



## The Mediation Role Of Innovation Capability and Green Innovation Strategy on Sustainable Leadership-Sustainability Performance Relationship: Study at a Class C Private Hospital In Surabaya Raya, East Java

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### Abstract

**Purpose:** The aim of this research is to examine the influence of sustainable leadership on sustainable performance with the mediating effect of innovation capability and green innovation strategy at Class C Private Hospitals in Surabaya, East Java.

**Method:** This research is quantitative in nature and was conducted using survey research. A questionnaire was used to collect data from 61 hospitals in Surabaya Raya, East Java, using a five-point Likert scale. All hypothesized relationships were tested using partial least partial structural equation modeling (PLS-SEM).

**Result:** Empirical results show that comprehensive implementation of green innovation strategy significantly improves sustainability performance including economic, environmental and social performance. In addition, green innovation strategy partially mediates the influence between sustainability performance and sustainability performance significantly and positively. However, innovation capability was not proven to mediate the influence of sustainable leadership on sustainability performance.

### INTRODUCTION

Sustainability performance is important for every company in the era of sustainability. Sustainability performance is the impact of a company managing its internal resources using a performance approach referring to the company's performance in relation to society, the economy and the environment in the era of sustainable development (Argandoña & Hoivik, 2009). Various organizations assign managers to concentrate on sustainability issues that include social, economic and environmental issues in achieving sustainability performance (Rehman et al., 2020). Sustainability performance is related to the objectives in resource management and competitive ability by balancing the three pillars of financial, environmental and social performance (Chin et al., 2015). Future companies are not only responsible for economic performance but also environmental performance and contributions in resolving human rights issues, ethics and community participation (Soewarno et al., 2019). Sustainability performance is an important indicator that reflects the balance of performance in financial, environmental and social aspects that are of concern to all stakeholders in the company's business activities in the current competitive situation. Companies are starting to focus on sustainability activities to achieve long-term benefits by implementing sustainability strategy management as the main business strategy for achieve sustainability performance on the triple bottom line that contributes to sustainable

development (Suriyankietkaew & Petison, 2020). Sustainability performance is an important achievement for companies for climate change in responding to environmental, social problems in economic and social disparities, resource scarcity, loss of biodiversity, pollution is a shared responsibility (Iqbal, Ahmad, & Halim, 2020). Sustainability is very important to maintain limited natural resources without sacrificing future generations so that various organizations assign leaders to concentrate and commit to corporate sustainability and become the basis of business management to overcome economic, social and environmental problems.

This study uses Resource Based View (RBV) and Corporate Sustainability Theory (CST) because the resource-based view (RBV) explains that sustainability performance and competitive advantage of a company are largely determined by the unique resources owned by the company. Internal resources must be managed well so that they become valuable, rare, inimitable and irreplaceable. (Wernerfelt, 1984) and (Barney, 1991) said that companies need to implement appropriate strategies based on the resources they have so that they can maintain performance and competitive advantage.

Corporate Sustainability Theory (CTS) is used as a supporting theory because of the importance of meeting stakeholder needs and balancing the three dimensions of sustainability performance, namely economic, environmental, and social. CST uses the Triple Bottom Line (TBL) approach in this study, hospitals can facilitate the movement towards sustainable development by implementing sustainable leadership strategies that focus on environmental conservation by increasing innovation capacity and carrying out environmentally friendly movements in implementing business strategies in order to increase competitive advantage with the achievement of sustainability performance through sustainable business models (Chang et al., 2017). Previous studies used upper echelon theory (UET) in analyzing the influence of sustainable leadership, fungal innovation on sustainability performance (Iqbal, Ahmad, Li et al., 2022); (Nisha et al., 2022). This study explores more deeply how the role of unique and irreplaceable internal company resources, cannot be imitated through testing sustainability strategy development variables analyzing sustainable leadership, innovation capability, green innovation strategy in influencing sustainability performance so that the proof of RBV theory is able to answer the development of CST.

Climate change requires the role of organizational leaders to pay attention to the environment and meet the challenges of climate change (Suriyankietkaew & Kungwanpongpun, 2022), the United Nations (UN) has developed the Sustainability Development Goals. Sustainability Performance requires the role of sustainable leadership. Sustainable leadership is able to encourage sustainable practices at the individual, organizational and leader levels with a focus on increasing capacity, sustainable change and long-term results (Hallinger & Suriyankietkaew, 2018). Previous research such as (Fatoki, 2021), (Suriyankietkaew & Avery, 2016), (Burawat, 2019), (Iqbal, Ahmad, & Li, 2020), investigated the relationship between sustainable leadership and sustainability performance variables. shows a significant positive influence of sustainable leadership on sustainability performance in all financial, social and environmental dimensions. Although sustainable leadership theoretically influences sustainability performance, previous empirical studies that have studied this relationship have not reached conclusive results. On the other hand, several studies have found that sustainable leadership does not affect sustainability performance, for example (Suriyankietkaew & Kungwanpongpun, 2022); (Suriyankietkaew, 2022).

Sustainable leadership is still very limited in research. Previous research (Burawat, 2019) who examines the relationship between transformational leadership, sustainable leadership, and lean manufacturing that influences sustainability performance explains the need to develop sustainable leadership research to increase scientific support. This is necessary because the theoretical basis of sustainable leadership has not been fully developed and sustainable leadership research is still limited because the subject is still developing (Sharma, 2019). Despite the large amount of literature related to leadership, researchers have found that the concept of sustainable leadership has not yet become an established theory like other leadership style literature. (Burawat, 2019) suggest the need for further research by analyzing antecedent and consequence variables that

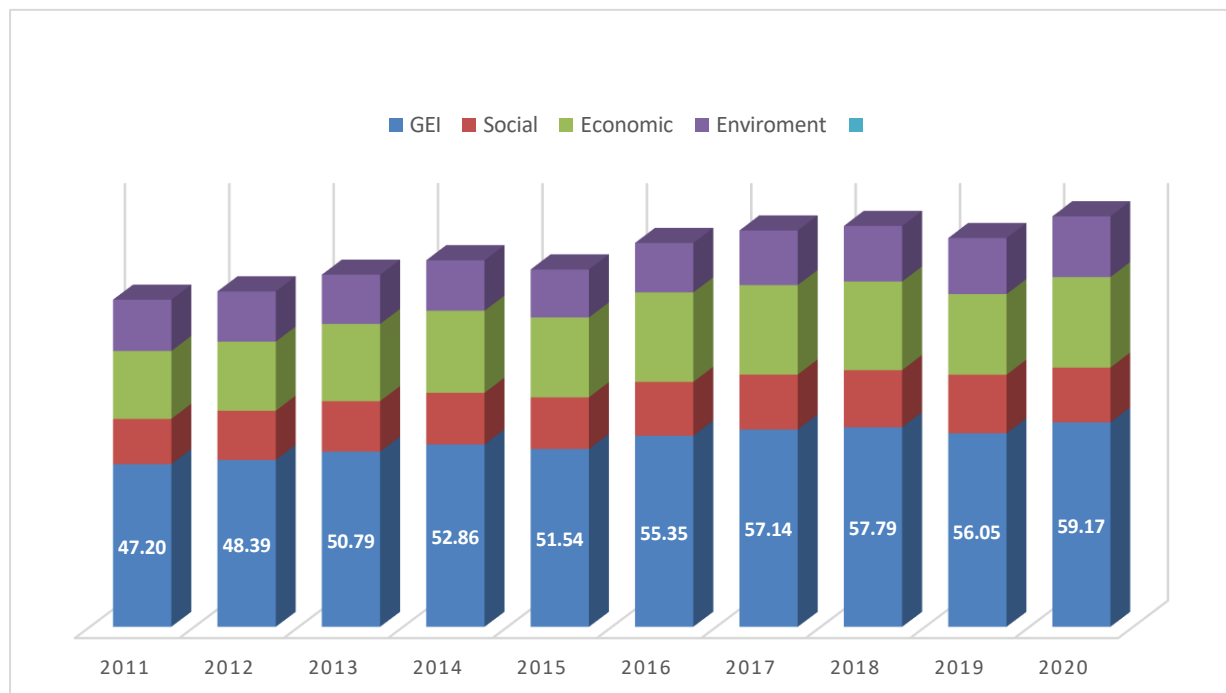
influence sustainability performance. Previous research states that sustainable leadership is an effective leadership style in facing sustainability challenges. (Iqbal, Ahmad, & Li, 2020). The researchers consider the need for further studies on sustainable leadership as a multidimensional strategic leadership in supporting long-term business sustainability and suggests additional integrative studies on the relationship between sustainable leadership and various sustainability performance measures due to the limited existing literature (Suriyankietkaew, 2022).

By looking at the existing research results, the inconsistency in the influence of sustainable leadership on sustainability performance needs to be mediated to show the real relationship when there is ambiguity in the influence of the independent variable on the dependent variable. (Iqbal, Ahmad, & Li, 2020). The author concludes that there are still very few articles that link sustainable leadership and sustainability performance which are linked to the development of environmental innovation strategies. Research that tests and explores sustainable leadership towards sustainability performance mediated by innovation capability and green innovation strategy has never been done before. Previous research by (Iqbal, Ahmad, Li et al., 2022); (Iqbal & Ahmad, 2021) examines the influence of frugal innovation on environmental performance and the influence of frugal innovation on sustainability. performance that focuses on limited innovation to respond to the market with the development of upper ecellon theory

Innovation capability and green innovation strategy are used as mediating variables for several reasons. First, sustainable leadership is still in the early concept stage so it is necessary to expand the domain of the concept of sustainable leadership so that it is necessary to analyze the mediating variables in a more complex relationship in influencing the relationship between sustainable leadership and sustainability performance (Burawat, 2019); (Liao, 2022). Second, innovation capability is determined as a mediating variable because increasing innovation capability can build competitive strength and improve business sustainability (Hanaysha et al., 2022). Previous studies have emphasized the importance of innovation capability for the purpose of increasing energy efficiency (Fernández et al., 2018) and only a few studies have tested the relationship between innovation capability and sustainability goals (Rauter et al., 2019). Innovation capability is an important factor as a mechanism to overcome sustainability challenges (Rauter et al., 2019). Innovation capability is a stimulus or acceleration of development (Pufal, 2019). Innovation capability is the main internal factor in exploring the driving mechanism of green innovation strategy (Rauter et al., 2019).

Green innovation strategy was chosen as the second mediating variable for several reasons. First, the importance of environmental issues in business strategy, studies on environmental issues at a strategic level (Rauter et al., 2019). Green innovation strategy is the right choice for organizations in dealing with environmental issues by emphasizing waste reduction, preventing pollution and implementing an environmental management system (Nanath & Pillai, 2017); (Eiadat et al., 2008). Second, green innovation strategy emphasizes the company's strategy to actively reduce the environmental impact of business activities and consider environmental responsibility in strategic planning (Wang & Liu, 2022).

Green Economic Index Data (GEI) in Indonesia according to Low Carbon Development Indonesia (LCDI) in collaboration with the Ministry of National Development Planning of the Republic of Indonesia (Ministry of PPN/Bappenas) and UK Foreign, Commonwealth and Development Office (UK-FCDO). Indonesia's GEI shows an increasing trend over a ten-year period (2011-2020). Based on the progress of each social, environmental and economic indicator from 2011 to 2020 (Figure 1), the most progressive economic indicator, especially for final energy intensity, where the score increased from 34 in 2011 to 74 in 2020 (Ministry of Bappenas, 2020). This shows that in Indonesia the issue of sustainability is a concern in sustainable development in Indonesia. The movement of Green Economic Index data can be seen from the 2011-2020 trend.



**Figure 1.**  
**Green Economic Index data 2011 -2020**  
 (Source: Bappenas, 2022)

Based on reasons in on, focus study This is test and dig the influence of mediation between existing variables. Based on the existing research gap , this research This try see whether innovation capability variable And green innovation strategy can mediate the influence of sustainable leadership on sustainability performance . This study aims to continue and develop previous research that has investigated the impact of sustainable leadership on sustainability performance using different dimension variables from previous studies. The novelty of this research model is that first, this research has never been done before. Several studies on sustainable leadership on sustainability performance use other mediators such as learning organization, psychology empowerment(Rauter et al., 2019). (Burawat, 2019) examine the influence of sustainable leadership on sustainability performance using lean manufacturing mediation.

Second, the research model that studies the influence of sustainable leadership on sustainability performance has never been done in the hospital industry specifically. Therefore, it is important to expand the field of research in the hospital context because of the urgency of sustainable leadership to analyze how leadership supports effective engagement in improving the quality of health services. (Brown, 2020) and the Indonesian government has regulated it in the Minister of Health Regulation Number 2 of 2023 concerning the Implementation of Environmental Health of the Ministry of Health (2023) as a guideline in achieving sustainable performance. The researcher's literature study that sustainable leadership and sustainability performance in previous studies were still limited and were carried out in the context of Small Medium Enterprises (Iqbal, Ahmad, & Halim, 2020), manufacturing (Burawat, 2019) and hospitality services(Rauter et al., 2019).

Third, this research aims to fill the gap in research on innovation in the context of the health industry, according to recommendations. previous research (Rauter et al., 2019);(Iqbal, Ahmad, Nasim, et al., 2020); (Suriyankietkaew et al., 2022) so that further research is needed on the relationship between sustainable leadership and sustainability performance in the context of other service industries. Previous research examined the influence of sustainable leadership on sustainability performance in the manufacturing industry, SMEs (Burawat, 2019); (Suriyankietkaew et al., 2022); (McCann & Holt, 2010); (Iqbal et al., 2021); (Iqbal, Ahmad, & Halim, 2020).

In the global phenomenon, sustainability performance has become an agenda in the 17 SDGs goals through the Paris Agreement in 2015. SDGs, United Nations member states translate the vision of sustainable development into 17 Sustainable Development Goals with ambitious targets to be achieved by 2030 covering three dimensions of sustainable development: economy, social development, and environment. The phenomenon in Indonesia, sustainability performance has become a requirement in the regulation, namely POJK no. 51 of 2017 in reporting Sustainability Reporting.

This research is important to be conducted in the health sector to build health. The phenomenon in the United States of sustainability measurement and reporting is aimed at CSR and corporate climate risk disclosure (Hensher & McGain, 2020). The global phenomenon shows that the climate footprint of the health care sector is equivalent to 4.4% of global net emissions and the three largest emitters of the health care sector, namely the United States, China, and the European Union and 71% of emissions come from the health care supply chain (Karlner et al., 2020). Hospitals are a health industry with complex operational complexity, which requires the most natural resources, emits greenhouse gases so that environmentally friendly strategies are needed to provide competitive advantages (Dion & Evans, 2023). In the context of health, sustainability can provide easy access to health and equal rights to health services by supporting the Indonesian government's program in the National Health Insurance (JKN) program. Sustainability is a concern for all industries, in the health sector with the main focus on providing comprehensive health services, providing assistance with modern medicines and technology on sophisticated health equipment that results in wasteful use of energy, the emergence of various waste from the health service business process has become a public health problem so that the health sector plays an important role in mitigating climate company risks, overcoming environmental, social, resource scarcity problems. So that the health sector needs to implement sustainable waste reduction and management strategies, air conditioning, efficiency of natural resources such as water, electricity, procurement of environmentally friendly materials so that they have minimal impact on the environment and provide comprehensive health services.

This research model is important to be applied to class C private hospitals in Surabaya Raya, East Java because class C private hospitals are level 2 health facilities with private providers that are widely needed by the wider community and are very easily accessible to the wider community, class C hospitals play an important role in the health service system, especially in urban and district areas as well as rural areas. The phenomenon shows that class C hospitals in Surabaya Raya are cross-areas that can enjoy access to cross-regional health facilities (Surabaya, Sidoarjo, Gresik). This research was conducted in the Surabaya Raya area because it is an area for accelerating the development of the Surabaya Raya area according to Perpes no. 80 of 2019, thus opportunities for sustainable development and health promotion, especially in hospitals, play a central role in the health system for the community. In addition, hospitals have significant and growing economic, social, and environmental impacts. In addition to carrying out a humanitarian mission, hospitals also carry out business missions to gain profit and ensure the sustainability of their businesses, so that hospital business management must be able to combine two business interests, social (Maulana, 2020).

The second reason in the sustainable development goal indicator in East Java (Badan Pusat Statistik, 2021) especially the Surabaya Raya area, hospitals as public health facilities play an important role in improving healthy and prosperous lives which is the third indicator in the Sustainable Development Goal indicator as a pillar of social development. The target in 2030 is that hospitals in Greater Surabaya will play a role in ensuring universal access to health services.

Third, Surabaya Raya is designated as a growth center city for development region V which connects several areas of East Java provincial cities, namely Gresik-Bangkalan-Mojokerto-Surabaya- Sidoarjo-Lamongan and the city of Surabaya is one of the largest development centers in Asia, many industrial activities that have developed in this region create potential in economic and social growth so that it is followed by the growth of health services such as hospitals, having a strategic role as a center for health services in East Indonesia.

In the service sector, healthcare is considered an important service provider, and is a focus area among institutions concerned with environmental issues due to waste produced (Mehra & Sharma, 2021). The healthcare sector generates large amounts of hazardous materials (Pasqualini et al., 2017). Managers in this sector are increasingly under pressure from society, governments regarding environmental issues; thus, the responsibility is not limited to providing high-quality and low-cost services, but must be expanded to include environmental protection issues, and limiting the use of natural resources (Borges de Oliveira & de Oliveira, 2022), as a result healthcare managers are allocating more resources to building environmentally friendly initiatives, such as recycling, energy efficiency, water conservation, green procurement, and sustainable mobility (Mousa & Othman, 2020).

The complexity and uniqueness of the health sector in Indonesia is reflected in the situation at an ambiguous level to adopt and implement green practices in many sectors (Assoratgoon & Kantabutra, 2023); (Dion & Evans, 2023). According to (Migdadi & Omari, 2019), the hospital industry is known as the “silent destroyer of the environment” and is an important service sector as evidenced by the high level of government spending in the health sector. Sustainability research in the health sector has been widely conducted in developed countries, but in the context of Indonesia it has not been widely studied, this is an important concern that the dynamics of the health industry in Indonesia play a role in providing professional health services in serving the community (PermenKes 30, 2020), Law No. 17 of 2023 concerning Health (Indonesia, 2023). In response to this phenomenon, hospitals need to be managed and require direction for sustainable strategy concepts through a focus on environmental balance that requires managerial skills and the role of leaders to achieve sustainable performance. Strategic factors are a concern in the role of sustainable leadership, a sustainable perspective by reframing leadership in the organization.

Fourth, in the hospital performance approach, there is a need for a combination of financial and non-financial aspects with a sustainability approach. Non-financial aspects are explained in the dimensions of environmental performance and social performance with strong financial performance support that encourages more efficient hospital services and ensures sustainability. The involvement of the healthcare industry in the destruction and degradation of the natural environment has become increasingly apparent in recent years (Hensher & McGain, 2020). Estimates in 2019 estimated that the global carbon footprint of healthcare services reached 4.4 percent of the world's total greenhouse gas emissions and 71% of emissions came from the healthcare supply chain (Zhang et al., 2020); (Mehra & Sharma, 2021). This global phenomenon proves that the healthcare sector is a business entity that requires sustainable leadership aspects to address challenges in efforts to address climate change to improve quality of life, social sustainability, in the context of health, is related to the ability of the system health to improve the quality of life and increase community welfare (Mousa & Othman, 2020).

Sustainability is becoming a growing global issue, the Indonesian delegation at the 2023 World Hospital Congress in Lisbon, Portugal, 25-27 October 2023, organized by the International Hospital Federation with the theme "Planning and Designing a Sustainable and Resilient Health Service System." is proof that the health world in Indonesia is committed to playing a role in the sustainable development movement. In the congress, Indonesia participated in a discussion on how the impact of climate change is the biggest threat to human health as expressed by the World Health Organization (<https://www.persi.or.id>).

Business actors in the hospital industry and government are required to adapt to existing changes so that they can survive and even improve their performance in the era of sustainable development. Health industry players need to rely on the role of sustainable leaders in identifying existing opportunities and can utilize these opportunities in planning and executing strategies that lead to environmental conservation to increase sustainable competitiveness so that sustainable performance can be achieved. This study is expected to provide new theoretical and practical perspectives by including innovation capability and green innovation strategy variables in studying the factors that influence sustainability performance in the health service sector at class C hospitals in Surabaya Raya, East Java.

## RESEARCH METHODS

The sampling technique used in this study is total population sampling. This sampling technique is related to the purposive sampling technique which aims to study the entire population that has certain characteristics. The sample criteria used in this study are as follows: (1) Class C Private Hospital in the Greater Surabaya area of East Java which has an operational permit and is actively operating, (2) Class C Private Hospital in the Greater Surabaya area of East Java which reveals the email, telephone number to be contacted and the official and active website in ARSSI East Java (Association of Indonesian Private Hospitals, East Java Branch).

The reason for choosing a class C private hospital based on data from the Surabaya City Health Office, 70% of hospital management is carried out by the private sector, namely a total of 42 hospitals with private management (Surabaya Health Office, 2023) so it can be concluded that this study is quite representative of the empirical conditions of the existence of hospitals in the Greater Surabaya area of East Java.

Respondents representing the questionnaire filling were the top management of each hospital (hospital director, service manager, head of division or head of unit). Respondents filling out the research questionnaire were structural officials in the hospital. The selection of respondents was based on the consideration that respondents were the parties who most tested the actual hospital conditions so that they were able to provide answers to the questionnaire statements given. The number of samples of 61 hospitals was sufficient as a sample, according to (Hair et al., 2024) that multivariate data processing met the requirements with the requirement of 15 multiplied by the number of variables used, so in this study with 4 variables used, 61 samples have met the requirements for the adequacy of the research sample.

The population to be studied in this study is class C hospital services in Surabaya Raya, East Java, including the cities of Surabaya, Sidoarjo, Gresik, Lamongan, Bangkalan, Mojokerto. The population used in this study is all private hospitals in Surabaya Raya, East Java, namely according to Presidential Regulation no. 80 of 2019 concerning the acceleration of economic development in the Gerbangkertosusilo area, which is a Megapolitan Algomery in the Surabaya Raya area. The Gerbangkertosusilo area or Surabaya Raya in East Java is a functional area because this area consists of several interconnected cities, with Surabaya City as the center and the area is the acceleration of development (Perpres80\_2019.Zip, nd). The unit of analysis in this study is the organization of class C private hospitals in Surabaya Raya, East Java.

Based on the Regulation of the Minister of Health No. 3 of 2020 concerning the classification and licensing of hospitals, they are divided into class A, class B hospitals, class C hospitals and class D hospitals. Hospitals under ownership can be established by the private sector. In addition to ownership, hospitals are also grouped based on facilities and service capabilities into Class A, Class B, Class C, and Class D. Referral services from primary health facilities tend to be directed to class C hospitals, which is 35%.

According to the Health Profile data throughout East Java published by the East Java Health Office, there are 200 Class C hospitals out of a total of 400 hospitals (Isi, 2018) that most of them are Class C hospitals. In 2021 in East Java province there were 5 Class A hospitals (1%), 62 Class B hospitals (16%), 200 Class C hospitals (50%), and 133 Class D hospitals (33%). Class C hospitals are referrals for first-level health facilities, namely health centers and class D hospitals in the National Health Insurance service and class C hospitals have unique challenges due to limited resources compared to class A and B hospitals so that more efforts are needed and become a challenge for hospital management in providing comprehensive health services to the community. Based on these considerations, this study took a sample of class C private hospitals. Based on data from the East Java Provincial Health Office, the number of class C private hospitals in the Greater Surabaya area that match the sample characteristics is 82 hospitals.

Measurement of research framework model analysis using the Partial analysis method Least Square-Structural Equation Modeling (PLS-SEM). SEM is a statistical technique that connects a series of one or more exogenous variables with endogenous variables in a study. The PLS-SEM analysis method is used to test the research model by explaining the effect of variance in the research variables ( Hair et al ., 2019). Testing with PLS SEM based on this method can work

efficiently without requiring data distribution assumptions, can be used for small sample sizes and has maximum model complexity (Hair et al., 2019). When using PLS-SEM, researchers get the benefits of efficiency high in determining the results of the hypothesis (Hair et al., 2019). Testing of research data analysis includes measurement model tests, structural models and mediation effect tests.

## RESULTS & DISCUSSION

### Characteristics of the Number of Hospitals based on Hospital Area.

Information regarding the hospital areas that were samples in this study is in Table 1.

**Table 1.**  
**Number of Hospitals and Respondents by Region.**

No.	Hospital Area	Number of Hospitals	Percentage of Number of Hospitals (%)	Number of Respondents	Percentage of Total Respondents (%)
1	Surabaya	18	29.5%	18	29.5%
2	Sidoarjo	21	34.4%	21	34.4%
3	Gresik	9	14.8%	9	14.8%
4	Bangkalan	7	11.5%	7	11.5%
5	Lamongan	4	6.6%	4	6.6%
6	Mojokerto	2	3.3%	2	3.3%
	Total	61	100%	61	100%

Table 1 presents data on characteristics of the number of respondents by region. It can be seen in the table that the hospital areas that were sampled in this study were the Surabaya area with 18 hospitals (29.5%), Sidoarjo with 21 hospitals (34.4%), Gresik with 9 hospitals (14.8%),

Bangkalan with 7 hospitals (11.5%), Lamongan with 4 (6.6%) and Mojokerto with 2 hospitals (3.3%). This shows that most of the class C private hospitals in Greater Surabaya are in the city of Sidoarjo (34.4%) of the total class C private hospitals in the Sidoarjo area with a total of 21 hospitals as respondents.

### Respondent Characteristics Based on the Length of Time the Hospital Has Been Established

Table 2 presents data on Characteristics of the number of respondents based on the length of time the hospital has been established. Seen in the table that the characteristics of the respondents who were sampled in this study based on the length of time the hospital was established were dominated by the hospital age group 40 - <60 years as many as 32 respondents (52.5%), then the hospital age 20 - <40 years as many as 18 respondents (29.5%), the hospital age <20 years as many as 6 respondents (9.8%) and the hospital age  $\geq$  60 years as many as 5 respondents (8.2%). This shows that the majority of the respondents' ages of class C private hospitals in Greater Surabaya are 40-<60 years old, namely 32 respondents (52.5% of the total respondents).

**Table 2.**  
**Length of Time the Hospital Has Been Established**

No.	How Long Has the Hospital Been Established?	Number of Respondents	Percentage of Total Respondents (%)
1	< 20 years	6	9.8%
2	20 – <40 years	18	29.5%
3	40 – <60 years	32	52.5%
4	$\geq$ 60 years	5	8.2%
	Total	61	100%

### Characteristics of the Number of Respondents Based on Respondent Age

Table 3 presents data on Characteristics of the number of respondents based on the age of the respondents. Seen in the table that the characteristics of the respondents who were sampled in this study based on the age of the respondents were dominated by the age group of respondents <30 years as many as 1 respondent (1.6%), then the age of respondents 30-40 years as many as 2 respondents (3.3%), the age of respondents 40-50 years as many as 22 respondents (36.1%) and the age of the hospital >50 years as many as 36 respondents (59%). This shows that most of the ages of class C private respondents in Greater Surabaya are >50 years old, namely 36 respondents (59% of the total respondents).

**Table 3.**  
**Respondents Age**

No	Respondent Age	Number of Respondents	Percentage %
1	< 30 Years	1	1.6%
2	30-40 years	2	3.3%
3	40-50 years	22	36.1%
4	>50 years	36	59.0%
	Total	61	100%

### Characteristics of the Number of Respondents Based on Last Education

Table 4 presents data on characteristics of the number of respondents based on their last education. It can be seen in the table that the characteristics of the respondents who were the samples in this study based on their last education were dominated by the S2 group with 23 respondents (37.7%), then the S2 level with a specialist profession in 17 respondents (27.9%), the age of the S level with a specialist doctor profession in 10 respondents (16%) and S1 in 10 respondents (10%). This shows that some of the last education of the respondents who were leaders of class C private hospitals in Greater Surabaya was dominated by the last education of S2 with 23 respondents (37.7% of the total respondents).

**Table 4.**  
**Respondents Education Level**

No	Last education	Number of Respondents	Percentage %
1	S1	10	16.4%
2	S2	23	37.7%
3	S3	0	0
4	S1 with specialist doctor profession	10	16.4%
5	S2 with specialist doctor profession	17	27.9%
6	S3 with specialist doctor profession	1	1.6%
	Total	61	100%

### Characteristics of the Number of Respondents Based on Length of Service as a Leader

Table 5 presents data on Characteristics of the number of respondents based on the length of service as a leader. Seen in the table that the characteristics of the respondents who were sampled in this study based on the length of service as a leader were dominated by a length of service of 10-20 years as many as 26 respondents (42.6%), then a length of service >20 years as many as 19 respondents (31.1%), age level 5-10 years as many as 12 respondents (19.7%) and length of service <5 years as many as 4 respondents (6.6%). This shows that the length of service as a leader of a class C private hospital in Surabaya Raya is dominated by a length of service of 10-20 years as many as 26 respondents (42.6% of the total respondents).

**Table 5.**  
**Length of service as Leaders**

No	Length of work	Number of Respondents	Percentage %
1	< 5 years	4	6.6%
2	5-10 years	12	19.7%
3	10-20 years	26	42.6%
4	>20 years	19	31.1%
	Total	61	100%

#### **Characteristics of the Number of Respondents Based on Position in the Hospital**

Table 6 presents data on Characteristics of the number of respondents based on position in the hospital. Seen in the table that the characteristics of the respondents who were sampled in this study based on the respondents' positions were dominated by hospital directors as many as 44 respondents (72.1%), then deputy directors as many as 7 respondents (11.5%), heads of fields as many as 5 respondents (8.2%) and Head of units as many as 5 respondents (8.2%). This shows that the majority of respondents' positions in this study were dominated by the position of hospital director as many as 44 respondents (72.1% of the total respondents).

**Table 6.**  
**Respondent Position**

No	Position	Number of Respondents	Percentage %
1	Clinical Doctor	2	3.3%
2	Hospital Director	44	72.1%
3	Deputy Director	7	11.5%
4	Head of Division	5	8.2%
5	Head of Unit	3	4.9%
	Total	61	100%

#### **Characteristics of the Number of Respondents Based on the Form of Business Entity**

Table 7 presents data on Characteristics of the number of respondents based on the form of business entity. Seen in the table that the characteristics of the respondents who were the samples in this study based on the form of the hospital business entity were dominated by the form of a Foundation business entity as many as 38 respondents (62.3%), then the form of a Limited Liability Company (PT) business entity as many as 23 respondents (37.7%). This shows that the majority of class C private hospital business entities in Greater Surabaya are in the form of Foundation business entities as many as 38 respondents (62.3% of the total respondents).

**Table 7.**  
**Business Entity Form**

No	Form of Business Entity	Number of Respondents	Percentage %
1	PT	23	37.7%
2	Foundation	38	62.3%
	Total	61	100%

#### **Characteristics of the Number of Respondents Based on BPJS Health and Employment Partnerships**

Table 8 presents data on Characteristics of the number of respondents based on the form of business entity. Seen in the table that the characteristics of the respondents who were sampled in this study based on partnerships with BPJS Health and Employment were 51 respondents (83.6%), then 10 respondents (16.4%) did not partner with BPJS Health. This shows that the majority of class C private hospital business entities in Greater Surabaya have partnered with BPJS Health and Employment, namely 51 respondents (83.6% of the total respondents).

**Table 8.**  
**BPJS Health and Employment Partnerships**

No	BPJS Health and Employment Partnership	Number of Respondents	Percentage %
1	Yes	51	83.6%
2	No	10	16.4%
Total		61	100%

**Characteristics of the Number of Respondents Based on Procurement Standardization**

Table 9 presents data on the characteristics of the number of respondents based on procurement standardization. It can be seen in the table that the characteristics of the respondents who were sampled in this study based on Procurement Standardization were 57 respondents (93.4%), then 4 respondents (6.6%) were not standardized. This shows that class C private hospitals in Surabaya Raya have carried out procurement standardization, namely 57 respondents (93.4% of the total respondents).

**Table 9**  
**Number of Respondents Based on Procurement Standardization**

No	Hospital Procurement Standardization	Number of Hospitals	%
1	Standardized Procurement	57	93.4%
2	Not Standardized	4	6.6%
Total		61	100%

**Table 10**  
**Convergent Validity and Reliability**

Variables	Indicator	Validity		Reliability		
		AVE	Factor Loading	Information	Construct Reliability	Information
Sustainable Leadership (X1)	X1.1	0.635	0.795	Valid	0.963	Reliable
	X1.2		0.792	Valid		
	X1.3		0.826	Valid		
	X1.4		0.857	Valid		
	X1.5		0.676	Valid		
	X1.6		0.788	Valid		
	X1.7		0.766	Valid		
	X1.8		0.731	Valid		
	X1.9		0.712	Valid		
	X1.10		0.773	Valid		
	X1.11		0.749	Valid		
	X1.12		0.724	Valid		
	X1.13		0.910	Valid		
	X1.14		0.892	Valid		
	X1.15		0.913	Valid		
Innovation Capability (X1)	X1.1	0.612	0.801	Valid	0.917	Reliable
	X1.2		0.811	Valid		
	X1.3		0.799	Valid		
	X1.4		0.743	Valid		
	X1.5		0.759	Valid		
	X1.6		0.743	Valid		
	X1.7		0.818	Valid		
	X1.1		0.658	0.897		

Variables	Indicator	Validity			Reliability	
		AVE	Factor Loading	Information	Construct Reliability	Information
Green Innovation Strategy (Y3)	X1.2		0.762	Valid		
	X1.3		0.836	Valid		
	X1.4		0.734	Valid		
	X1.5		0.830	Valid		
	X1.6		0.711	Valid		
	X1.7		0.803	Valid		
	X1.8		0.845	Valid		
	X1.9		0.882	Valid		
	X1.10		0.789	Valid		
	Innovation Capability (X1)	X1.1	0.612	0.801	Valid	0.917
X1.2			0.811	Valid		
X1.3			0.799	Valid		
X1.4			0.743	Valid		
X1.5			0.759	Valid		
X1.6			0.743	Valid		
X1.7			0.818	Valid		
Green Innovation Strategy (Y3)	Y3.1	0.658	0.897	Valid	0.950	Reliable
	Y3.2		0.762	Valid		
	Y3.3		0.836	Valid		
	Y3.4		0.734	Valid		
	Y3.5		0.830	Valid		
	Y3.6		0.711	Valid		
	Y3.7		0.803	Valid		
	Y3.8		0.845	Valid		
	Y3.9		0.882	Valid		
	Y3.10		0.789	Valid		
Sustainability Performance (X1)	Y1.1	0.558	0.655	Valid	0.945	Reliable
	Y1.2		0.766	Valid		
	Y1.3		0.755	Valid		
	Y1.4		0.892	Valid		
	Y1.5		0.807	Valid		
	Y1.6		0.889	Valid		
	Y1.7		0.773	Valid		
	Y1.8		0.809	Valid		
	Y1.9		0.686	Valid		
	Y1.10		0.713	Valid		
	Y1.11		0.785	Valid		
	Y1.12		0.741	Valid		
	Y1.13		0.703	Valid		
	Y1.14		0.855	Valid		

### Discriminant Validity

Discriminant validity shows a test to measure how far a construct is truly different from other constructs (Ghozali, 2014). A high discriminant validity value provides evidence that a construct is unique and able to capture the phenomenon being measured.

Fornell-Larcker Criterion is an approach to assess discriminant validity by comparing the square root of the AVE value with the correlation of latent variables. Specifically, the square root of each AVE construct must be greater than the highest correlation with other constructs (78). The results of the correlation between constructs and the square root of AVE are shown in Table 10. Based on Table 10, it can be concluded that the AVE square root value for each latent variable is greater than the correlation value between the latent variable and other latent variables, so it can be stated that the instrument used in this study has been designed to have good discriminant validity based on the Fornell-Larcker Criterion.

**Table 11**  
**Fornell-Larcker Discriminant Validity**

	Green Innovation Capability	Innovation Capability	Sustainability Performance	Sustainable Leadership
Green Innovation Capability	0.811			
Innovation Capability	0.888	0.783		
Sustainability Performance	0.952	0.882	0.747	
Sustainable Leadership	0.929	0.912	0.932	0.798

### Structural Model Testing

Structural model testing (inner model) is carried out after the results of the research data analysis pass the outer model test, the inner model test is carried out by looking at the coefficient of determination ( $R^2$  value) and the path coefficient value.

### Model Quality and Suitability Evaluation

Coefficient of determination ( $R^2$ ) is a measure to assess predictive accuracy and test the suitability of the model. The resulting coefficient represents the combined influence of exogenous latent variables on endogenous latent variables. This coefficient indicates the amount of variance in the endogenous variable explained by all exogenous variables associated with it (78). The value of  $R^2$  approaching

0.75 indicates a high (strong) predictive ability of the model, the value of  $R^2$  approaching 0.5 indicates moderate predictive ability of the model, and the value of  $R^2$  approaching 0.25 indicates a weak predictive ability of the model. The value of  $R^2$  The results obtained from the analysis of this research can be seen in Table 12.

Based on Table 12, it can be seen that the value of the  $R^2$  variable sustainability performance is 0.924. This value shows that the strength of the sustainable leadership and green innovation strategy variables in predicting sustainability performance is 92.4%. The  $R^2$  value of the firm performance variable is 0.924. This value shows that the strength of the sustainable leadership, innovation capability, and green innovation strategy variables in predicting firm performance is 92.4%. The  $R^2$  value of the innovation capability variable is 0.831. This value shows that the strength of the sustainable leadership variable in predicting innovation capability is 83.1%. The value of  $R^2$  of the green innovation strategy variable is 0.873. This value shows that the strength of the sustainable leadership and innovation capability variables in predicting green innovation strategy is 87.3%.

**Table 12**  
**Coefficient of Determination R Square**

	R Square	R Square Adjusted	Criteria
Sustainability Performance	0.924	0.921	Tall
Innovation Capability	0.831	0.829	Tall
Green Innovation Strategy	0.873	0.869	Tall

The next evaluation of model quality is the predictive relevance or Q Square test for the structural model. The purpose of this test is to determine how good the observation values produced by the model and the estimates of its parameters are. The Q Square value is greater than 0, then it can be said that the model has predictive relevance. The Q Square value  $> 0$  indicates that the exogenous construct variables have predictive relevance for the endogenous construct variables. In this study, the Q Square value is  $\geq 0.35$ , so it can be concluded that the predictive relevance is quite large. The Q Square value is shown in Table 13 as follows:

**Table 13**  
**Q Square Value**

	SSO	SSE	Q2(=1- SSE/SSO)
Sustainable Leadership	1170,000	1170,000	
Innovation Capability	546,000	288,211	0.472
Green Innovation Strategy	780,000	353,912	0.546
Sustainability Performance	1092,000	581,480	0.468

Based on Table 13 q square it can be concluded, Q square value for innovation capability is 0.472, and the Q square value is more than 0, so sustainable leadership has a prediction for innovation capability. It is known that the Q Square value innovation capability of 0.472 has a high level of predictive relevance. Q square value for green innovation strategy is 0.546, and the Q square value is more than 0, so sustainable leadership has a prediction for green innovation strategy. It is known that the Q Square value green innovation strategy of 0.546 has a high level of predictive relevance. Q square value for sustainability performance is 0.468, and the q square value is more than 0, so sustainable leadership has a prediction for sustainability performance. It is known that the Q Square value sustainability performance of 0.468 has a high level of predictive relevance.

Standardized Root Mean Square Residual (SRMR) in this study was conducted to measure the model's fit. The results of the Model Fit test showed that the SRMR value was below 0.008 (see table 14), which means it was declared an acceptable fit. This indicates that this research model is suitable for empirical data.

**Table 14.**  
**Fit Model**

	Saturated Model	Estimated Model
SRMR	0.069	0.069
d_ULS	5,155	5,155
d_G	7,800	7,800
Chi-Square	2120,478	2120,478
NFI	0.571	0.571

### Hypothesis Testing

Hypothesis testing is done by path analysis with the aim of analyzing the causal relationship between variables using the path coefficient as a value in determining the magnitude of the influence of exogenous variables on endogenous variables (Lin et al., 2020). In PLS SEM analysis, the direct effects value is the path coefficient used to indicate the strength of the relationship and the direction of the relationship on the variable, whether a hypothesis has a positive or negative direction. The range of path coefficients ranges from -1 to +1. If the value is in the range of 0 to 1, it can be stated as positive, while if the value is in the range of -1 to 0, it is stated as negative (Lin et al., 2020). The structural model analysis in this study uses bootstrapping (default).

### Direct Effect

Direct effect is a direct influence to analyze the path coefficient from exogenous variables to endogenous variables, by looking at the path coefficient value or inner model of direct relationship hypothesis testing can be proven by looking at the level of significance in hypothesis testing. The results of direct effect hypothesis testing are shown in table 15.

**Table 15.**  
**Results of Direct Effect Hypothesis Testing**

Hypothesis	Relationships	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	t-Statistics (O/STDEV)	p-values	Information
H1	Sustainable Leadership → Sustainability Performance	0.323	0.353	0.146	2,210	0.028	Significant
H2	Sustainable Leadership → Innovation Capability	0.912	0.903	0.052	17,654	0,000	Significant
H3	Innovation Capability → Sustainability Performance	0.041	0.020	0.106	0.383	0.702	Not Significant
H5	Sustainable Leadership → Green Innovation Strategy	0.710	0.713	0.132	5,393	0,000	Significant
H6	Green Innovation Strategy → Sustainability Performance	0.616	0.602	0.127	4,847	0,000	Significant
H8	Innovation Capability → Green Innovation Strategy	0.240	0.229	0.159	1,508	0.132	Not Significant

The direct effect inner model analysis in Table 18 can be explained as follows. The results of the parameter estimation of the influence of sustainable leadership on sustainability performance show a significant influence with a significance value of p value of 0.028 or 2.8% (smaller than the real level of 5%) the resulting influence coefficient is 0.353 (positive). This shows that the higher the sustainable leadership, the higher the sustainability performance . Thus, the first hypothesis stating that sustainable leadership has a positive effect on sustainability performance can be accepted.

The results of the parameter estimation of the influence of sustainable leadership on innovation capability show a significant influence with a significance value of p value of 0.00 or 0.8% (smaller than the real level of 5%) the resulting influence coefficient is 0.903 (positive), meaning that the higher the sustainable leadership, the higher the innovation capability . Thus, the second hypothesis stating that sustainable leadership has a positive effect on innovation capability can be accepted.

The results of the parameter estimation of the influence of innovation capability on sustainability performance show an insignificant effect with a significance value of p value of 0.702 or 70.2% (greater than the real level of 5%) the resulting influence coefficient is 0.020 (positive), meaning that the higher the innovation capability , the higher the sustainability performance . Thus, the second hypothesis stating that innovation capability has a positive effect on sustainability performance can be rejected.

The results of the parameter estimation of the influence of sustainable leadership on green innovation strategy show a significant influence with a significance value of p value of 0.000 or 0% (smaller than the real level of 5%) the resulting influence coefficient is 0.713 (positive). This shows that the higher the sustainable leadership , the higher the green innovation strategy. Thus, the fifth hypothesis stating that sustainable leadership has a positive effect on green innovation strategy can be accepted.

The results of the parameter estimation of the influence of green innovation strategy on sustainability performance show a significant influence with a significance value of p value of 0.000 or 0% (smaller than the real level of 5%) the resulting influence coefficient is 0.602 (positive), meaning that the higher the green innovation strategy , the higher the sustainability performance . Thus, the sixth hypothesis stating that green innovation strategy has a positive effect on sustainability performance can be accepted.

The results of the parameter estimation of the influence of innovation capability on green innovation strategy show an insignificant influence with a significance value of p value of 0.132 or 13.2% (greater than the real level of 5%) the resulting influence coefficient is 0.229 (positive). Thus, the eighth hypothesis stating that innovation capability has a positive effect on green innovation strategy is rejected.

**Indirect Effects**

Indirect effects analysis is conducted to see the influence of mediation or indirect influence which is the result of multiplying its direct influence, while to determine the significance of the indirect effect , the bootstrapping method will be used. Indirect effect is used to see the presence of mediating variables that connect the independent variables with the dependent variables and the bootstrapping results must obtain a calculated t-statistic value greater than 1.96 or a p- value less than 5%, then it can be concluded that the mediation effect is significant.

The influence of mediation can also be seen from the nature of the mediation, by seeing whether the direct influence of the exogenous variable on the endogenous variable is significant, and its indirect influence through the mediating variable also passes through a significant path, then it is called partial mediation . Conversely, if the direct influence of the exogenous variable on the endogenous variable is not significant, while its indirect influence through the mediating variable also passes through a significant path, then it is called full mediation. (78) . The results of the indirect effect test of this study are presented in Table 16 as follows.

**Table 16**  
**Results of Indirect Effect Hypothesis Testing (Indirect Effect)**

	Hypothesis	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	t-statistics (IO/STDE VI)	p-values	Information	Characteristic Mediator
H6	Sustainable Leadership → Innovation Capability → Sustainability Performance	0.037	0.019	0.096	0.386	0.700	Not Significant	No Effect Mediation
H7	Sustainable Leadership → Green Innovation Strategy → Sustainability Performance	0.438	0.436	0.140	3,133	0.002	Significant	Partial Mediation

In table 16 above, the results of the indirect effect test can be explained as follows. The direct influence of sustainable leadership on sustainability performance is significant with a positive direction, while its indirect influence through the mediation of innovation capability is known to be insignificant, with a mediation nature of no effect. mediation. Thus there is no mediation effect of innovation capability. on the influence of sustainable leadership on sustainability performance. Thus the fourth hypothesis is rejected.

The direct effect of sustainable leadership on sustainability performance is significant with a positive direction, while its indirect effect through the mediation of green innovation strategy is known to be significant, with the nature of partial mediation. These results indicate that both

indirect and direct effects are significant and have the same direction. This study can be concluded that green innovation strategy has a partial mediation effect on the influence of sustainable leadership on sustainability performance. Thus, the seventh hypothesis is declared accepted.

#### **Sustainable Leadership has a positive effect on Sustainability Performance.**

The results of data analysis show a positive relationship between sustainable leadership and sustainability performance, where the higher the sustainable leadership, the higher the sustainability performance. This finding confirms the theory of Resource Base View and Corporate Sustainability, which states that competitive advantage is influenced by internal resources, in this case sustainable leadership. This is important to achieve a balanced sustainability performance between business, social, and environmental aspects. Hospitals in Surabaya Raya have a positive perception that sustainable leadership plays an important role in improving sustainability performance, with an average response above 4.2. This finding also extends previous research showing that sustainable leadership supports the achievement of sustainability performance.

#### **Sustainable Leadership has a positive effect on Innovation Capability**

The study shows a positive relationship between sustainable leadership and innovation capability, where the higher the sustainable leadership value, the higher the innovation capability value. This confirms the Resource Base View theory, where sustainable leadership helps build a culture of sustainable innovation. Class C hospitals in Greater Surabaya have demonstrated innovation efforts, especially in technological transformation for medical services, with the highest average value of 4.92 on the innovation development indicator. This finding also confirms that leaders who focus on sustainability can improve innovation capabilities in hospitals.

#### **Innovation Capability has a positive effect on Sustainability Performance**

This study found that innovation capability does not affect sustainability performance. Although respondents showed a positive perception of the relationship between the two, the statistical results did not support the hypothesis that innovation capability improves sustainability performance. Class C hospitals, with limited resources and limited innovation capabilities, cannot innovate optimally to drive sustainability performance. This is in line with previous studies which state that innovation capability has a greater effect on the long term, rather than on achieving short-term sustainability performance.

#### **Innovation Capability mediates the positive effect of Sustainable Leadership on Sustainability Performance**

This study found that innovation capability does not mediate the effect of sustainable leadership on sustainability performance. This finding indicates that although sustainable leadership has a positive effect on innovation capability, low innovation capability in Class C hospitals hinders the achievement of sustainability performance. Class C hospitals in Surabaya Raya do not have sufficient resources to make long-term investments, such as sophisticated medical devices, thus hindering the progress of innovation needed to achieve sustainability performance.

#### **Positive Influence of Sustainable Leadership on Green Innovation Strategy**

This study shows that there is a positive influence between sustainable leadership and green innovation strategy, where the higher the sustainable leadership value, the higher the green innovation strategy value. This finding confirms hypothesis 5 (H5) which tests the positive influence of sustainable leadership on green innovation strategy. The results of this study expand the understanding of the relationship between the two variables, by referring to a previous study by Hu et al. (2023) which explains that organizations that support sustainable development, especially through the role of sustainable leaders, can adopt values of social, environmental responsibility, and ethical behavior. Boeske (2023) also confirmed that sustainable leadership, through managerial actions, can make the right strategic decisions, including in terms of green

innovation strategy. From these findings, it can be concluded that leaders who have a strong sustainability vision can encourage the adoption of a more dynamic green innovation strategy, provide sustainable competitive advantage, and support the integration of sustainability into business strategy, as expressed by Pastore & Massacesi (2020). Leaders who are proactive in setting a shared vision and motivating subordinates to achieve long-term goals will develop a more focused green strategy, increase the use of environmentally friendly technologies, and reduce environmental impacts. For class C private hospitals in Surabaya Raya, it is important to improve sustainable leadership practices in order to develop and implement green innovation strategies. For example, hospitals can develop environmental strategies in strategic plans, such as developing green hospitals, implementing waste reduction programs, and promoting the use of environmentally friendly materials.

### **Green Innovation Strategy Has a Positive Impact on Sustainability Performance**

This study also found that there is a positive influence between green innovation strategy and sustainability performance. This finding confirms hypothesis 6 (H6), which shows that the higher the value of green innovation strategy, the higher the sustainability performance of class C private hospitals. Most respondents of class C private hospitals in Greater Surabaya gave high scores to sustainability performance indicators, especially in medical waste separation, which shows the hospital's commitment to complying with government regulations, such as PermenKes No. 18 of 2020 concerning medical waste management. The implementation of a green innovation strategy not only improves environmental and social performance but also provides economic benefits, such as cost efficiency through the use of renewable energy and waste reduction. It is important for class C private hospital management to adopt a green innovation strategy in order to support sustainable development. This can be done through various steps, such as efficient energy management, the use of environmentally friendly technology, and the implementation of the ISO 50001 Energy Management System (EnMS) to monitor and reduce greenhouse gas emissions.

### **Green Innovation Strategy Mediates the Positive Influence of Sustainable Leadership on Sustainability Performance**

This study also found that green innovation strategy can mediate the effect of sustainable leadership on sustainability performance, which answers the seventh problem formulation and hypothesis 7 (H7). The results of the study indicate that sustainable leadership has a significant direct effect on sustainability performance, and its indirect effect through green innovation strategy is also significant, with partial mediation properties. This means that green innovation strategy functions as an intermediary variable that strengthens the effect of sustainable leadership on sustainability performance. This finding confirms that sustainable leadership plays an important role in forming a green innovation strategy that can improve hospital sustainability performance. Leaders who can identify, inspire, and implement policies and behaviors that are consistent with sustainability principles will encourage hospitals to develop environmentally friendly innovation

### **Innovation Capability has a Positive Influence on Green Innovation Strategy**

This study found that innovation capability has no significant effect on green innovation strategy. This result does not confirm hypothesis 8 (H8), which expects a positive effect between innovation capability and green innovation strategy. Although class C private hospitals in Greater Surabaya have begun to adopt green innovation strategy by innovating in the fields of waste reduction and energy efficiency, the innovation capability possessed by the hospitals is still limited to the stage of compliance with government regulations. This study shows that the innovation capability of class C private hospitals is still not strong enough to encourage green innovation comprehensively, especially in terms of the investment needed to develop a green innovation strategy.

## CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

The findings of this study confirm and expand the results of research which explains that there is an influence of sustainable leadership on sustainability performance. Sustainability performance of class C private hospitals that have good sustainable leadership affects innovation capability. The findings of this study confirm and expand the results of research that explains that there is an influence of sustainable leadership on innovation capability. Innovation capability does not affect the sustainability performance of class C private hospitals in Surabaya Raya, East Java. This does not confirm the results of previous studies and innovation capability affects sustainability performance.

This study found that there was no influence of innovation capability in mediating the influence of sustainable leadership on the sustainability performance of class C private hospitals in Surabaya Raya, East Java. The findings of this study do not confirm the results of previous studies in this case innovation capability mediates sustainable leadership on sustainability performance. The results of the hypothesis testing study indicate that innovation capability does not mediate the influence of sustainable leadership on sustainability performance.

This finding confirms and extends the results of the study stating that there is a positive influence of sustainable leadership on green innovation strategy, further explaining that organizations that support sustainable development, and the role of sustainable leaders use social responsibility values. Environmental responsibility and ethical behavior in this study explain that sustainable leadership through managerial actions will make the right and quality decisions in strategic decision making through green innovation strategy. This study found that there is a positive influence of green innovation strategy on sustainability performance. The results of this study confirm and expand the results of research that explains that green innovation strategy has an effect on sustainability performance as in previous studies.

This study found that there is an influence of green innovation strategy in mediating the influence of sustainable leadership towards sustainability performance in class C private hospitals in Surabaya Raya, East Java. The findings of this study confirm and expand the results of research that explains green innovation strategy mediates the influence of sustainable leadership on sustainability performance, Innovation capability does not affect the green innovation strategy of class C private hospitals in Surabaya Raya, East Java. This does not support previous research that explains innovation capability has a positive effect on green innovation strategy.

This study is not without limitations, which need to be explicitly acknowledged to avoid potential misinterpretation of the findings and to provide direction for future research. First, this study adopts innovation capability indicators based on the framework proposed by Zawislak et al. (2012), a model that has not been extensively applied empirically within the healthcare industry, particularly in the context of developing countries. Most prior studies employing this framework have been conducted in the manufacturing sector and within sustainability-oriented research settings. Consequently, differences in industry characteristics, regulatory environments, and organizational dynamics may have influenced the applicability of the indicators and, in turn, the results of this study. Second, this research does not include a comparative or difference analysis between hospitals operating under foundation-based ownership structures and those organized as limited liability companies. As a result, potential variations in sustainable leadership practices, innovation capability, and green innovation strategies and their respective impacts on sustainability performance could not be systematically examined. Addressing these limitations in future studies would enable a more nuanced understanding of contextual and structural differences across hospital ownership types and enhance the generalizability of the findings.

Based on the results of this study, several integrated recommendations can be proposed for Class C private hospitals in Greater Surabaya, East Java, as well as for key supporting stakeholders. Hospital leaders are encouraged to continuously cultivate a strong culture of innovation as a strategic foundation for enhancing innovation capability and strengthening internal resources as unique and valuable assets of each hospital. In the long term, hospitals that consistently improve their innovation capabilities are advised to develop and implement structured green innovation strategy plans as a concrete commitment to environmentally responsible

practices. This effort also reflects a collective commitment among private hospital management in Greater Surabaya to actively participate in sustainable development initiatives in collaboration with local government. The relatively high perception of sustainable leadership among respondents further suggests that hospital leaders should maintain and enhance sustainable leadership practices to support sustainable development in Indonesia's healthcare sector. In addition, hospital leaders are expected to optimally leverage available resources and innovation capabilities to build a culture of green practices and to adopt a comprehensive and integrative perspective in understanding how innovation capability and green innovation strategies jointly influence sustainability performance. Such an approach demonstrates leadership commitment to continuously nurturing green creativity, formulating clear plans and operational guidelines, and consistently implementing green innovation strategies as practical references for supporting government sustainability agendas.

In parallel, this study also provides recommendations for external stakeholders, particularly the government and the East Java Private Hospital Association. The East Java Provincial Environmental Service is expected to play a more proactive role in promoting green initiatives within the healthcare sector by developing and implementing appropriate ranking or assessment systems tailored to health service institutions, such as green metric hospital indicators that refer to GreenShip criteria, Green Building Council certification, and ISO 14001:2004 environmental management standards. In addition, the government is encouraged to introduce tax incentive policies for hospitals that actively implement green movements, especially those that adopt the green hospital concept based on their achievement of green metric hospital indices across hospital classifications. Furthermore, the East Java Private Hospital Association (ARSSI East Java) is expected to act as a knowledge hub for the development and dissemination of green innovation practices, particularly in Greater Surabaya, by designing work programs that support the green hospital movement, including competitions or collaborative forums to explore and showcase creative ideas arising from green innovation initiatives among private hospitals in East Java.

## REFERENCES

- Argandoña, A., & Hoivik, H. von W. (2009). Corporate social responsibility: One size does not fit all. Collecting evidence from Europe. *Journal of Business Ethics*, 89(SUPPL 3), 221–234. <https://doi.org/10.1007/s10551-010-0394-4>
- Assoratgoon, W., & Kantabutra, S. (2023). Toward a sustainability organizational culture model. *Journal of Cleaner Production*, 400(February), 136666. <https://doi.org/10.1016/j.jclepro.2023.136666>
- Badan Pusat Statistik, (2021, December 17). Indikator Tujuan Pembangunan Berkelanjutan Indonesia 2021. Jakarta: Badan Pusat Statistik.
- Barney, J. (1991). Firm Resources and sustained competitive advantage. *Journal of Management*, 17(1), 99–120. [doi:10.1177/014920639101700108](https://doi.org/10.1177/014920639101700108)
- Borges de Oliveira, K., & de Oliveira, O. J. (2022). Making hospitals sustainable: Towards greener, fairer and more prosperous services. *Sustainability*, 14(15), 9730. [doi:10.3390/su14159730](https://doi.org/10.3390/su14159730)
- Brown, A. (2020). Communication and leadership in healthcare quality governance: Findings from comparative case studies of eight public hospitals in Australia. *Journal of Health Organization and Management*, 34(2), 144–161. <https://doi.org/10.1108/JHOM-07-2019-0194>
- Burawat, P. (2019). The relationships among transformational leadership, sustainable leadership, lean manufacturing and sustainability performance in Thai SMEs manufacturing industry. *International Journal of Quality and Reliability Management*, 36(6), 1014–1036. <https://doi.org/10.1108/IJQRM-09-2017-0178>
- Chang, R., Zuo, J., Zhao, Z., Zillante, G., Gan, X., & Soebarto, V. (2017). Evolving theories of sustainability and firms : History , future directions and implications for renewable energy research. *Renewable and Sustainable Energy Reviews*, 72(November 2015), 48–56. <https://doi.org/10.1016/j.rser.2017.01.029>

- Chin, T. A., Tat, H. H., & Sulaiman, Z. (2015). Green supply chain management, environmental collaboration and sustainability performance. *Procedia CIRP*, 26, 695–699. <https://doi.org/10.1016/j.procir.2014.07.035>
- Dion, H., & Evans, M. (2023). Strategic frameworks for sustainability and corporate governance in healthcare facilities; approaches to energy-efficient hospital management. *Benchmarking*. <https://doi.org/10.1108/BIJ-04-2022-0219>
- Eiadat, Y., Kelly, A., Roche, F., & Eyadat, H. (2008). *Green and competitive ? An empirical test of the mediating role of environmental innovation strategy*. 43, 131–145. <https://doi.org/10.1016/j.jwb.2007.11.012>
- Fatoki, O. (2021). Sustainable leadership and sustainable performance of hospitality firms in South Africa. *Entrepreneurship and Sustainability Issues*, 8(4), 610–621. [https://doi.org/10.9770/jesi.2021.8.4\(37\)](https://doi.org/10.9770/jesi.2021.8.4(37))
- Fernández Fernández, Y., Fernández López, M. A., & Olmedillas Blanco, B. (2018). Innovation for sustainability: The impact of R&D spending on CO2 emissions. *Journal of Cleaner Production*, 172, 3459–3467. <https://doi.org/10.1016/j.jclepro.2017.11.001>
- Ghozali, I. (2014). Structural Equation Modeling Metode Alternatif dengan Partial Least Square (4th ed.). In *Badan Penerbit Universitas Diponegoro*. Badan Penerbit Universitas Diponegoro.
- Hair, J. F., Black, W. C., Babin, B., & Anderson, R. E. (2024). *Multivariate Data Analysis* (8th ed.). Hampshire, UK: Cengage.
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2–24. [doi:10.1108/ebrev-11-2018-0203](https://doi.org/10.1108/ebrev-11-2018-0203)
- Hallinger, P., & Suriyankietkaew, S. (2018). Science Mapping of the Knowledge Base on Sustainable Leadership, 1990-2018. *Sustainability (Switzerland)*, 10 (12), 1–22. <https://doi.org/10.3390/su10124846>
- Hanaysha, J. R., Al-Shaikh, M. E., Joghee, S., & Alzoubi, H. M. (2022). Impact of Innovation Capabilities on Business Sustainability in Small and Medium Enterprises. *FIIB Business Review*, 11(1), 67–78. <https://doi.org/10.1177/23197145211042232>
- Hensher, M., & McGain, F. (2020). Health care sustainability metrics: Building a safer, low-carbon health system. *Health Affairs*, 39 (12), 2080–2087. <https://doi.org/10.1377/hlthaff.2020.01103>
- Hu, L., Chang, T. W., Lee, Y. S., Yen, S. J., & Ting, C. W. (2023). How Does Sustainable Leadership Affect Environmental Innovation Strategy Adoption? The Mediating Role of Environmental Identity. *International Journal of Environmental Research and Public Health*, 20(1). <https://doi.org/10.3390/ijerph20010894>
- Indonesia. (2023). *Undang-Undang Republik Indonesia Nomor 17 Tahun 2023 Tentang Kesehatan*. Lembaran Negara RI tahun 2023 Nomor 105, Sekretariat negara. Jakarta.
- Iqbal, Q., & Ahmad, N. H. (2021). Sustainable development: The colors of sustainable leadership in learning organization. *Sustainable Development*, 29(1), 108–119. <https://doi.org/10.1002/sd.2135>
- Iqbal, Q., Ahmad, N. H., & Halim, H. A. (2020). How Does Sustainable Leadership Influence Sustainable Performance? Empirical Evidence From Selected ASEAN Countries. *SAGE Open*, 10(4). <https://doi.org/10.1177/2158244020969394>
- Iqbal, Q., Ahmad, N. H., & Li, Y. (2021). Sustainable leadership in frontier asia region: Managerial discretion and environmental innovation. *Sustainability (Switzerland)*, 13(9), 1–14. <https://doi.org/10.3390/su13095002>
- Iqbal, Q., Ahmad, N. H., & Li, Z. (2020). Frugal-based innovation model for sustainable development: technological and market turbulence. *Leadership and Organization Development Journal*, 42(3), 396–407. <https://doi.org/10.1108/LODJ-06-2020-0256>
- Iqbal, Q., Ahmad, N. H., Li, Z., & Li, Y. (2022). To walk in beauty: Sustainable leadership, frugal innovation and environmental performance. *Managerial and Decision Economics*, 43(3), 738–750. <https://doi.org/10.1002/mde.3415>

- Iqbal, Q., Ahmad, N. H., Nasim, A., & Khan, S. A. R. (2020). A moderated-mediation analysis of psychological empowerment: Sustainable leadership and sustainable performance. *Journal of Cleaner Production*, 262. <https://doi.org/10.1016/j.jclepro.2020.121429>
- Karliner, J., Slotterback, S., Boyd, R., Ashby, B., Steele, K., & Wang, J. (2020). Health Care's climate footprint: The Health Sector Contribution and opportunities for action. *European Journal of Public Health*, 30(Supplement\_5), 311. [doi:10.1093/eurpub/ckaa165.843](https://doi.org/10.1093/eurpub/ckaa165.843)
- Liao, Y. (2022). Sustainable leadership: A literature review and prospects for future research. *Frontiers in Psychology*, 13(November), 1–11. <https://doi.org/10.3389/fpsyg.2022.1045570>
- Lin, W. L., Mohamed, A. Bin, Sambasivan, M., & Yip, N. (2020). Effect of green innovation strategy on firm-idiosyncratic risk: A competitive action perspective. *Business Strategy and the Environment*, 29(3), 886–901. <https://doi.org/10.1002/bse.2405>
- Maulana, N. (2020). Menelisik Strategi Pemasaran Rumah Sakit Menggunakan Market Based-Management. *Jurnal Manajemen Bisnis*, 17(3), 374. <https://doi.org/10.38043/jmb.v17i3.2527>
- McCann, J. T., & Holt, R. A. (2010). Servant and sustainable leadership: An analysis in the manufacturing environment. *International Journal of Management Practice*, 4(2), 134–148. <https://doi.org/10.1504/IJMP.2010.033691>
- Mehra, R., & Sharma, M. K. (2021). Measures of sustainability in Healthcare. *Sustainability Analytics and Modeling*, 1, 100001. [doi:10.1016/j.samod.2021.100001](https://doi.org/10.1016/j.samod.2021.100001)
- Migdadi, Y. K. A. A., & Omari, A. A. (2019). Identifying the best practices in green operations strategy of hospitals. *Benchmarking*, 26(4), 1106–1131. <https://doi.org/10.1108/BIJ-09-2017-0242>
- Mousa, S. K., & Othman, M. (2020). The impact of green human resource management practices on sustainable performance in healthcare organisations: A conceptual framework. *Journal of Cleaner Production*, 243, 118595. <https://doi.org/10.1016/j.jclepro.2019.118595>
- Nanath, K., & Pillai, R. R. (2017). The Influence of Green IS Practices on Competitive Advantage: Mediation Role of Green Innovation Performance. *Information Systems Management*, 34(1), 3–19. <https://doi.org/10.1080/10580530.2017.1254436>
- Nisha, N. T., Nawaz, N., Mahalakshmi, J., Gajenderan, V., & Hasani, I. (2022). A Study on the Impact of Sustainable Leadership and Core Competencies on Sustainable Competitive Advantage in the Information Technology (IT) Sector. *Sustainability (Switzerland)*, 14(11). <https://doi.org/10.3390/su14116899>
- Pasqualini Blass, A., da Costa, S. E. G., de Lima, E. P., & Borges, L. A. (2017). Measuring environmental performance in hospitals: A practical approach. *Journal of Cleaner Production*, 142, 279–289. <https://doi.org/10.1016/j.jclepro.2016.07.213>
- Pufal, N. (2019). Sustainability and Innovation Capabilities in an Innovation Award Winner Company. *Journal of Business Administration Research*, 2(1), 15–22. <https://doi.org/10.30564/jbar.v2i1.434>
- Rauter, R., Globocnik, D., Perl-Vorbach, E., & Baumgartner, R. J. (2019). Open innovation and its effects on economic and sustainability innovation performance. *Journal of Innovation and Knowledge*, 4(4), 226–233. <https://doi.org/10.1016/j.jik.2018.03.004>
- Rehman, S. U., Bhatti, A., Kraus, S., & Ferreira, J. J. M. (2020). The role of environmental management control systems for ecological sustainability and sustainable performance. *Management Decision*, 59(9), 2217–2237. <https://doi.org/10.1108/MD-06-2020-0800>
- Sharma, R. R. (2019). Evolving a model of sustainable leadership: An ex-post facto research. *Vision: The Journal of Business Perspective*, 23(2), 152–169. [doi:10.1177/0972262919840216](https://doi.org/10.1177/0972262919840216)
- Soewarno, N., Tjahjadi, B., & Fithrianti, F. (2019). Green innovation strategy and green innovation: The roles of green organizational identity and environmental organizational legitimacy. *Management Decision*, 57(11), 3061–3078. <https://doi.org/10.1108/MD-05-2018-0563>
- Suriyankietkaew, S. (2022). Effects of key leadership determinants on business sustainability in entrepreneurial enterprises. *Journal of Entrepreneurship in Emerging Economies*. <https://doi.org/10.1108/JEEE-05-2021-0187>

- Suriyankietkaew, S., & Avery, G. (2016). Sustainable leadership practices driving financial performance: Empirical evidence from Thai SMEs. *Sustainability (Switzerland)*, 8(4), 1–14. <https://doi.org/10.3390/su8040327>
- Suriyankietkaew, S., Krittayaruangroj, K., & Iamsawan, N. (2022). Sustainable Leadership Practices and Competencies of SMEs for Sustainability and Resilience: A Community-Based Social Enterprise Study. *Sustainability (Switzerland)*, 14(10), 1–36. <https://doi.org/10.3390/su14105762>
- Suriyankietkaew, S., & Kungwanpongpan, P. (2021). Strategic leadership and management factors driving sustainability in health-care organizations in Thailand. *Journal of Health Organization and Management*, 36(4), 448–468. [doi:10.1108/jhom-05-2021-0165](https://doi.org/10.1108/jhom-05-2021-0165)
- Suriyankietkaew, S., & Petison, P. (2020). A retrospective and foresight: Bibliometric review of international research on strategic management for sustainability, 1991-2019. *Sustainability (Switzerland)*, 12(1), 1–27. <https://doi.org/10.3390/SU12010091>
- Wang, M., & Liu, Z. (2022). How Do Green Innovation Strategies Contribute to Firm Performance Under Supply Chain Risk? Evidence From China's Manufacturing Sector. *Frontiers in Psychology*, 13(April), 1–11. <https://doi.org/10.3389/fpsyg.2022.894766>
- Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal*, 5(2), 171–180.
- Zawislak, P. A., Alves, A. C., Tello-Gamarra, J., Barbieux, D., & Reichert, F. M. (2012). Innovation capability: From technology development to transaction capability. *Journal of Technology Management and Innovation*, 7(2), 14–25. <https://doi.org/10.4067/s0718-27242012000200002>
- Zhang, W., Xu, F., & Wang, X. (2020). How green transformational leadership affects green creativity: Creative process engagement as intermediary bond and green innovation strategy as boundary spanner. *Sustainability (Switzerland)*, 12(9). <https://doi.org/10.3390/su12093841>