that GCA is a win–win solution for the conflicts originating between environmental management and organizational and economic sustainability.

4.3.2. Green Intellectual Capital (GIC) and GCA

Intellectual capital contributes to value development through competitive advantage due to being an organizational intangible asset (Astuti and Datrini 2021). It is also an exploration of intellectual capital or intangible assets through the implementation of innovation or environmental management. GIC was initially introduced by Chen (2008) and classified into GHC (green human capital), GSC (green structural capital), and GRC (green relational capital). In this context, the organization's high-performing environmental and intangible asset activities were able to achieve a green competitive advantage. This was because of their commitment to environmental issues and investment in GIC (Chen and Chang 2013).

Based on the results, the interaction between the organization and the environment needs to be addressed to achieve a competitive advantage. In the environmental era, companies should also have good environmental knowledge to adopt environmental strategies. This indicates that the competitive advantage of an organization is obtained from environmentally friendly human resources. Moreover, the environmental knowledge inherent in individuals often plays an essential role for companies, specifically in developing green innovation and management. This proves that the business strategy and competitive ad-

vantage of a company depends on its ability to facilitate environmentally-friendly economic activities. In this process, the strategic focus of an organization should be consistent with environmental standards, subsequently transforming potential threats into competitive advantages (Chen 2022). GIC is also a valuable asset for business organizations, which is used as a resource to obtain a competitive advantage. This intangible asset is divided into three essential classifications, namely GHC, GSC, and GRC. GHC emphasizes the knowledge, ability, and employee commitment to environmental protection. GSC also prioritizes commitment, capability, culture, image, organizational management system, and other factors related to organizational green innovation. However, GRC is an interactive relationship between the organization and external parties, including the customers, suppliers, and partners of organizational environmental management. Using GIC, the companies considering environmental issues achieved green competitive advantage, subsequently causing the development of organization sustainability. This was in line with the basic assumption of RBV theory, where many companies had different tangible and intangible resources capable of being converted into unique capabilities, such as competitive advantage.

4.3.3. GCA and Sustainability

Sustainability is often achieved when a business meets needs and wants without harming the environment (Duffett et al. 2018). Based on sustainable development, corporate responsibility prioritizes the single bottom line (SBL), which shows that the value of the company is only reflected in economic conditions. Subsequently, this responsibility highly emphasizes the triple bottom line (TBL), indicating that the values are reflected in economic, social, and environmental conditions. This prioritization only focuses on the inadequacy of the financial condition to ensure the sustainable development of the company's value. The TBL concept was also established by John Elkington in the book, "*Cannibals with Forks: the Triple Bottom Line of 21st Century Business*". In this publication, three important components of sustainable development were observed, namely (1) economic growth, (2) environmental protection, and (3) social equity. During subsequent development, this concept was reduced to the 3Ps, namely profit, planet, and people. In the financial sector, the actualization of TBL only occurs when all market actors (stakeholders) play appropriate and consistent roles in achieving sustainable development (Nugroho et al. 2017). To obtain GCA, the maintenance of environmental management is observed as an effort toward business sustainability (Chen 2008). Some factors are also observed to develop GCA, such as product innovation and green reputation, which are subsequently used to meet stakeholder expectations of environmental issues (Benevene et al. 2021).

Based on these results, a positive relationship was observed between GCA and sustainability. This proved that the companies implementing green innovation and environmental concern caused an improvement in performance and better competitive advantage, as well as developed a sustainable business. Since a sustainable company emphasizes the reduction of adverse ecological and social impacts, future generations need to have sufficient resources to meet their desires and succeed in the long term (Widiyati and Murwaningsari 2021). The results also showed that the manufacturing industry was the primary sector responsible for the environmental issues influencing sustainability. To carry out production activities toward the achievement of sustainability, the commitment of the manufacturing industry to environmental management is required using the TBL concept, namely profit, planet, and people.

4.3.4. GCA Construct

According to the analytical results, a total of 25 papers used 52 variables (Table 3). These were deliberately presented as references for the provision of insights to related scholars and practitioners. Further analysis was also carried out to analyze research clusters using Vosviewer 1.6.18 (Figure 4). These clusters reflect the lines or strands of research pursued by the papers analyzed.

- Cluster 1 (Red): Green Innovation or Environmental Management.
- Cluster 2 (Green): Green Intellectual Capital or Green Intangible Asset.

In the network visualization, items (keywords in our case) are represented by their label and, by default, a circle. The size of the label and the circle of an item is determined by the weight of the item. The higher the weight of an item, the larger the label and the circle of the keyword. The color of an item is determined by the cluster to which the item belongs.

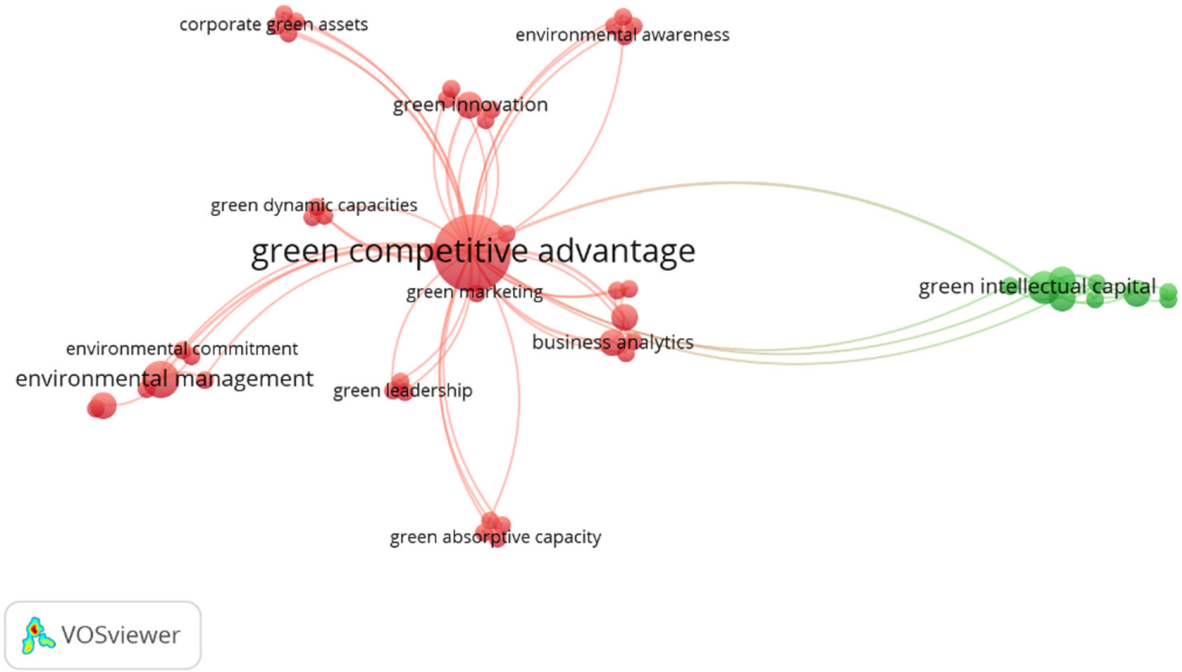

Figure 4. Network visualization.

Based on the definition of GCA, the most influential factors prioritized green innovation. These factors were subsequently categorized into two groups, namely (1) green innovation or environmental management variables and (2) variables emphasizing green innovation on intangible assets. There are 47 variables as the GCA construct for the green innovation or environmental management variables. Meanwhile, five variables emphasizing green innovation on intangible assets included (1) green intangible assets, (2) green human capital, (3) green structure capital, (4) green relational capital, and (5) green intellectual capital.

Table 3. GCA construct and study description.

	Construct	Study Description
1	Environmental Organizational Culture and Environmental Leadership, GOI (Green Organizational Identity)	This study initially introduced the definition and construction of GCA, with the experimental object being Taiwanese SME manufacturing companies. The results showed that environmental organizational culture and leadership, as well as GOI (green organizational identity), increased GCA (Chen 2011).
2	Environmental Manufacturer-Client Cooperation	This study analyzed the extent to which client involvement increased company performance in environmental issues. Environmental manufacturer–client cooperation also positively affected GCA, leading to the provision of opportunities for international market entries (Junquera et al. 2012).
3	Environmental Commitment and Green Intangible Assets	A new GCA construct was added and applied to the analysis of Taiwanese manufacturing companies. The results showed that environmental commitment and green intangible assets play major roles in business and GCA development (Chen and Chang 2013).

Table 3. *Cont.*

	Construct	Study Description
4	Environment, Resource, Capability, and Knowledge	This report had pragmatic implications due to using a practical method for measuring GCA in automotive companies, using four dimensions, namely environment, resource, capability, and knowledge. The results indicated that these dimensions increased the competitiveness of Chinese automotive companies (Li 2014).
5	Green Human Capital, Green Structure Capital, and Green Relational Capital	This report explored the relationship between green intellectual capital and competitive advantage by focusing on the construct of green innovation and environmental protection. Based on the results, green human, structure, and relational capital had valuable relationships with GCA (Nivlouei and Khass 2014).
6	Green Knowledge Sharing, Green Service Innovation, and Green Dynamics Capabilities	This study investigated the relationship between green knowledge sharing, service innovation, and dynamic capabilities with GCA. It also proved that these constructs had positive and increasing relationships with GCA (Lin and Chen 2017).
7	Green Marketing Tools	This report emphasized GCA from a multi-dimensional perspective and investigated the impact of green marketing tools on it within South African SMMEs. The results found that green marketing tools positively influenced increasing GCA (Duffett et al. 2018).
8	Green Market Orientation, Green Supply Chain Relationship Quality, and Green Absorptive Capacity	This examines the effect of green market orientation (GMO), supply chain relationship quality (GRQ), and absorptive capacity (GAC) on GCA. Based on the results, GMOs did not directly affect GCA, although they had a significant influence due to the intervention of GRO and GAC. Meanwhile, GRQ and GAC positively and did not affect GCA, respectively (Lin et al. 2020).
9	Green Creativity, Green Production, and Green Brand Image	This study explored the factors strengthening GCA, namely green creativity, production, and brand image, in Chinese manufacturing companies. The results confirmed that all the factors directly and positively influenced GCA (Zameer et al. 2020).
10	Core Competence	The effect of core competence on GCA was analyzed in Indonesian chemical manufacturing companies. In this report, core competence positively affected GCA, leading to the development of organizational performance (Nuryanto et al. 2020).
11	Green Innovation, as well as Internal and External Environmental Orientations	In the South African hotel industry, GCA was significantly influenced by green innovation, as well as internal and external environmental orientations. Several managerial implications were also observed, indicating that environmental orientation is the driving force for GCA, as hotel management needs to develop ecological strategies toward the achievement of sustainable goals (Fatoki 2021).
12	Green Process Innovation and Environmental Orientation	Green process innovation and environmental orientation positively influenced GCA, leading to environmental performance improvement in Chinese manufacturing companies (Zameer et al. 2021).
13	E-Philanthropy, E-Community Involvement, E-Customer Wellbeing, and Green Corporate Image	This study determined the effect of green corporate image and the dimensions of ECSR (environmental corporate social responsibility) on GCA. These dimensions included e-philanthropy, e-community involvement, and e-customer wellbeing. The results showed that the green corporate image and ECSR dimensions directly and positively influenced GCA. Green corporate image also mediated the effects of the ECSR dimension on GCA (Alam and Islam 2021).
14	Green Human Capital, Green Structural Capital, and Green Relational Capital	This study determined the relationship between environmental consciousness and green intellectual capital (GIC) with GCA. The utilized GIC components included green human, relational, and structural capital, which had significant positive relationships with GCA (Astuti and Datrini 2021).

Table 3. *Cont.*

	Construct	Study Description
15	Organizational Green Culture, Business Analytics, Collaborative Competence, and Eco-Innovation	This examined the contribution of organizational green culture, business analytics, collaborative competence, and eco-innovation to GCA in Indonesian state-owned companies. Using 169 participants, organizational green culture and eco-innovation contributed positively to GCA. Meanwhile, collaborative competence and business analytics did not influence it (Widiyati and Murwaningsari 2021).
16	Green Human Resource Management (GHRM)	This study used the ability motivation opportunity theory to determine the patterns by which green human resource management (GHRM) encouraged GCA improvement. The results confirmed that various companies leveraged GHRM to build GCA (Muisyo et al. 2021).
17	Eco-Innovation and Green Core Competence	The relationship between proactive environmental strategies, eco-innovations, green core competences, and GCA was investigated using 366 participants from the hotel industry. The results showed that proactive environmental strategies positively affected eco-innovation. This effect was subsequently adjusted toward green core competence and GCA. However, eco-innovation did not affect GCA (Kuo et al. 2021).
18	Environmental Awareness and Green Ambidexterity Innovation	Environmental awareness and green ambidexterity innovation positively affected GCA. This concluded that top managers' environmental awarenesses significantly and positively influenced the improvement of GCA by adopting green ambidexterity innovation for polluting companies in China (Cao et al. 2022).
19	Business Analytics, Environmental Orientation, and Green Innovation	The mediating role of green innovation in the impact of business analytics and environmental orientation on GCA was explored using 388 participants from Chinese manufacturing companies. This confirmed that business analytics, environmental orientation, and green innovation played essential roles in GCA (Zameer et al. 2022).
20	Green Abilities, Green Motivation, Green Opportunities, and Green Innovation Culture	GIC and GRHM practices positively affected GCA. These practices included green abilities, motivation, and opportunities. Green innovation culture also moderated a more substantial influence between GRHM practices and GCA (Muisyo et al. 2022a).
21	Green Organizational Identity, as well as Green Exploitative and Green Exploratory Innovations	This article examined the relationship between GOI and GCA, using green exploitative and exploratory innovation (GEI and GER) as mediating variables. The results showed that the ordinary and mediation processes of GOI, GEI, and GER positively influenced GCA (Chen et al. 2022).
22	Corporate Green Strategy, Corporate Green Assets, and Corporate Green Technology	This study was conducted on 32 participants in Taiwanese manufacturing companies to determine the relationship between corporate green strategy, assets, and technology with GCA. Based on the results, all the variables positively affected GCA directly or through mediating constructs (Chen 2022).
23	Green Human Resource Management and Enablers of Green Culture	This article investigated the patterns by which companies build GCA from GHRM by focusing on the enablers of green culture (EGC), namely leadership emphasis, message credibility, and peer involvement. In this report, GHRM and EGC directly and positively affected GCA, with EGC subsequently mediating the relationship between GHRM and GCA (Muisyo et al. 2022b).
24	Green Marketing Orientation and Green Innovation	This study determined the effect of green marketing orientation and innovation on GCA in Batik SMEs, Yogyakarta, Indonesia. The results showed that both factors positively affected GCA (Nuryakin and Maryati 2022).
25	Green Intellectual, Human, Structural, and Relational Capital	The effect of green intellectual, human, structural, and relational capital on GCA was determined using 94 participants. From the results, all the utilized factors positively affected GCA, except green human capital (Lastanti and Augustine 2022).

Source: Authors.

Based on this present review, 5 of the 52 utilized variables did not positively influence GCA. In this case, two of these five variables were unable to increase GCA, namely green absorptive capacity (Lin et al. 2020) and collaborative competence (Widiyati and Murwaningsari 2021). Meanwhile, the remaining three variables, green human capital, business analytics, and eco-innovation, had significant differences. These results indicated that green human capital and eco-innovation increased GCA (Astuti and Datrini 2021; Nivlouei and Khass 2014; Widiyati and Murwaningsari 2021), although they did not have positive and significant effects, respectively (Kuo et al. 2021; Lastanti and Augustine 2022). Business analytics also positively affected GCA (Zameer et al. 2022), although they showcased a negative effect in Widiyati and Murwaningsari (2021). These differences are futuristically interesting for subsequent analysis to provide literacy and additional confirmation for the improvement of the GCA concept.

According to several reviews and Table 3, only two constructs were unable to influence GCA (green absorptive capacity and collaborative competence), with the remaining 50 emphasizing significant elevations. Based on these results, the following was observed: (1) A total of 45 constructs prioritized green innovation, confirming that its implementation provided better organizational competitiveness and positively influenced the achievement of sustainable benefits (Chen 2011). It also indicated that environmental and social responsibility was a crucial capability facilitating the achievement of a sustainable competitive advantage (Hart 1995). Irrespective of these conditions, organizational green innovation still contributed to the company's competitive advantage, which undoubtedly impacted business sustainability. (2) A total of five constructs emphasizing green innovation on intangible assets positively influenced GCA, confirming the perspective of the RBV theory. This focused on the company's internal resources to identify the company assets, capabilities, and competencies having the potential to provide a competitive advantage (Barney 1991). Intangible assets are often known as IC (intellectual capital), which contains three main parts, namely human, structural, and customer capital (Pujianto et al. 2016). This indicated that green intellectual capital improved the company's environmental performance (Yadiati et al. 2019). The management of intangible assets and an environmentally friendly approach also generated more business opportunities, enabling green intellectual capital as a robust framework for promoting organizational sustainability (Benevene et al. 2021). Therefore, the application of green innovation to intangible assets is a strategy used to increase a company's competitive advantage for the maintenance of business sustainability.

4.3.5. Further Research Opportunities

This section presents further research opportunities that the selected articles' authors identified in their research. We found three main areas of interest from two clusters (Table 4). First, replications of studies in different industries or countries were widely suggested by authors. Second, further research opportunities were identified by examining other variables with different data collection methods. Finally, the authors identified the need to analyze the power of moderator and mediator variables influencing the relationship between independent variables and GCA.

Table 4. Further research opportunities identifed in the analyzed articles.

Research Question	Reference
Cluster 1: Green Innovation or Environmental Management	
What are the research results obtained if it is carried out in other industries or countries?	Chen (2011); Junquera et al. (2012); Li (2014); Lin and Chen (2017); Duffett et al. (2018); Lin et al. (2020); Zameer et al. (2020); Nuryanto et al. (2020); Fatoki (2021); Zameer et al. (2021); Alam and Islam (2021); Widiyati and Murwaningsari (2021); Muisyo et al. (2021); Kuo et al. (2021); Cao et al. (2022); Zameer et al. (2022); Muisyo et al. (2022a); Chen (2022); Muisyo et al. (2022b); Nuryakin and Maryati (2022)
Do other variables (e.g., company turnover and responsible investment) affect GCA?	
How will the research results be obtained if research replication is carried out on service businesses?	
Do other variables (e.g., digital technologies, big data, green HRM practices, and green workforce) affect GCA?	
What are the research results using different data collections such as interviews, open-ended questions, and grounded theory techniques?	
Does ECSR (with other dimensions) affect green corporate image and GCA?	
Does GEI affect GCA?	
Does GIC mediate the relationship between environmental consciousness and GCA?	
What are the results obtained if research replication is carried out on companies in non-manufacturing industries or other industrial sizes?	
Do other moderator variables (e.g., absorptive capacity, learning orientation) strengthen the relationship between GHRM and GCA?	
Cluster 2: Green Intellectual Capital or Green Intangible Asset	
What are the research results using different data collections, such as interviews?	Chen and Chang (2013); Nivlouei and Khass (2014); Astuti and Datrini (2021); Chen et al. (2022); Lastanti and Augustine (2022)
What are the research results obtained if it is carried out in other industries or countries?	
Does environmental consciousness have a direct effect on GCA?	

Source: Authors.

5. Conclusions

This systematic review was conducted with the expectation of ensuring easier access and increased literacy for practitioners and stakeholders. In this process, some analytical performances were used to answer three research questions, where the initial analysis emphasized the upgrading trends and geographic evaluation of GCA. Several reports showed that GCA generated greater global attention a few years after its initial establishment and publication by Chen in 2011. This indicated that the number of scientific articles on GCA had continuously increased since 2019, with significant development subsequently observed in the first quarter of 2022. In this systematic review, 8 of the 25 utilized articles were published in 2022, indicating higher global GCA consideration and increasing environmental concerns.

The second research question prioritized the factors increasing GCA. In this analysis, 50 constructs emphasizing green innovation or environmental management improved GCA, as only 2 variables had no effects, namely green absorptive capacity and collaborative competence. This confirmed that the companies prioritizing green innovation and significant environmental concerns, such as the GCA approach, achieved better performance improvement, adequate competitive advantage, and a sustainable business. According to the definition of GCA, the primary key observed was also green innovation, where 50 of its constructs had significant effects on green competitive advantage.

Regarding the third experimental question, the organizational outcomes obtained during GCA adoption were observed. This indicated that the organizations implementing green innovation and high environmental awareness developed a sustainable business, as well as caused performance improvement and better competitive advantage. This was in line with Chen (2008), where the environmental management used to obtain a green competitive advantage was a business sustainability effort.

When investigating the GCA in various manufacturing industries, strong considerations were highly observed due to several reasons. Firstly, this sector was considered one of the main actors responsible for the environmental issues impacting sustainability. Secondly, the pressure exerted by consumers and stakeholders, as well as the emergence of various environmental regulations, forced the manufacturing industry to switch to a green approach earlier than other business sectors. This research highlights significant theoretical and practical contributions were observed as follows:

5.1. Theoretical Contributions

1. This literature review is the first study to present a review on GCA. In addition to a statistical overview, it also provides an in-depth review and future research opportunities.
2. This literature review led to easier access and increased literacy for scholars, practitioners, and stakeholders, especially on the factors influencing GCA. This allows one to synthesize GCA outcomes to describe better how it affects organizations and the environment.
3. This review was consistent with the basic assumption of the RBV theory, where companies possessed heterogeneous tangible and intangible resources with unique organizational characteristics. These characteristics subsequently had the potential to be used as organizational GCA sources.

5.2. Practical Contributions

1. This review promotes the role of GCA as a framework for corporate sustainability by implementing green innovation and environmental management.
2. The significant roles of green innovation and environmental management on GCA were considered for practitioners and stakeholders to select organizational GCs (green changes). This is specifically observed in the role of GCA as a framework to promote corporate sustainability.
3. This literature review provides concrete implications for policymakers in defining the best mechanism for developing green innovation, especially to achieve competitive advantage and business sustainability.

6. Limitation and Research Agenda

In addition to these contributions, this study has several limitations. Since the literature search was limited to SCOPUS, Web of Science, and Google Scholar publications, indicating that subsequent reports should adopt the GCA-related papers of other data collection sources for broader output. A systematic review was also used in this study to obtain in-depth qualitative insight into GCA's current state and practice from the published literature. Future research can take a more quantitative approach, such as bibliometrics or meta-analysis, to gain insight with a different approach.

Since the great importance of green innovation and the concept of GCA is a framework for promoting organizational sustainability, several future research agendas were proposed. Firstly, future reports should be tested in different contexts, i.e., countries and industries, to generalize conclusions and results. Secondly, subsequent analysis needs to be conducted in non-manufacturing organizations for result generalization, for example, the service industry. Thirdly, different data collection techniques are considered, such as interviews, open-ended questions, and grounded theory approaches. Fourthly, green development should be the main direction of sustainable development regarding the future global economy and society. Based on these descriptions, organizational green innovation and competitive advantage are the problems presently encountered by all companies. In addition, subsequent reports are expected to expand the sample scale and continuously conduct dynamic analyses.

Author Contributions: Conceptualization, R.B. and W.Y.; methodology, R.B.; data curation, R.B., W.Y., M.W.Z. and N.D.T.; writing—original draft preparation, R.B.; writing—review and editing, R.B., W.Y., M.W.Z. and N.D.T. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Additional data that support the findings of this study are available from the corresponding author upon reasonable request.

Conflicts of Interest: The authors declare no conflict of interest.

Abbreviations

GCA	Green Competitive Advantage
GIC	Green Intellectual Capital
GHC	Green Human Capital
GSC	Green Strutural Capital
GRC	Gren Relational Capital
GMO	Green Market Orientation
GOI	Green Organizational Identity
GAC	Green Absorptive Capacity
ECSR	Environmental Corporate Social Responsibility
GHRM	Green Human Resource Management
GRQ	Green Supply Chain Relationship Quality
GEI	Green Exploitative Innovation
GER	Green Exploratory Innovation
EGC	Enablers of Green Culture
RBV	Resource-Based View
GCs	Green Changes

Appendix A

Table A1. List of the articles not included in the study with reasons.

Author, Year	Article	Reason
Uddin (2021)	Exploring Environmental Performance and the Competitive Advantage of Manufacturing Firms: A Green Supply Chain Management Perspective	This study only discusses the factors that influence environmental performance and does not discuss the topic of GCA.
Novitasari et al. (2021)	The Role of Green Supply Chain Management in Predicting Indonesian Firms' Performance: Competitive Advantage and Board Size Influence	Competitive advantage as a mediating variable with a construct unrelated to environmental management.
Eksandy et al. (2021)	Green Competitive Advantage Moderate: Environmental Performance, Corporate Image, and Corporate Social Performance on Economic Performance	This study does not discuss the factors that influence GCA. However, it only uses GCA as a moderating variable.
Kartiraharjo and Isfianadewi (2022)	Enhancing Competitive Advantage Through Knowledge Sharing, Absorptive Capacity, and Innovation Capability	The competitive advantage construct is unrelated to green innovation. Therefore, it does not match the GCA definition.
Okocha and Akhigbe (2020)	The Moderating Role of Organizational Culture on the Relationship between Intellectual Capital and Sustainable Competitive Advantage	Intellectual capital and sustainable competitive advantage are not at all associated with the concept of environmental management according to the GCA management concept.

Table A1. *Cont.*

Author, Year	Article	Reason
Qiu et al. (2020)	Green Product Innovation, Green Dynamic Capability, and Competitive Advantage: Evidence from Chinese Manufacturing Enterprises	Competitive advantage in this study does not use constructs related to environmental management.
Tayyebirad and Alroaia (2020)	Analysis of Factors Affecting Entrepreneurship, Market, Knowledge Management in Clean Production and Sustainable Competitive Advantage	The concept, definition, and constructs of sustainable competitive advantage focus on excellence with competitors without a green innovation strategy. Therefore, it is unrelated to the GCA concept.
Sidik et al. (2019)	The Dynamic Association of Energy, Environmental Management Accounting and Green Intellectual Capital with Corporate Environmental Performance and Competitive Advantages	Competitive advantage is measured by four indicators unrelated to environmental management, which means it is irrelevant to the topic of GCA.
Susandya et al. (2019)	The Role of Green Intellectual Capital on Competitive Advantage: Evidence from Balinese Financial Institution	This study does not use indicators related to green innovation or environmental management to measure competitive advantage.
Juniati et al. (2019)	The Effect of Relationship Learning in Driving Green Innovation, Green Customer Capital and Firm's Competitive Advantage	Competitive advantage is measured by four indicators unrelated to environmental management, which means it is irrelevant to the topic of GCA.
Ashraf et al. (2018)	The Sustainable Competitive Advantage of Corporate Social Responsibility: The Mediating Role of Brand Equity	The competitive advantage construct is unrelated to green innovation. Therefore, it does not match the GCA definition.
Gürlek and Tuna (2018)	Reinforcing Competitive Advantage Through Green Organizational Culture and Green Innovation	This study does not use indicators related to green innovation or environmental management to measure competitive advantage.
Nanath and Pillai (2017)	The Influence of Green IS Practices on Competitive Advantage: Mediation Role of Green Innovation Performance	Competitive advantage is measured by four indicators unrelated to environmental management, which means it is irrelevant to the topic of GCA.
Ardyan et al. (2017)	Green Innovation Capability as Driver of Sustainable Competitive Advantages and SMEs Marketing Performance	Competitive advantage in this study does not use constructs related to environmental management.
Khaksar et al. (2016)	The Effect of Green Supply Chain Management Practices on Environmental Performance and Competitive Advantage: A Case Study of The Cement Industry	This study does not use indicators related to green innovation or environmental management to measure competitive advantage.
Rezaei et al. (2016)	The relationship between green intellectual capital and competitive advantages	This study does not use indicators related to green innovation or environmental management to measure competitive advantage.
Chaudhry et al. (2016)	The Role of Environmental Consciousness, Green Intellectual Capital Management and Competitive Advantage on Financial Performance of The Firms: An Evidence from Manufacturing Sector of Pakistan	This study does not use indicators related to green innovation or environmental management to measure competitive advantage.
Leonidou et al. (2015)	Environmentally Friendly Export Business Strategy: Its Determinants and effects on Competitive Advantage and Performance	This study does not discuss the factors that influence GCA. However, it discusses export cost leadership competitive advantage.

Table A1. *Cont.*

Author, Year	Article	Reason
Martinez-del-Rio et al. (2015)	Being Green Against the Wind? The Moderating Effect of Munificence on Acquiring Environmental Competitive Advantages	This study does not discuss the topic of GCA. However, it discusses Proactive environmental strategies (PES) as a concept of competitive advantage.
Taie (2014)	The Effect of Intellectual Capital Management on Organizational Competitive Advantage in Egyptian Hospitals	The competitive advantage construct is unrelated to green innovation. Therefore, it does not match the GCA definition.

References

Alam, S. M. Shafiul, and K. M. Zahidul Islam. 2021. Examining the Role of Environmental Corporate Social Responsibility in Building Green Corporate Image and Green Competitive Advantage. *International Journal of Corporate Social Responsibility* 6: 8. [CrossRef]

Astuti, Partiwi Dwi, and Luh Kade Datrini. 2021. Green Competitive Advantage: Examining the Role of Environmental Consciousness and Green Intellectual Capital. *Management Science Letters* 11: 1141–52. [CrossRef]

Barney, Jay. 1991. Firm Resources and Sustained Competitive Advantage. *Journal of Management* 17: 99–120. [CrossRef]

Benevene, Paula, Ilaria Buonomo, Eric Kong, Martina Pansini, and Maria Luisa Farnese. 2021. Management of Green Intellectual Capital: Evidence-Based Literature Review and Future Directions. *Sustainability* 13: 8349. [CrossRef]

Burnham, Judy F. 2006. Scopus Database: A Review. *Biomedical Digital Libraries* 3: 1. [CrossRef] [PubMed]

Cao, Cuizhen, Xiujun Tong, Yunqi Chen, and Yue Zhang. 2022. How Top Management's Environmental Awareness Affect Corporate Green Competitive Advantage: Evidence from China. *Kybernetes* 51: 1250–79. [CrossRef]

Chen, Chun Shuo. 2022. What Is the Impact of Green Strategy on Enterprises? Exploring the Mediating Effect of Green Assets and Green Technology. *International Journal of Business* 27: 1–17.

Chen, Yunqi, Linlin Gao, and Yue Zhang. 2022. The Impact of Green Organizational Identity on Green Competitive Advantage: The Role of Green Ambidexterity Innovation and Organizational Flexibility. *Mathematical Problems in Engineering* 2022: 4305900. [CrossRef]

Chen, Yu-Shan. 2008. The Positive Effect of Green Intellectual Capital on Competitive Advantages of Firms. *Journal of Business Ethics* 77: 271–86. [CrossRef]

Chen, Yu-Shan. 2011. Green Organizational Identity: Sources and Consequence. *Management Decision* 49: 384–404. [CrossRef]

Chen, Yu-Shan, and Ching Hsun Chang. 2013. Enhance Environmental Commitments and Green Intangible Assets toward Green Competitive Advantages: An Analysis of Structural Equation Modeling (SEM). *Quality and Quantity* 47: 529–43. [CrossRef]

Coyne, Kevin P. 1986. Sustainable Competitive Advantage-What It Is, What It Isn't. *Business Horizons* 29: 54–61. [CrossRef]

Duffett, Rodney, Tudor Edu, Norbert Haydam, Iliuta Costel Negricea, and Rodica Zaharia. 2018. A Multi-Dimensional Approach of Green Marketing Competitive Advantage: A Perspective of Smallmedium Andmicro Enterprises from Western Cape, South Africa. *Sustainability* 10: 3764. [CrossRef]

Fahy, John, and Alan Smithee. 1999. Strategic Marketing and the Resource Based View of the Firm. *Academy of Marketing Science Review* 10: 1–21.

Fatoki, Olawale. 2021. Environmental Orientation and Green Competitive Advantage of Hospitality Firms in South Africa: Mediating Effect of Green Innovation. *Journal of Open Innovation: Technology, Market, and Complexity* 7: 223. [CrossRef]

Ghozali, Imam. 2020. *25 Teori Besar (Grand Theory) Ilmu Manajemen, Akuntansi Dan Bisnis*. Semarang: Yoga Pratama. ISBN 978-602-0896-51-9.

Halim, Zaheed. 2010. Literature Review and Future Directions in SCM Research. *Production and Operations Management* 2004: 769–75.

Hart, Stuart L. 1995. A natural-resource-based view of the firm. *The Academy of Management Review* 20: 986–1014. [CrossRef]

Husted, Bryan W., and José De Jesus Salazar. 2006. Taking Friedman Seriously: Maximizing Profits and Social Performance. *Journal of Management Studies* 43: 75–91. [CrossRef]

Junquera, Beatriz, Jesús Ángel Del Brío, and Esteban Fernández. 2012. Clients' Involvement in Environmental Issues and Organizational Performance in Businesses: An Empirical Analysis. *Journal of Cleaner Production* 37: 288–98. [CrossRef]

Kor, Yasemin Y., and Joseph T. Mahoney. 2004. Edith Penrose's (1959) Contributions to the Resource-Based View of Strategic Management Yasemin. *Journal of Management Studies* 41: 183–91. [CrossRef]

Kuo, Fang I., Wei Ta Fang, and Ben A. LePage. 2021. Proactive Environmental Strategies in the Hotel Industry: Eco-Innovation, Green Competitive Advantage, and Green Core Competence. *Journal of Sustainable Tourism* 30: 1240–61. [CrossRef]

Lastanti, Hexana Sri, and Yvonne Augustine. 2022. The Strength of Good Corporate Governance in Moderating the Effects of Green Intellectual Capital on Green Competitive Advantage and Firm Performance. *Journal Akuntansi Trisakti* 9: 85–98. [CrossRef]

Lin, Yu Hsien, and Yu Shan Chen. 2017. Determinants of Green Competitive Advantage: The Roles of Green Knowledge Sharing, Green Dynamic Capabilities, and Green Service Innovation. *Quality and Quantity* 51: 1663–85. [CrossRef]

Lin, Yu Hsien, Nisha Kulangara, Krista Foster, and Jennifer Shang. 2020. Improving Green Market Orientation, Green Supply Chain Relationship Quality, and Green Absorptive Capacity to Enhance Green Competitive Advantage in the Green Supply Chain. *Sustainability* 12: 7251. [CrossRef]

Li, Yuanhui. 2014. Green Competitiveness Research on Chinese Automotive Enterprises. *Journal of Industrial Engineering and Management* 7: 559–72. [CrossRef]

Muisyo, Paul Kivinda, Su Qin, and Thu Hau Ho. 2021. The Role of Green HRM in Driving a Firm's Green Competitive Advantage: The Mediating Role of Green Organizational Identity. *SN Business & Economics* 1: 153. [CrossRef]

Muisyo, Paul Kivinda, Su Qin, Thu Hau Ho, and Mercy Muthoni Julius. 2022a. The Effect of Green HRM Practices on Green Competitive Advantage of Manufacturing Firms. *Journal of Manufacturing Technology Management* 33: 22–40. [CrossRef]

Muisyo, Paul Kivinda, Su Qin, Thu Hau Ho, Mercy Muthoni Julius, and Muhammad Shahjahan Usmani. 2022b. Implications of Green HRM on the Firm's Green Competitive Advantage: The Mediating Role of Enablers of Green Culture. *Journal of Manufacturing Technology Management* 33: 308–33. [CrossRef]

Nivlouei, Fahimeh Babaei, and Esmaeil Dadashi Khass. 2014. The Role of Green Intellectual Capital Management in Acquiring Green Competitive Advantage for Companies. *International Journal of Management Research and Development* 4: 41–58.

Nugroho, Lucky, Wiwik Utami, Taufik Akbar, and Willy Arafah. 2017. The Challenges of Microfinance Institutions in Empowering Micro and Small Entrepreneur to Implementating Green Activity. *International Journal of Energy Economics and Policy* 7: 66–73.

Nuryakin, Nuryakin, and Tri Maryati. 2022. Cogent Business & Management Do Green Innovation and Green Competitive Advantage Mediate the Effect of Green Marketing Orientation on SMEs' Green Marketing Performance? Do Green Innovation and Green Competitive Advantage Mediate the Effect of Green Mark. *Cogent Business & Management* 9: 2065948. [CrossRef]

Nuryanto, Uli Wildan, Masyhudzulhak Djamil, Achmad Hidayat Sutawidjaya, and Ahmad Badawi Saluy. 2020. The Roles of Green Competitive Advantage as Intervention between Core Competence and Organisational Performance. *International Journal of Innovation, Creativity and Change* 11: 394–414.

Porter, Michael E. 1985. Competitive advantege creating and sustaining. *Journal of Business Strategy* 6: 94.

Porter, Michael E., and Claas Van der Linde. 1995. Green and Competitive. *Harvard Business Review* 73: 120–34. [CrossRef]

Pujianto, Arif, Wiwik Utami, and Istianingsih Sastrodiharjo. 2016. Peran Life Cycle Stage Dalam Memoderasi Hubungan Antara Intellectual Capital Disclosure Dan Nilai Perusahaan. *Akuntabilitas* 9: 121–42. [CrossRef]

Widiyati, Dian, and Etty Murwaningsari. 2021. Achieving Green Competitive Advantage Through Organizational Green Culture, Business Analytics and Collaborative Competence: The Mediating Effect of Eco-Innovation. *International Journal of Social and Management Studies (Ijosmas)* 2: 98–113.

Yadiati, Winwin, Nissa, Sugiono Paulus, Harry Suharman, and Meiryani. 2019. The Role of Green Intellectual Capital and Organizational Reputation in Influencing Environmental Performance. *International Journal of Energy Economics and Policy* 9: 261–68. [CrossRef]

Zameer, Hashim, Ying Wang, and Humaira Yasmeen. 2020. Reinforcing Green Competitive Advantage through Green Production, Creativity and Green Brand Image: Implications for Cleaner Production in China. *Journal of Cleaner Production* 247: 119119. [CrossRef]

Zameer, Hashim, Ying Wang, Dinara G. Vasbieva, and Qaisar Abbas. 2021. Exploring a Pathway to Carbon Neutrality via Reinforcing Environmental Performance through Green Process Innovation, Environmental Orientation and Green Competitive Advantage. *Journal of Environmental Management* 296: 113383. [CrossRef] [PubMed]

Zameer, Hashim, Ying Wang, Humaira Yasmeen, and Shujaat Mubarak. 2022. Green Innovation as a Mediator in the Impact of Business Analytics and Environmental Orientation on Green Competitive Advantage. *Management Decision* 60: 488–507. [CrossRef]