

Article

Realizing Green Airport Performance through Green Management Intransigence, Airport Reputation, Biospheric Value, and Eco-Design

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Abstract: Studies on the effect of biospheric value, eco-design, and green management intransigence on perceived green performance in the tourism and hospitality industry are gradually emerging. However, more evidence is needed from the aviation industry or airport context, especially in Africa. This cross-sectional study aims to probe and demonstrate the effect of biospheric value on green management intransigence and perceived green performance, the mediating role of management intransigence and biospheric value, and the influence on pro-environmental behavior among airport management and employees. The extended theory of planned behavior (TPBe) and triple bottom line theory (TBL)/sustainable economic development theory (SED) (TBL/SED) set the foundation for this research study. With the case study approach, data were collected through online questionnaires from employees and management staff of two international airports in Lagos and Abuja, Nigeria. This scientific study contributes to the literature on green energy by shedding light on the importance of integrating green practices into airport operations with environmentally friendly programs. Its focus on green management intransigence and its implications on employees' behavior has received little or no attention. The data were analyzed using PLS-SEM and Importance–performance matrix analysis (IPMA). The IPMA is innovative as it helps to extend the results of PLS-SEM by also taking the importance and performance of each construct into account graphically as it relates to green airport management. IPMA posits that management tends to take actions to improve conditions that enhance factors of most significant concern to stakeholders. Our results reveal the effect of biospheric value and the behaviors of management and nonmanagement staff of the selected airports on the green performance with apparent differences in the group-specific performance. In practice, this implies an urgent need for airport management to review their approach and strategy to sustainable practices, airports' resilience, and adaptation to climate change for sustainable tourism development. This study advances scientific and practical knowledge of eco-design of airport buildings (EAB), biospheric-value (BV), and green management intransigence (GMI). The findings can assist decision makers and practitioners in embracing green technologies and practices in airport management and operations.

Keywords: biospheric value; green management intransigence; eco-design of airport buildings; perceived green performance; pro-environmental behavior; sustainable tourism



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1. Introduction

The consciousness of management and other stakeholders in the tourism and hospitality industry about the environmental impact of their trade is no more in doubt. The enormous pressure to adopt greener strategies in different industry sectors is increasing [1–3]. Recently, aviation and airport stakeholders have also noticed the impact of airport operations on environmental sustainability and the need for an environmentally friendly management approach [4,5]. Investigating green management, eco-practices, employees' behavior, perception, and efforts

to incorporate eco-friendliness into the mainstream tourism and hospitality industry is a fast-emerging trend [6–8]. However, recent studies highlight the growing efforts, and the focus revolves more on the hotel sector than any other industry sector [9–11]. Hence, green management, mainly green human resource management (GHRM), is increasingly the focus of an investigation by sustainable tourism researchers in the last few decades [9–13]. For instance, research findings reveal that GHRM, directly and indirectly, impacts hotel employees' green behavior and employees' perceived organizational eco-friendly practices [12].

The searchlight on the other sectors of the tourism and hospitality industry, such as the aviation sector, from a green management perspective, is evolving at a slower pace than the hospitality sector [4,14,15]. Pro-environmental belief by management and employees thus necessitates and promotes new ways of thinking, creativity, and problem-solving towards the environment resulting in eco-friendly innovations in management in the hospitality industry [16]. Extant studies on aviation and its environmental impact and innovative green practices to mitigate the effect are basically on airlines operations, especially the environmental impact of planes on long-haul flight operations [17–19]. Not all managements in the industry are ready to adopt environmentally friendly management practices in their daily operations, hence the existence of 'green management intransigence' (GMI). This variable and its impact on environmental sustainability efforts in the workplace, particularly the concern and value for the environment (biospheric value) of airport employees, their perception of green practices and green performance, the attitude of airport management towards eco-friendly behavior and practices, and the impact on employees' behavior are not drawing enough attention from sustainable tourism researchers. Nonetheless, green practices in airports can only be successful with the participation and collaboration of employees and management if the former believe and are convinced that the management is interested in adopting environmentally friendly behaviors. Hence, the current study beams the searchlight on GMI and other key variables discussed in section two.

1.1. Purpose

The primary purpose of this current investigation is to probe the effect of the relationship between the eco-design of airport buildings (EAB), biospheric value (BV), green management intransigence (GMI), and green airport reputations (GAR) on perceived green performance (PGP). In addition, the study examines the mediating roles of BV, GMI, and GAR on PGP. Thus, this study intends to answer the following research questions; (1) How does the relationship between green management intransigence, eco-design of airport buildings, the biospheric value of airport management/employees, and green airport reputation affect perceived green performance? (2) Do the biospheric value of airports' management/employees, green airport reputation, and green management intransigence have mediating roles on the effect of eco-design of airports on perceived green performance?

1.2. Contribution

This study advances the knowledge about the sustainable tourism literature, especially on management intransigence, eco-design of airport buildings, biospheric value, green airport reputation, and perceived green performance. More specifically, its contribution is four folds. First, this study's findings fill an important gap in the airport management field by indicating the vital requirement towards integrating green practices into airport operations with the help of new environmentally friendly programs such as eco-design of airport buildings (new or remodeling old ones) [4]. The management can also adopt new or modify existing policies, processes, practices, and systems for the provision of green areas within the airport, energy management system for energy saving and conservation, renewable energy transition, and efficient waste and water management, including waste reduction and sewage water treatment among others [11,20,21]. These results will, in turn, motivate and convince airport employees of management's readiness to embrace and integrate environmentally friendly behavior into daily airport operations [5].

Second, this study advances knowledge in the tourism and hospitality literature by bridging the gap in the literature on green management intransigence and its implication on employees' behavior which has received little or no attention from researchers in the field. To date, research that probes the relationship between the combination of eco-design of airport buildings, biospheric values, green management intransigence, and management's attitude towards green management is rare in the literature on the tourism and hospitality industry, except for employees' perception and behavior [22].

Third, the study contributes to the literature on green management with a particular focus on airport management and with evidence from the African region. Extant studies on green management, green practices, and green performance focus on one aspect of green management; green human resources management (GHRM), with a bias toward the hotel sector [8,23–26]. Little interest and attention are given to general management and airport management. According to Sharma et al. (2020), out of 403 eco-innovative studies conducted in the last two decades plus, six sectors/categories were identified, including hotels, restaurants, tourism, travel agencies, casinos, multiple sectors, except for the aviation or airport sector, but for only four articles on Airlines, while 227 representing 50% of the total are on the hotel sector. In terms of focus, 107 articles are on green consumerism, 90 are on management/employee engagement in which GHRM in the hotel sector dominates, and in terms of location, 184 articles focused on Europe and the USA, 132 on Asia, and only seven on Africa. At the same time, the rest is shared with the rest of the world [11].

Finally, this study is significant with the use of the importance-performance matrix analysis (IPMA), an emerging analysis technique that has been enhancing and complimenting studies in recent times [27–29]. The IPMA is used to examine the performance and importance of each construct to boost the PLS-SEM analysis result. The IPMA helps extend the results of the PLS-SEM and motivates the conclusion from two different dimensions by taking the performance and importance of each construct among nonmanagement and management staff into account graphically, as shown in this study. Traditionally, importance-performance analysis (IPA) posits that management tends to take actions to improve conditions that enhance factors of most significant concern to customer satisfaction and service quality in camping sites, hospitals, marketing, and other services sectors [30–32]. The improved and current version (IPMA) with the matrix charts is used to analyze and understand the relationships between the cross-sectional data sets in this study and compare the two groups of employees against the different constructs. Therefore, including IPMA in this study is one of the innovative contributions of this study to the literature about sustainable tourism, particularly the literature on green airport management. The study also contributes to practice by helping managers identify and understand which areas to prioritize their actions. Thus, the IPMA findings of this study on green airport performance will help airport management to prioritize their actions to encourage pro-environmental behavior among nonmanagement and management staff alike.

Therefore, this current study focuses on the aviation sector, particularly airport management and employees, to fill the literature void and support airport management practices. It contributes directly to the airport management literature and practices by showing that adaptation and commitment to pro-environmental practices will improve the perception of employees concerning how the organization is performing in terms of environmentally sustainable practices and stimulate their eco-friendly behavior to take advantage of green opportunities in organizations.

2. Literature Review

2.1. Theoretical Focus

The primary assumption of the theory of planned behavior (TPB) is that attitude, subjective norms, and perceived behavioral control are the fundamental predictors of an individual's behavioral intention [33] that is also influenced by three key factors: behavioral beliefs, normative beliefs, and control beliefs, that influence the behavioral intentions of an individual; The argument is that the behavioral intention of a person or group of persons is determined by making some rational choices, and not only by their self-will but also by

other believes [33,34]. According to Garay et al. [33], TPB helps to delineate behavioral intention (BINT) as a consequence of three variables vis-à-vis; an individual's attitude toward certain behavior (ATTI), the subjective norm (NORM) of an individual, as well as the perceived behavioral control (CONT).

TPB is suitable for predicting individual or group behavior in many social science disciplines, such as marketing and psychology. It has been applied in previous studies to the tourism and hospitality industry. For instance, TPB is adopted to test behavioral intentions; to purchase a green product and green behavior [35,36], in the cruise sector [37], hotel sector [38], and airline ticket purchase intention [39], hence, this is relevant to the current study in the aviation sector. In other instances, additional factors have been added to further strengthen the explanatory power of TPB in a specific context, such as environmental belief and environmental consciousness [38,40].

Another theory of interest to this study is sustainable economic development (SED). The SED theory proposition ensures that natural resources are equitably and prudently used to meet the present needs of today's generations without compromising the same opportunity for future generations to meet their future needs using the same resources. The assumption is that all activities, policies, or programs designed for jobs and wealth creation must factor in their general contributions to human well-being environmentally, socially, and economically [41–43].

However, applying these two theoretical assumptions to investigate environmental sustainability and eco-friendly behavior in tourism and hospitality is often limited to consumerism [11]. Most recent studies on green practices, focusing on management/employees' attitudes and behavior, adopt other theories such as social exchange, signaling, job demands-resources (JD-R), and reformulation of attitude theories [9,10]. Hence, the adoption of TPB and SED in this study is to expand their scope and usefulness in probing the emerging construct and new areas of focus for investigation in the industry.

2.2. Hypotheses

The research model of this study is given in Figure 1. The proposed hypotheses are discussed in the figure.

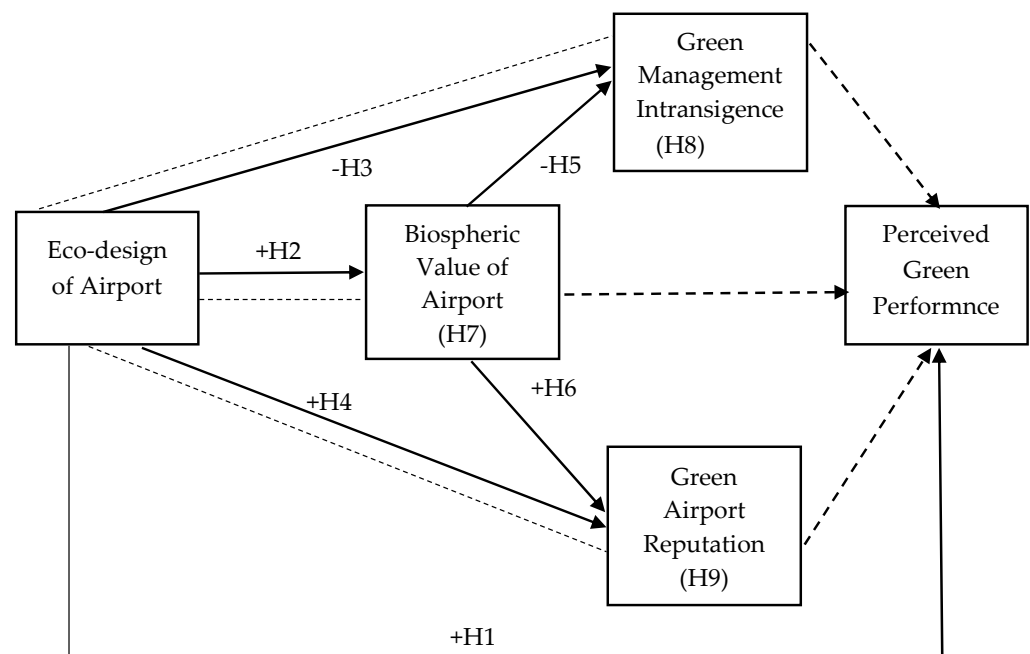


Figure 1. Research Model.

2.2.1. Eco-Design of Airport Buildings and Perceived Green Performance

The hypothesis proposed and tested in this study includes the following variables: eco-design of airport buildings (EAB) positively links with perceived green performance, biospheric value (BV), green management intransigence (GMI), and green airport reputations (GAR), on perceived green performance (PGP). In addition, the study examines the mediating roles of BV, GMI, and GAR on PGP.

The employees are increasingly aware of the negative impacts of climate change, global warming, and the need for green practices in the workplace. Research on employees' perception of management's response to pro-environmental behavior is slowly emerging in the tourism literature. For instance, [44] examined the view of customers on the green image of hotels, while [4] probed customers' behavior and response to the eco-design of airport buildings. The United Nations Environment Program [45] broadly categorizes eco-strategies into various groups, including reduction in materials and selection of the most suitable ones, reduction in environmental impact in the production, distribution, and use phase, extension of the product's useful life span, and design for reuse and recycling. Eco-design strengthens the airport's reputation and the subjective well-being of airport consumers [4]. Rusli and Mohamed [15] discovered some factors that inform the perception of customers about the eco-design of airport chairs in Malaysia's KLIA, including physical characteristics of the chairs such as how recyclable and reusable or eco-friendly the material is, environmental impact, and cost-effectiveness. Other features are attraction feelings in terms of color and design and sensational feelings, including usability and impact on users' physical and mental health.

Green performance refers to the company's ability to reduce its negative impact on the natural environment internally and externally [46]. In other words, green performance measures an organization's interaction with the environment [47]. In an ecological sense, the airport's designation as a Green Airport was an acknowledgment of its commitment to a higher level of environmental protection and community responsibility [48].

Sequel to the above, it is safe to assume that TPB and TBL/SED theories, which delineate the nexus between behavioral influences and sustainable or green practices, are directly linked to the eco-design of airport buildings. Thus, the author predicts that factors such as subjective norms, social impression, and perceived behavioral control, as well as individuals' environmental ethics and environmental consciousness and belief [38,40], contribute immensely to how individuals connect the green nature of airport buildings with their assessment and perception of the green achievement of an airport. Hence, the first hypothesis this study intends to validate is as follows.

Hypothesis 1 (H1). *Eco-design of airport buildings positively affects perceived green performance.*

2.2.2. Eco-Design of Airport Buildings and Biospheric Values of Stakeholders

It is also a reflection of individuals' environmental concerns and preparedness to mitigate them with 'green management' [44] within the airport space and by applying environmental management system (EMS) [49], which ensures that environmental issues are factored into daily routines of airport management, operations, and services within airport buildings.

Essentially, the above speaks directly to the values or importance that both management and other stakeholders, including staff and customers, placed on nature or the biosphere, the natural environment of the airport. People are motivated by biospheric values to avoid pollution, enjoy the earth, merge with nature, and protect the essential environmental parts of their personal and professional philosophies [50]. People with strong biospheric values are highly concerned with the quality of nature and the environment for the sake of the environment itself. They base their judgments about their behaviors on the costs and advantages those behaviors have for the ecosystem [51]. As one of the key airport stakeholders, management's deliberate decision to have their airport buildings designed in

an eco-friendly outlook is analogous to their cognitive understanding/awareness of the above environmental variables [33].

Moreover, the TPB and TBL/SED conceptual framework can also explain how factors such as self-will, attitude, subjective norm, and perceived behavioral control, as well as environmental, ethical, environmental consciousness, and social impression [38,40,52,53], play a determinant role in individuals' and organization behaviors and actions towards being pro-environmental such as decisions on eco-design of airport buildings and the values placed on the natural environment of an airport by different stakeholders. Hence, the following hypothesis is proposed.

Hypothesis 2 (H2). *Eco-design of airport buildings positively affects the biospheric values of stakeholders.*

2.2.3. Eco-Design of Airport Buildings and Green Management Intransigence

The availability of airport buildings with eco-friendly designs and facilities is contingent on whether airport administration is resistant to change (intransigence). Green management intransigence describes reluctance in management decisions to embrace change, such as adopting and adapting green and innovative pro-environment and pro-sustainability planning, and failure to implement green policies such as eco-design of new airport buildings in their development plans or remodeling of existing ones. It can also be described as the skepticism on the part of management toward sustainable practices (Sharma et al., 2020). Management's resistance to change and to pursue of green practices can become significant barriers in organizations [54,55].

TPB perspectives connote that management's decision to go or not to go for the green and sustainable project might not be connected to the attitude (behavioral beliefs) or political will of management and subjective norms (normative beliefs) alone. It is often based on the need to make a rational choice between other factors such as funding, policy, and time constraints (control beliefs). However, the focus here is on the assumption that irrespective of circumstances or those other factors that influence green management intransigence, the eco-design of airport buildings are negatively affected by green management intransigence. Thus, hypothesis number three below is to test this assumption.

Hypothesis 3 (H3). *Eco-design of airport buildings negatively affects green management intransigence.*

2.2.4. Eco-Design of Airport Buildings and Green Airport Reputation

From the TPB/SED perspective [14,43], there is growing criticism of the tourism industry as a significant emission-emitting industry, leading to a persistent call for a reset button targeting a sustainable development approach. A company or organization's reputation regarding its impact on the environment is referred to as its green reputation. It requires time to develop through its long-term green strategies [56]. A favorable corporate green reputation may be attainable for a corporation if it has been determined that its long-term practices are environmentally friendly [57]. Again, the overall reputation of an airport as an environmentally friendly airport is directly linked to how eco-friendly the buildings appear to be in the eyes of users from outside to the inside [4,58,59]. Similarly, the eco-design of airport buildings impacts the efficient use of resources such as energy/electricity. It reduces energy consumption and carbon emission and improves the serviceability of facilities and equipment such as heating, ventilation, and AC (HVAC) which contribute to the air quality within airport buildings [15,20,59].

In earlier findings, Lee et al. [44] uncovered the fact that the green image of a hotel contributes to its reputation and inadvertently influences customers' behavioral intentions, including the intention to revisit, willingness to pay more for a green environment and to recommend the hotel to others. Thus, the current study is not just about airport reputation but about green airport reputation.

Advancement in technological development and diffusion has helped to escalate the speed and the extent to which positive or negative online reviews and e-word-of-mouth can impact an organization's image. Hence, in line with the above findings, the author intends to test the following hypothesis about the eco-design of airport buildings and green airport reputation.

Hypothesis 4 (H4). *Eco-design of the airport positively affects the green airport reputation.*

2.2.5. Biospheric Value of Airport Stakeholders and Green Management Intransigence

According to findings, the trajectory of biospheric value can be traced to environmental psychology, and it can be defined as a value inclination or tendency in which "people judge phenomena based on costs or benefits to ecosystems or the biosphere," which in turn influence their environmental behavior [60–65].

Biospheric value also links to individuals' or organizations' fundamental and robust value for nature, self-nature connections, awareness, consciousness, concerns, and preference for the natural environment/space where human beings relate and interact [60,66]. These values invariably influence positive or negative behavior toward the production, provision, and consumption of environmentally friendly or green products and services [60–62,66–73].

As earlier noted, a body of evidence suggests an escalation in awareness about environmental challenges, contributions of organizations to global warming, and green management. It simultaneously uncovers an increase in deliberate decisions towards environmental protection practices such as the eco-design of airport buildings [4,44,59] and eco-design of airport chairs [15]. Mitigation strategies involve adopting renewable energy, recycling, and adequate water and waste management. Green management can essentially be aided and simplified by applying environmental/energy management systems (EMS), EONS, and EPI [49,74–76].

Management intransigence depicts situations where management generally resists change and prefers maintaining the status quo. It indicates a total absence or partial incorporation of EMS into management practices; worst still, implementation is sometimes completely ignored. Management may not be utterly oblivious to their responsibilities to the environment. However, they reject and resist every call for a shift towards eco-friendly decisions or green management, which signifies green management intransigence.

However, this is a pointer to the values such management placed on the biosphere; the natural environment of the organization, which according to [68], affects their ability to make conscious decisions and deliberate efforts toward green practices such as the eco-design of the airport building. It is consistent with other findings on corporate environmental responsibility (CER), which focuses on pro-environmental practices, procedures, and the process of an organization, which mediates environmental consciousness and friendly behavior in staff [66].

Rupert et al. [66] suggest that the pro-environmental behavior of the organization and the individual staff depends on the extent of the biospheric values of both management and staff. This argument is also alluded to by [60]. They opined a substantial collective or corporate biospheric value of any group or workplace to which an individual belongs, such as an organization, institution, or company. It tends to motivate and increase individuals' pro-environmental actions and behavior. It is also consistent with findings on the influence of biospheric values on the intention to patronize green hotels [64].

Consequently, and in line with TPB and TBL/SED theories, values placed on the airport's natural environment and sustainable use of natural resources such as water and energy by airport stakeholders, including members of staff and management, concessionaires, and passengers is a direct indication of the attitudes of management as a group to CER. It highlights the need for adopting environmentally friendly practices and procedures such as EMS. Therefore, the following hypothesis is deduced.

Hypothesis 5 (H5). *Biospheric values negatively affect green management intransigence.*

2.2.6. Biospheric Values of Airport Stakeholders and Green Airport Reputation

Furthermore, it is assumed that Nigeria's international airport users, passengers, and staff, are among the growing numbers of individuals with increased awareness and consciousness about global warming, climate change, and droughts. Many are also assumed to have genuine desires to make necessary attitudinal changes toward environmental protection and green product consumption [44,77,78]. They also have concerns and solid stands for the natural environment of the products and services they consume. Similarly, people are paying more attention to the airport's natural atmosphere, including; the type of décor, availability of green rest places, and air quality within and around the airport terminal buildings, to mention but few.

The air quality, in this instance, implicitly relates to the nature of the design of the buildings, whether it is eco-friendly in terms of adequate ventilation, energy efficiency, and consumption, and reduction in carbon and greenhouse gas (GHG) emissions [4,59]. Thus, findings on popular airport rating website, for instance, indicates most complaints resulting in abysmal rating in most of the reviews centered on air quality, heat, and non-serviceability of AC and escalators in many international airports across the globe, and Nigeria is not an exception [64,78–80].

Thus, it directly affects the airport's reputation in general and the green airport's reputation in particular. This factor has driven the Singapore Changi Airport's consistent reputation as the best airport in the world for almost a decade (<https://www.sleepinginairports.net/survey/best-airports-2019.htm> (accessed on 4 April 2021)). In other words, the ever-increasing reputation of Singapore airport is hinged on the airport's biosphere and the users' biospheric values, in tandem with the consistent improvement in green practices at the airport. Hence, the following hypothesis is proposed again in consistency with TPB and TBL/SED, as explained above.

Hypothesis 6 (H6). *Biospheric values of airport users positively affect green airport reputation.*

2.2.7. Mediating Effect of Biospheric Values on the Relationship between Eco-Design of Airport and Perceived Green Performance

Biospheric values link to individuals' or organizations' fundamental and robust value for nature, self-nature connections, awareness, consciousness, concerns, and preference for the natural environment/space where human beings relate and interact [60,66]. These values invariably influence positive or negative behavior toward the production, provision, and consumption of environmentally friendly or green products and services [60–62,66–73].

In another debate, biospheric value is described as the value individuals or organization's attitude to a product and service environment 'servicescape' [81], that is less damaging or green-oriented, which in turn psychologically inspires and motivates patronage [69]. This concept consistently introduces environmental factors into TPB, reflecting its relevance to this study. It motivates the adoption of extended TPB or TPBe, as delineated above. Rupert [66] suggest that the pro-environmental behavior of the organization and the individual staff depends on the extent of the biospheric values of both management and staff. Bouman [60] also alluded to this argument, which suggests a solid collective or corporate biospheric value of people in the workplace to which individuals belong an institution or company. The BV tends to motivate and sustain individuals' pro-environmental actions and behavior. The above finding corroborates the findings on the impact of biospheric values on customers' intention to patronize green hotels [64].

Emerging evidence suggests that the biospheric value of airport stakeholders (in this case, management and non-management staff) plays a mediating role in the interaction between the eco-design of airport buildings and perceived green performance [4,14]. The TPB and SED assumptions are also in line with the above evidence, which implies that the extent of the values ascribed by airport management and non-management employees to the natural environment is also a determinant factor in their view, perception, and assessment of the eco-design and functionality of airport buildings. Subsequently, it

influences their perception of how well an airport is fairing in terms of resilience, green achievement, and overall sustainability of the airport, its structures, and environment, which summarily is the perceived green performance of the airport. Therefore, the authors proposed the following hypothesis.

Hypothesis 7 (H7). *Biospheric values of airport stakeholders significantly mediate the effect of the eco-design of airport buildings on perceived green performance.*

2.2.8. Mediating Effect of Green Management Intransigence on the Relationship between Eco-Design of Airport Buildings and Perceived Green Performance

A common denominator for bad reviews about many airports globally, especially in Africa and Nigeria in particular according to the popular online airport rating site <https://www.sleepinginairports.net/survey/worst-airports-2019.htm> (accessed on 4 April 2021) is constant power cuts, leading to non-serviceable electrical and electronic gadgets, machines, and facilities such as HVAC systems, screening machines, and baggage carousels, resulting in poor air quality, heat in the terminal buildings, and delays at check-in counters and baggage claim, among others. All these are directly and indirectly linked to unreliable electricity generation and supply in many developing countries, as well as poor EMS and EPI practices. The poor electricity supply in Nigeria and the airports are more problematic since managements rely almost exclusively on public utility and fossil-fuel-powered generators for this essential component of airport operation. Nevertheless, there is an abundance of renewable energy sources to tap into in the country.

Many organizations' management is rigid or resistant to change [82]. In other words, the management or organizational intransigence is a behavioral tendency and reluctance to embrace environmentally friendly innovative ideas and technology in running their organization [49,83–86]. Though they recognize the need for change, they believe it does not require significant adjustment in their decision making [42]. This finding is particularly factual with organizations or institutions in the developing world, especially in Africa.

Furthermore, in line with TPB, besides personal attitude or belief, other factors such as policy frameworks and strategies, absence or non-implementation of environmental policy integration (EPI) and environmental management system (EMS), as well as inadequate funding for capital projects could reinforce and sustain green management intransigence and impact on green performance.

One significant area where management intransigence is prevalent is resistance to sustainable operational practices, particularly the shift towards renewable energy (RE), i.e., solar PV microgrids for airports. Whereas the practice is gaining momentum in other climes, as extensively discussed earlier, the term green management intransigence [59,87,88], with a focus on the production of renewable energy at the Airport site (International Civil Aviation Organization [89–91] recently emerged.

The embarrassing and abysmally low energy consumption rate and, consequently, the prevalent energy poverty in Nigeria are studied in the literature, as discussed earlier in this study. The appalling situation is also mirrored in the airport energy supply from inefficiently run public utilities despite the so-called unbundling and privatization of the sector in the country in 2005 and the use of fossil-fuel electricity generators as backup.

Despite the remodeling and building new international terminal buildings in four major international airports in Nigeria in recent years and the commissioning and operation of the ones in Port-Harcourt, Abuja, and very recently Lagos Airport, it is unclear if there is any meaningful change in this regard. Despite the new buildings having glass walls, there is little evidence of green décor, green rest areas, and collection points for recycling waste, especially plastic water bottles, or integration of solar PV technology into the energy mix of these international airports.

The authors, therefore, opined that green management intransigence is a function of the level of cognitive awareness of environmental challenges possessed by management which tallies with their level of environmental concern and cares for nature as depicted by TPBe [89,92,93] (as it relates to the airport environment. As such, the biospheric value of

airport stakeholders (in this case, management and non-management staff) plays a mediating role in the eco-design of airport buildings and perceived green performance [4,14]. This approach is also in tandem with TPB and SED assumptions in that the extent of the values ascribed by airport staff, management, and passengers to the natural environment can be a determinant factor in their view, perception, and assessment of the eco-design and functionality of airport buildings. Subsequently, it influences their perception of how well an airport is fairing in terms of resilience, green achievement, and overall sustainability of its structures and environment.

Therefore, another hypothesis this study intends to assess is the mediating role of GMI on the relationship between EAB and PGP.

Hypothesis 8 (H8). *Green management intransigence significantly mediates the effect of the eco-design of the airport building on the perceived green performance.*

2.2.9. Mediating Effect of Green Airport Reputation on the Relationship between Eco-Design of the Airport and Perceived Green Performance

Perceived Green Performance is a growing argument that consumers are increasingly discerning and are more conscious of how and when organizations are performing well or not in terms of environmentally friendly or green practices in the production and delivery of services and products [13,24,94,95]. A key determinant or indicator of green performance is in the environmental management practices (EMPs) an organization employs. Various policies, procedures, and techniques used by organizations precisely to monitor, control, and mitigate the environmental impact of their operations are regarded as the organization's EMPs [96]. Regulatory policies and market dynamics are some factors that often impact a firm's EMPs. However, a proactive approach to EMPs is argued to be more beneficial to an organization than reactive measures [96,97].

Invariably, one of the areas where the perceived green performance of an airport is apparent is in the ecological design of airport buildings, energy sources, and usage of the terminal and other buildings where customers and other stakeholders, such as employees, regularly interact [4]. These include office spaces, arrival and departure halls, lounges, restaurants, shopping areas, and rest areas.

Therefore, the availability of green plants and décor alongside the perceived reliability and efficiency of airport energy-dependent facilities and equipment, particularly HVAC, is crucial. This result is only possible through a constant supply of renewable energy to airport buildings as part of the reflection of the green performance of the airport that is capable of influencing customers' subjective well-being and satisfaction in an airport and, subsequently, their views, perception, and review and sharing of their experiences at different airports. The same issue applies to airport employees who spent hours daily in their service windows, attending to passengers within and around the terminal buildings. The ecological nature of the airport buildings will impact how they will personally view the green reputation of the airport. So far, no study has focused on the green airport reputation from employees' perspective. Thus, this study investigates the mediating role of a green airport reputation on the perceived green performance of the airport by employees.

The role of an organization's reputation is critical in customers' intention to purchase or consume products and services of such a company or organization. A positive reputation of a company thus means a high probability of customers' decision to purchase products and services of the company [4,37,44,58,98–102]. (Apparently, the reputation of an airport has a direct link with customers' satisfaction of the servicescape of the airport.

Nigeria's poor green airport reputation cannot be divorced from the inferior performance of tourism in the country, irrespective of its enormous tourism potential and endowment [103,104]. Subsequently, TPB and TBL/SED are suitable to explain this phenomenon which determines the green reputation of the airports. According to TPB, since individuals' behavior is both a function of self-will and sometimes involuntary factors, the overall perception of stakeholders, i.e., staff and passengers, concerning the green performance of an airport and the eco-design nature of buildings in an airport will depend

on, and affect the green reputation of the airport. In turn, this depends on customers' cognitive understanding of what constitutes harmful practices to the environment and pro-environmental behavior to mitigate the negative trend. Moreover, how customers share their values, reviews and recommendations could play significant roles in green airport's reputation, and people's perception of its green performance, as evidence reveals in green hotels [98,105]. Hence, the following hypothesis.

Hypothesis 9 (H9). *Green airport reputation significantly mediates the effect of the eco-design of the airport on perceived green performance.*

According to recent meta-analyses of sustainability research in the tourism and hospitality industry, pro-environmental innovations is fast-emerging in the industry, particularly the hospitality sector [11,23]. However, this trend is slowly evolving in the industry's aviation sector; hence, the outcome of this current study is expected to support several stakeholders of the aviation sector.

3. Materials and Methods

3.1. Sample and Data Collection

Data were gathered from full-time employees at Nigeria's international airports in Lagos and Abuja. Abuja international airport serves as the country's federal capital. In contrast, Lagos airport is Nigeria's busiest and most prominent international airport. It is in the heart of the Nigerian economic powerhouse. The convenience sampling approach was used, consistent with comparable recent empirical research [106]. Despite its drawbacks, convenience sampling provides the benefit of receiving a rapid answer compared to probability sampling.

A letter describing the necessity for the data collection and requesting consent to disseminate the surveys was written to the airport management before the distribution of the questionnaires. Twenty questionnaires were used as a sample for the pilot research, which was carried out to make sure the questions were concise and thorough [107]. After the pilot study, the questionnaire did not require significant changes; hence the questionnaire was distributed to the employee. Two-hundred and twenty surveys were gathered. The researchers verified the validity and completeness of each survey. After comparing them, no information was found missing.

3.2. Research Instrument

Airport eco-design was measured as a single dimension. Seven factors were adopted to measure the construct. Han [4] were used to evaluate airport eco-design on a five-point scale ("1 = strongly disagree", "5 = strongly agree"). Its dimensions were adopted from the extant literature [13,69,81]. Sample items of the construct are "Natural light is widely visible via glass windows, walls, and roofs at this airport (natural light)". and "A range of green interior decorations (eco-friendly décor) are seen at this airport". Green Management Intransigence was evaluated using four statements adapted from Patterson [108] that were rated on a seven-point scale ("1 = I strongly disagree", "7 = I strongly agree"). Sample items of the green management intransigence are "Senior management of the airport like to keep to established, traditional ways of handling environmental related issues" and "management is not interested in trying out new environmentally friendly related ideas". Perceived green performance was measured using ten items adapted from [24,96]. Sample items are "green operations enable the airport to reduce total operational cost," "Green operations enable the airport to reduce fuel costs and greenhouse gas emissions," "green operations enable the airport to reduce water and electricity consumption," and "green operations can help the airport to reduce the risk of accidents and legal difficulties". Biospheric value was measured using four items [4,61]. A seven-point scale ("1 = not important", "7 = very important") was used to measure the construct. A sample item of Biospheric value is "I respect biodiversity in the environment (respecting the earth)".

Lastly, airport reputation was measured with four items adapted from [44] on a five-point scale (“1 =false”, “5 true”) as the bases of measurement. Sample items are “Compared to other airports, this airport has a good green reputation” and “Overall, I consider that the green reputation of this airport is favorable enough such that I would consider using this airport again”.

3.3. Common Method Bias

A few measures were undertaken to reduce the possibility of common method bias. These measures were recommended by [109]. First, self-adhesive envelopes were used to assure anonymity and confidentiality, and a statement of anonymity and confidentiality was put on the questionnaire’s cover letter. Moreover, each questionnaire included the following information: “There are no correct or incorrect answers to this question”. Any information gathered during our investigation will be kept strictly secret. Participation is entirely voluntary; however, it is strongly encouraged. A statement of management’s endorsement was also highlighted on the questionnaire. Airport eco-design and biospheric value were gathered in time 1. In contrast, Green Airport Reputation, Green Management Intransigence, and Perceived Green Performance were collected in time 2. A two-week gap separated each time series.

3.4. Statistical Analyzes

The survey respondents’ data were analyzed using the partial least squares structural equation modeling (PLS-SEM) method. The study’s data were assessed for missing values, outliers, normality, and demographic characteristics. Missing values from 3 cases were treated using the recommended mean replacement approach built into the SmartPLS [110]. This approach is preferred because, unlike pairwise and list-wise deletion, our sample size is not altered, and the mean values of the variables equally remain unchanged [111].

4. Results

4.1. Descriptive Analyses

The details of the respondents’ demographics are presented in Table 1. A total of 52.3% of the respondents are from the Lagos airport, the busiest airport in the west African subregion [112], while 47.3% are from the airport located at Abuja, the nation’s capital.

Table 1. Respondents’ demographic profile.

Variables		Frequency	Percent
<i>Age</i>	18–27 years	21	9.5
	28–37 years	64	29.1
	38–47 years	69	31.4
	48–57	51	23.2
	58 and over	15	6.8
<i>Gender</i>	Male	126	57.3
	Female	94	42.7
<i>Education</i>	Secondary School	14	6.4
	Vocational school (2 years)	17	7.7
	Bachelor’s degree	106	48.2
	Master’s degree	83	37.7
<i>Tenure</i>	Under 1 year	16	7.3
	1–5 years	67	30.5
	6–10 years	47	21.4
	11–15 years	34	15.5
	16–20 years	36	16.4
	More than 20 years	20	9.1

4.2. Common Method Variance

For cross-sectional surveys, assessing common method variance (CMV) is crucial. In the Harman-single factor test, the largest variance explained was 32.99% (<40% threshold) [110]. Thus, CMV does not seem to pose any significant problem. Further, an independent sample t-test was conducted to compare the responses of the first and last 50 respondents. Results revealed no significant difference ($p > 0.05$) between the mean values of the two groups of respondents. Hence, non-response bias is not a problem in this study.

4.3. Measurement Model

The constructs of the study's data were assessed for internal consistency, convergent validity, and discriminant validity (see Table 2). As shown in Table 3, the internal consistencies of constructs using composite reliability (CR) were adequate, with values > 0.7 [113]. In addition, the Cronbach alpha values of the seven constructs demonstrate strong reliability at > 0.7 . Further, all reflective indicator loadings were significant. Likewise, variables achieved adequate convergent reliability with values > 0.5 [114].

Table 2. Square root of the AVE vs. correlation.

Variables	1	2	3	4	5
Biospheric Value	0.93				
Eco-design of airport	0.425	0.867			
Green Airport Reputation	0.446	0.46	0.915		
Green Management Intransigence	0.219	−0.072	0.067	0.806	
Perceived Green Performance	0.296	0.132	0.248	0.315	0.848

Note: Square roots of AVEs in bold on the diagonal.

Table 3. Measurement model.

Variables	Items	Outer Loading	Cronbach's Alpha	Rho-A	Composite Reliability	AVE
Biospheric Value			0.948	0.949	0.963	0.866
	BV1	0.917				
	BV2	0.963				
	BV3	0.882				
	BV4	0.957				
Eco-design of airport			0.945	0.949	0.955	0.752
	EAB1	0.868				
	EAB2	0.836				
	EAB3	0.814				
	EAB4	0.887				
	EAB5	0.873				
	EAB6	0.893				
	EAB7	0.897				
Green airport reputation			0.935	0.935	0.954	0.838
	GAR1	0.897				
	GAR2	0.886				
	GAR3	0.939				
	GAR4	0.937				

Table 3. Cont.

Variables	Items	Outer Loading	Cronbach's Alpha	Rho-A	Composite Reliability	AVE
Green mgt intransigence			0.817	0.82	0.88	0.649
	GMI1	0.708				
	GMI2	0.854				
	GMI3	0.778				
	GMI4	0.873				
Perceived Green Perf.			0.957	0.959	0.962	0.719
	GOP1	0.825				
	GOP2	0.837				
	GOP3	0.836				
	GOP4	0.864				
	GOP5	0.826				
	GOP6	0.827				
	GOP7	0.871				
	GOP8	0.857				
	GOP9	0.878				
	GOP10	0.856				

4.4. Structural Equation Model

As presented in Table 4, a bootstrapping technique with 5000 resamples was employed to test the study's hypotheses. After this, to evaluate the model's predictive power, a PLS prediction analysis was also conducted [115]. The Q2 predicted values exceed zero, and the RMSE values are lower for the PLS-SEM model than for the linear model (see Appendix A). Together, these results show that the study's PLS path model possesses a high predictive power [116]. Furthermore, the location of the airport, age, education, and tenure was controlled for in the assessment of the SEM as they could influence green and workplace perceptions.

Table 4. Hypotheses testing.

	Hypotheses	β	Decision
H1	Eco-design of airport buildings positively affects perceived green performance	0.117 ns	Not supported
H2	Eco-design of airport buildings positively affects biospheric values	0.311 ***	Supported
H3	Eco-design of airport buildings negatively affects green management intransigence	-0.268 ***	Supported
H4	Eco-design of airport buildings has a positive effect on green airport reputation	0.508 ***	Supported
H5	Biospheric values negatively affect green management intransigence	0.099 ns	Not supported
H6	Biospheric values positively affect green airport reputation	0.358 ***	Supported
H7	Biospheric values of airport stakeholders significantly mediate the effect of the eco-design of airport buildings on perceived green performance	0.116 ***	Supported

Table 4. Cont.

	Hypotheses	β	Decision
H8	Green management intransigence significantly mediates the effect of the eco-design of the airport building on the perceived green performance	−0.058 ***	Supported
H9	Green airport reputation significantly mediates the effect of the eco-design of the airport on perceived green performance	0.157 ***	Supported

Note: *** represents the significant level of the interaction between constructs

Post hoc, an importance–performance matrix analysis (IPMA) was conducted to extend the PLS-SEM results by considering each construct’s performance (measured on a scale from 0 to 100). For a specific outcome construct, the IPMA contrasts the average values of the latent variable scores (performance) and the structural model total effects (importance) to underscore areas that require significant attention [27]. Thus, IPMA allows managers to improve their management strategies by pointing out critical factors needing immediate response [117]. The decision to apply this technique is supported by its usefulness within the study context, as evident in previous studies (see Table 5). Further, a group-specific IPMA is conducted between two major groups of respondents—management-level and non-management-level employees. This result is due to a potential lack of alignment between these two groups of respondents regarding their knowledge, experience, and perceptions of management policies and practices [118]. Particularly, these groups of respondents may vary in their experience and perceptions of intransigent green management, which might affect their responses, which could better help us understand the criterion being investigated. The IPMA results revealed clear differences in group-specific performance (Table 6). Though total negative effects were unexpected, our results (Table 6 and Appendix C), in some instances, show such outcomes. However, negative signs only occur for total effects that are not significantly different from zero.

Table 5. Airport/Airlines related IPMA studies.

Authors	Principal Findings	Country
Yuan et al. (2021) [29]	The IPMA helped reveal that three categories of passengers in the Air-rail integration services have noticeable differences in psychological-behavioral relationships. However, they are similar in their perception of the quality of service received.	Shijiazhuang Zhengding International Airport, China
Manosuthi et al. (2021) [119]	IPMA revealed that service innovation and memorable experiences are crucial for the value of airline passengers’ customer influence.	Thailand

Table 5. Cont.

Authors	Principal Findings	Country
Paraschi et al. (2019) [28]	IPMA reveals that employee results are the most critical success factor for airport excellence, followed by leadership and operational results	Multinational (143 airports)
Farooq et al. (2018) [120]	IPMA revealed that airlines should focus on service quality, with a special focus on personnel services and image to enhance customer satisfaction.	Malaysia Airlines
Chen and Chang (2005) [121]	IPMA demonstrated that passengers attributed importance to responsiveness and assurance airline frontline staff	A domestic airline in Taiwan
Wang et al. (2010) [122]	IPMA is used to construct a service attribute evaluation map for determining resource allocation to improve service quality	Taiwan
This study		International Airports in Nigeria

Source: Scopus and Web of science databases.

Table 6. IPMA results.

Criterion: Perceived Green Performance	Total Effect	Performance
<i>Nonmanagement employees</i>		
Biospheric value of airport	0.422	77.391
Eco-design of airport	0.133	59.835
Green Airport Reputation	−0.297	71.682
Green Management Intransigence	0.306	53.435
<i>Management employees</i>		
Biospheric value of airport	0.206	79.056
Eco-design of airport	0.145	57.659
Green Airport Reputation	0.480	69.403
Green Management Intransigence	0.263	55.322

Note: Total effects > 0.10 are significant at <0.10. (Hair et al., 2012). See Appendices B and C for visual depictions.

5. Discussion and Implications

This study developed an original conceptual model and established evidence of the connection between the eco-design of airport buildings, biospheric value, and green management intransigent, with the effect on green airport reputation and perceived green performance. Our findings are important because the care, concern, and important individuals attached to the natural workplace environment (biospheric value), the knowledge base, and understanding of environmental challenges of management and nonmanagement staff alike, play significant roles in their pro-environmental belief, behavior, and attitudes towards improving green practices at the airports. This result is consistent with findings in the health sector by [12], which reveals that green training as part of green human resource management (GHRM) has both direct and indirect effects on hotel employees' environmentally friendly behavior and job satisfaction.

Specifically, the SEM analysis suggests that Hypothesis 1 is not supported by the findings, indicating that little connection exists between employees' perception of the green

performance of an airport and the ecological design of airport buildings. Nonetheless, the importance-performance matrix analysis (IPMA) reveals clear differences in the total effects (importance) and performance of some of the constructs among the nonmanagement and management employees of the studied airports. However, the IPMA indicates eco-design of airport buildings scored low on importance and performance among the two groups and hence had little influence on their behavior and perception of the green performance of the airports.

However, SEM analysis indicates that Hypothesis 2 is supported by our findings (Table 4). This result is crucial because it reveals positive interaction between the ecologically designed airport buildings and employees' values, care, and environmental concerns. Similarly, the IPMA (Table 6) indicates high importance and performance of biospheric value of nonmanagement employees, with little importance but higher performance in the case of management employees. This result obviously can be hinged on the differences in age, knowledge, and awareness of this group, who are much younger with more access to information, including awareness of climate change, and global warming, compared to the much older management staff. The management group often holds on to obsolete knowledge with less awareness of environmental challenges. It tends to be satisfied with the status quo. Hence the IPMA indicates the biospheric value has a little total effect but, surprisingly, higher performance in their case. Therefore, this calls for further probing by other scholars.

Further, according to the SEM analysis, Hypotheses 3 and 4 are sustained; hence, the eco-design of the airport has a negative connection with green management intransigence and a positive effect on green airport reputation. The IPMA similarly reports the relative importance of green management intransigence. However, low performance in the nonmanagement group is less important to the management group, but with a little performance to that group as well compared to the nonmanagement employees' group. The significance of this is that it uncovers the areas in which management and nonmanagement need to make attitudinal and behavioral adjustments to improve the green reputation of the airports in the country. Hypothesis 5 is rejected; that is, little value or concern for the environment on the part of management does not translate to resistance to change towards pro-environmental policies and decisions on the part of airport management. On another note, Hypothesis 6 is accepted in the SEM analysis, meaning that when employees have value, care, and concerns for the natural environment, they are more likely to engage in environmentally friendly behavior, which will earn the airport a positive green airport reputation. However, the IPMA results indicate a total negative effect but high performance for green airport reputation among nonmanagement employees.

In contrast, it has higher importance but lower performance in the case of management employees. This result is significant because if management is satisfied with the current reputation of the airport, as the results indicate, they are not likely to make any significant changes to their behavior and decision on green practices. The care and concerns of nonmanagement employees for the environment will not improve the airports' environmental reputation among other airport users, which is not too good for sustainable tourism development in the country.

Furthermore, PLS-SEM analysis revealed that Hypotheses 7–9 are all supported. Biospheric values, green management intransigence, and green airport reputation significantly mediate the relationship between the eco-design of airport buildings and the perceived green performance of the airports. In other words, the results of this research (Table 4) reveal that according to Hypothesis 7, the more/less or, the higher/lower the biospheric values of airport employees (non-management and management), the higher or lower their perception of the green performance of the airport. In the same vein, from the results of Hypothesis 8, the extent to which the non-management employees can sense reluctance in the attitude and behaviors of management towards the adoption of pro-environmental practices such as eco-design or remodeling of the airport buildings, the more or less the non-management employees will also view the green performance of the airport. The

results imply that the level of reluctance or readiness to adopt pro-environmental practices and behavior by airport management will determine the level at which non-management employees will perceive green performance at the airport. Lastly, from Hypothesis 9, the findings of this study suggest that the higher the green reputation of the airport as viewed by the employees, the higher or lower their perception of the green performance of the airport.

Findings from the current study expand knowledge on the importance of management behavior and attitudes in leading change and motivating or demotivating other employees in embracing pro-environmental behaviors and practices in the workplace, especially at airports. Previous works focused more on green human resource management and positive behavior and attitude toward environmentally friendly practices by human resources managers. The available evidence is silence on the negative attitudes and behavior of the general management team, especially in the aviation or airport sector, particularly in developing countries like Nigeria. Hence, the current study fills that gap.

5.1. Implications for Theory on Green Practices at Airports

Primarily, the current study expands the literature on eco-design and green management in the workplace, the tourism industry, and the aviation sector [4,5,9,14]. Specifically, the study extends searchlight on constructs such as eco-design of airport buildings (EAB), biospheric-value (BV), and green management intransigence (GMI) that have not received much attention in the extant literature. It provides evidence of positive connections and impacts, for instance, between EAB and BV and the negative link between EAB and GMI. Our findings shed light on how the care, value, and concern individual employees have for nature and the natural environment in the workplace could make them appreciate ecologically designed airport buildings which can spore them towards more environmentally friendly behavior in such workplaces. Previous related studies on airports focused more on customer behavior and responses and technical tools and methods [4,88,102], while the perspectives of ecologically designed airport buildings and employees' behavior received little attention, and this study is contributing to narrow that gap in the literature.

In addition, the implication of the findings of this investigation to theory is that it provides evidence, particularly from the developing world context, about the tendency to hold on to the status quo and the knowledge gap prevalent among airport management in African settings as against the available literature on developed economies. The sustainable tourism literature is almost silent on how green management intransigence impacts non-management employees' behavior towards green practices and perceived green performance; therefore, this investigation enriches the sustainable tourism literature with evidence from a developing country context to support this impact and connection.

Lastly, this cross-sectional study contributes by expanding the literature on importance-performance matrix analysis (IPMA) studies [27–29] by conducting IPMA to examine the performance and importance of each construct to boost the PLS-SEM analysis result. The IPMA result from this study reveals the difference in outcome between management and non-management staff on all the constructs investigated, with biospheric value as the most crucial factor influencing nonmanagement staff's pro-environmental behavior, compared to green airport reputation, which is most important to management staff. This insight is remarkably interesting and crucial for understanding the drivers of behavioral change factors for airport employees. This IPMA analysis results that reveal the differences in what is important to nonmanagement and management employees is an innovation and is also a major contribution to the literature premised on the fact that this is the only study in this context that helps in concluding two dimensions made possible by this relatively new analytical tool. The extant literature contains mainly analysis, results, and conclusions based solely on SEM and, lately, PLS-SEM. This innovation of combining the two analyses expands and strengthens the literature on sustainability, the tourism sector, and airport management perspectives, particularly on the Global South and African context.

5.2. Implications for Practice on Green Practices at Airports

In the scope of green practices and green management at airports, this study reveals specific areas where management needs to make deliberate changes. It implies that, by embracing various green management practices such as renewable energy, energy saving/conservation measures, and water/waste management measures, airport managers can motivate and encourage nonmanagement employees to follow suit as the shift is fast emerging in the hospitality sector. As indicated above, the IPMA result uncovers that the biospheric value of nonmanagement employees is more important to their pro-environmental behavior in the workplace. In contrast, the airport's reputation is the most important factor driving management staff to embrace green practices in daily operations. The implication of this is that if management can lead by adopting green practices, as mentioned earlier, it is most likely that nonmanagement employees will come on board easily since they already possess positive attitudes or care, concern, and value for the environment; hence, there will be a speedy improvement in the green reputation of the airports, leading to a win-win situation for all and good news for overall sustainable tourism development. Similarly, findings from this study are important for airport managers in Nigeria and Africa as a whole to understand and identify other specific areas where a deliberate change of attitude and behavior is required in management's decisions to embrace a shift toward environmentally friendly practices, including ecological design of new airport buildings or remodeling of existing structures, and energy saving practices, renewable energy adoption such as solar mini-grids for the airport for constant, adequate, cleaner and efficient electricity supply to the airports.

Moreover, nonmanagement employees' belief about management's care, concern, and value for nature, and management's attitude to change towards environmentally friendly decisions is the next most key factor to influence employees' attitude and behavior, as well as how they perceive the performance and the positive reputation of the airport as environmentally friendly airport owing to management attitude and actions. These links and mediating impact of these biospheric values, green management intransigence, and green airport reputation have overall implications on the perceived green performance of the airports in Nigeria and sustainable tourism development in the country. In conclusion, the combination of IPMA with the PLS-SEM analysis and the result is an innovation and contribution to practice since it is crucial and helpful for airport management to understand the specific important areas they need to focus their actions in their decision making. Apparently, from the findings of this study, the airport management will be able to prioritize their actions to realize and improve green airport performance by taking necessary actions such as changing their behavior and attitudes towards green practices at the airports. This action by the management can stimulate and escalate green behavior among nonmanagement employees who already have high biospheric value as an important factor for their environmentally friendly behavior.

5.3. Limitations and Suggestions for Future Research

One major limitation of most academic investigations is funding, which is not different for this current study. The second limitation is the apathy of Nigerian airport employees to respond to the questionnaire for personal, official, and internet reasons, which made it challenging, frustrating, and costly to gather enough responses from the two airports resulting in a small sample size. Another limitation is the generalization of the findings; this is because employees from only two airports were surveyed in this study for several reasons mentioned earlier and the heightened insecurity in Nigeria. However, these challenges have been overcome and now form a basis for our suggestions for future research.

We recommend that future research involve more airports in Nigeria and other major airports from other parts of Africa to create room for more generalization and comparison, if possible. These further studies will expand the sample size and opportunities for greater participation of people with diverse backgrounds, exposure, and experiences, which will further enrich the robustness of the findings and generalization.

Finally, we opined that the model could be expanded by adding a range of new constructs to be investigated to enhance the research novelty and significance to knowledge theoretically and in practice. Moreover, being a cross-sectional study, it is not easy to establish causality between the constructs. Hence, we probe the links between the constructs alongside the effects and mediating roles of one construct on the relationship between others; this can be taken care of with a longitudinal approach in future investigations.

6. Conclusions

This study contributes to the expansion of both theoretical and applied knowledge regarding the eco-design of airport buildings (EAB), biospheric value (BV), and green management intransigence (GMI). The findings can assist decision makers and practitioners in adopting environmentally friendly technologies and practices in airport management and operations.

To summarize the findings, the study first reveals evidence of the connection between the eco-design of airport buildings, biospheric value, green airport reputation, perceived green performance, and management intransigent in the airport settings in Africa and specifically in the Nigerian context. Second, our findings suggest that younger employees with better access to information and higher consciousness of climate change, global warming, and other environmental phenomenon are more well-disposed to change towards pro-environmental behavior at work. This finding is important if the older management team members can embrace change and adopt green practices in their management decisions. Hence, as discussed above, the results are pertinent for the improvement and perception of green performance at airports.

Precisely, evidence that emerged from this study helped to answer the two questions this investigation set out to answer in line with the purpose and objectives of the study. For instance, findings indicate different ways the relationship between green management intransigence, eco-design of airport buildings, the biospheric value of airport management/employees, and green airport reputation affect perceived green performance. First, and contrary to our expectation, the overall results reveal that the ecologically designed airport buildings have little effect or importance on how non-management and management employees perceive the green performance of the airports. However, in parallel to our assumption, the non-management employees have better biospheric values, which also positively impact the importance they attached to the ecological nature of the airport buildings, unlike in the case of the management employees. Similarly, the results indicate that where management is reluctant to embrace change, they attach little or no importance to ecologically designed airport buildings, which is compatible with our expectations from the interaction. The results further indicate that non-management employees attach more importance to the green reputation of the airport, and they recognize the impact of eco-design of airport buildings and the significance of their attitude and behavior on that reputation. Although the management believes in a green airport reputation, this does not mean influencing the airport's eco-design or any major changes in their behavior.

Concisely, the results reveal that the higher or lower the biospheric value of airports' management/employees, the green airport reputation, and green management intransigence, the greater their positive or negative impact or mediating effect on the relationship between eco-design of airports and perceived green performance.

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Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

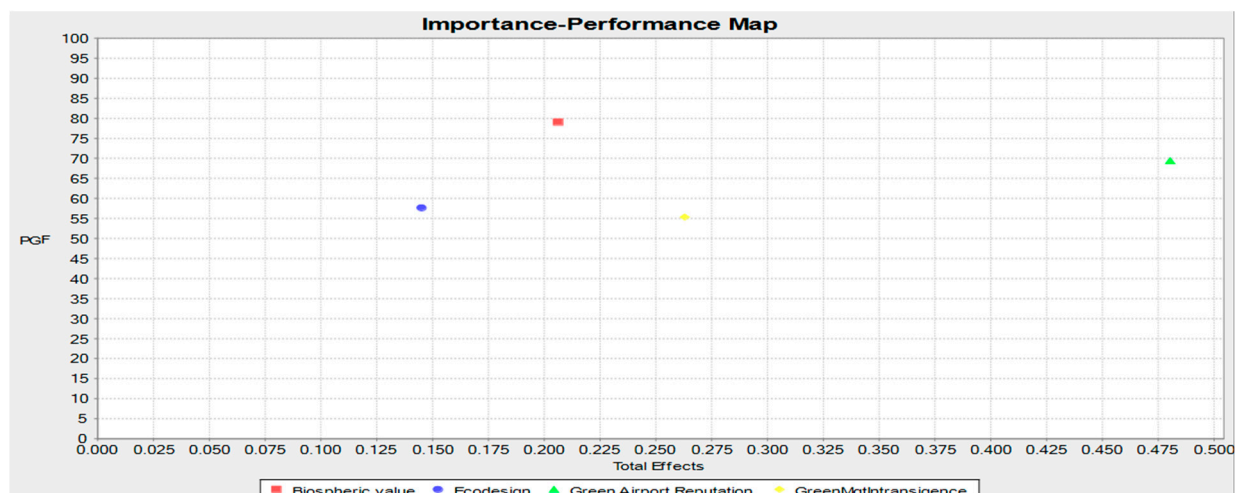
Data Availability Statement: Data (questionnaire) presented in this study are available on request from the corresponding author. The data are not publicly available due to [privacy and ethics reasons].

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

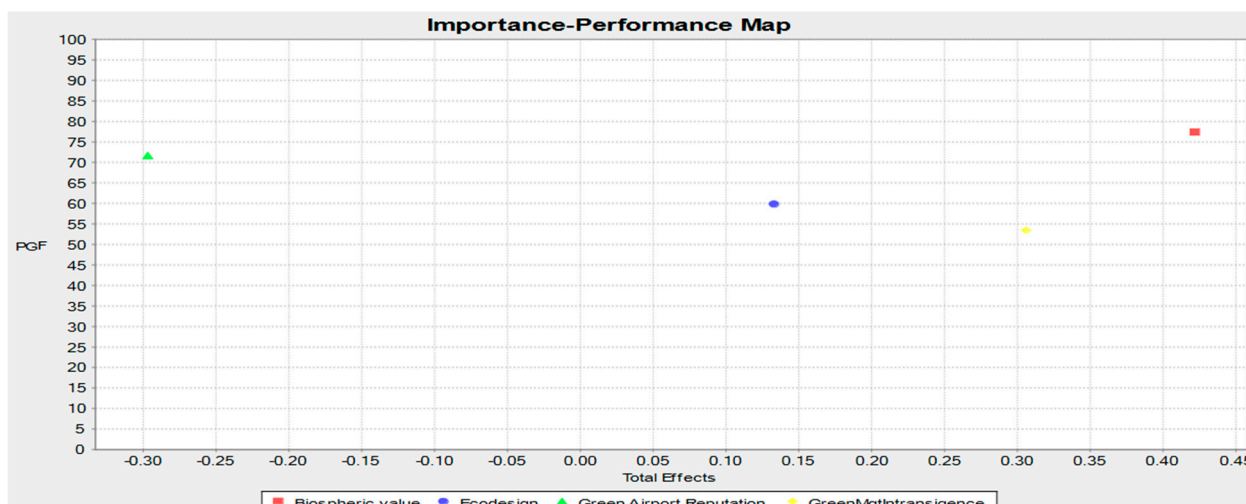
Appendix A. PLS Predict

Items	RMSE	
	PLS Model	Linear Model
BV1	1.513	1.604
BV2	1.405	1.443
BV3	1.514	1.491
BV4	1.487	1.522
GAR1	1.049	1.123
GAR2	1.057	1.129
GAR3	0.927	0.963
GAR4	0.975	1.045
GMI1	1.780	1.794
GMI2	1.686	1.736
GMI3	1.913	2.015
GMI4	1.813	1.895
PGP1	1.892	1.964
PGP2	1.595	1.721
PGP3	1.714	1.825
PGP4	1.864	1.913
PGP5	1.725	1.797
PGP6	1.594	1.688
PGP7	1.673	1.666
PGP8	1.486	1.562
PGP9	1.672	1.696
PGP10	1.728	1.871

Appendix B. IPMA Results Management Level Employees and the Criterion Perceived Green Performan



Appendix C. IPMA Results Nonmanagement Level Employees and the Criterion Perceived Green Performance



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