

Sustainability and the Green Sharing Economy: Innovation and Value Creation in Platform Business Models

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Abstract: Against the backdrop of global climate change mitigation and green development initiatives, sharing economy platforms are undergoing a profound green transformation, shifting from capital-driven to value-driven models. This paper constructs an integrated analytical framework to explore how the sharing economy facilitates a leap from resource sharing to value co-creation by embedding environmental sustainability at the core of its business models. Based on multi-case studies across transportation, accommodation, and other sectors, this paper systematically elucidates the synergistic evolution mechanism of green business models across three dimensions: value proposition innovation, value creation restructuring, and value capture expansion. Findings reveal that platforms significantly enhance resource efficiency and generate substantial environmental benefits through environmental value visualization, lifecycle management, and ecological revenue models. Empirical analysis indicates that post-green transformation, platforms can reduce carbon emissions per service instance by 30% to 70%. Finally, this paper proposes strategic pathways to promote green shared economy development through technological convergence, policy coordination, and consumer behavior.

Keywords: Shared Economy; Sustainable Development; Green Business Model; Value Co-Creation; Environmental Value Quantification; Carbon Neutrality

1. Introduction

With the rapid development of the digital economy, enterprises have achieved further progress in technological innovation and business model innovation. As global carbon neutrality goals advance, the sharing economy—as a vital model for optimizing resource

allocation—is undergoing a profound green transformation. According to the China Sharing Economy Development Report 2023 released by the National Information Center, China's sharing economy market size exceeded 3.8 trillion yuan in 2022, with green sharing models growing significantly faster than traditional sharing services.

Globally, the implementation of the EU's “Green New Deal” and China's “dual carbon” strategy provides clear policy guidance for the sustainable development of the sharing economy. Notably, the performance of the green sharing economy varies significantly across different economies and developmental stages: developed countries focus more on promoting the deep integration of sharing platforms with the circular economy through robust policy frameworks, while developing countries emphasize leveraging digital technologies to provide inclusive green solutions. This interplay between global consensus and local practices offers rich empirical evidence for studying green innovation in platform business models.

This paper adopts an interdisciplinary perspective combining environmental economics and platform strategy to explore how sharing economy platforms can transform environmental externalities into measurable economic and social value through business model innovation. This approach enables commercial sustainability while charting practical pathways for global green transition. The research contributes not only to theoretical innovation but also offers practical guidance for the green transformation of platform enterprises and policy formulation.

2. Literature Review and Theoretical Framework

2.1 Environmental Impacts of the Sharing Economy

As an emerging business model, the sharing economy is characterized by resource pooling,

advancing digital resource management, and fostering thrifty consumption habits among users [1]. Its advantages in optimizing resource allocation and promoting asset sharing have garnered significant attention. Early research primarily focused on the potential positive environmental impacts of the sharing economy, particularly in enhancing resource utilization efficiency. Yun et al. proposed that car-sharing services primarily address environmental concerns, such as altering consumer behavior through eco-friendly services, promoting the environmental identity of car-sharing users, or reducing traffic congestion and air pollution by decreasing car ownership [2]. However, studies also found that 28% of car-sharing users abandoned public transportation in favor of car-sharing, a phenomenon termed the “mode substitution effect.” This finding reveals the complexity of environmental benefits in the sharing economy, as it may trigger substitution for low-carbon modes like public transit, potentially diminishing overall environmental gains. Consequently, academic discourse on the environmental impacts of the sharing economy has begun to scrutinize its potential negative effects, calling for more comprehensive assessments of its environmental benefits.

Moreover, an increasing number of studies are exploring how the sharing economy can reduce environmental burdens, particularly during urbanization. By pooling underutilized resources, the sharing economy minimizes resource wastage, thereby lowering production and transportation costs per unit of resource and consequently reducing carbon emissions. For instance, the widespread adoption of shared bicycles not only provides a convenient short-distance travel option but also reduces traffic volume, thereby lowering carbon emissions from urban transportation.

2.2 Life Cycle Assessment and Environmental Benefit Measurement

Life Cycle Assessment (LCA) serves as a comprehensive evaluation tool widely applied to measure the environmental impact of the sharing economy. A product's life cycle can be interpreted in two ways: physical life cycle and market life cycle. The physical life cycle describes the entire process of a single product from design, production, sales, and use to disposal and recycling. The market life cycle, conversely, describes the entire process of a

product category from its entry into the market to its exit [3]. LCA analyzes environmental impacts across all stages—from raw material extraction, production, transportation, and use to final disposal—based on the product's entire lifecycle. This methodology is particularly suited for evaluating sharing economy models, as they typically involve prolonged product usage and sharing. Only through a comprehensive lifecycle perspective can their environmental benefits be accurately assessed.

Research indicates that the environmental benefits of services like shared bicycles and car-sharing do not manifest immediately but are closely tied to their service life and operational efficiency. Taking shared bicycles as an example, Ji et al. found in their environmental benefit assessment that higher population density and greater resident travel intensity correlate with longer bicycle service life, thereby yielding greater environmental benefits and achieving positive environmental outcomes [4]. Conversely, excessive short-term deployment of shared bikes can lead to negative environmental impacts due to frequent scrapping and resource consumption. Therefore, platform companies should prioritize product lifespan and operational scheduling efficiency when designing and operating sharing economy services to maximize environmental benefits.

Furthermore, life cycle assessment provides crucial guidance for green design and operations in sharing economy platforms. By managing the entire life cycle of shared resources, platform companies can identify environmental burden points across various stages and implement effective emission reduction measures—such as using renewable materials and improving product recycling rates—to further enhance the environmental benefits of the sharing economy.

2.3 Theories of Sustainable Business Models

As environmental concerns within the sharing economy grow, academia has proposed numerous theories on sustainable business models. Bocken et al. introduced the prototype theory of sustainable business models, systematically summarizing eight types of business models enterprises can adopt during green transformation. These include maximizing material and energy efficiency, establishing circular economy models, product-service systems, and green supply chains [5]. This framework provides foundational guidance for

platform enterprises undergoing green transformation.

Among green business model innovations in sharing economy platforms, establishing a “circular economy model” stands as one of the most critical approaches. Platform enterprises can maximize resource utilization through recycling, reuse, and product lifespan extension, thereby reducing dependence on natural resources. For instance, car-sharing platforms extend vehicle lifespans and optimize usage and scheduling, thereby lowering operational costs while significantly reducing environmental burdens associated with new vehicle production and end-of-life disposal. Concurrently, green business models encourage enterprises to enhance resource efficiency through innovative design and provide consumers with eco-friendly products and services, propelling society toward low-carbon and environmentally sustainable development.

2.4 Behavioral Economics and Green Nudges

Behavioral economics provides a theoretical foundation for understanding how platforms can guide user behavior through design and incentive mechanisms. The “nudge theory” proposed by Thaler and Sunstein emphasizes that by designing rational choice architectures, more environmentally friendly and sustainable behaviors can be promoted without depriving individuals of their freedom of choice [6]. In sharing economy platforms, the application of nudge mechanisms is primarily reflected in the default settings of environmentally friendly options and the design of green incentive measures. For instance, certain ride-sharing platforms can encourage users to choose low-carbon transportation over traditional fuel vehicles by defaulting to electric vehicles and offering carbon credit rewards.

Additionally, social comparison information is widely utilized on sharing economy platforms. By displaying users' environmental performance relative to others, these platforms motivate users to engage in eco-friendly behaviors. For example, some platforms show users' carbon emissions and grant rewards or social recognition based on their environmental actions, thereby increasing user participation. Research indicates that such nudge mechanisms not only effectively raise user environmental awareness and participation but also foster a competitive spirit for sustainability within platforms, further

propelling the development of the green sharing economy.

By applying these principles of behavioral economics, platforms can not only enhance consumers' eco-friendly behaviors but also achieve dual growth in commercial and environmental value, thereby driving the sustainable development of green sharing economy models.

3. Innovation Dimensions of Green Sharing Economy Platform Business Models

3.1 Value Proposition Innovation: Visualization and Quantification of Environmental Value

As consumer awareness of sustainability and environmental issues continues to grow, the value proposition of green sharing economy platforms is gradually shifting from purely functional satisfaction toward advocating sustainable lifestyles. The core of this transformation lies in visualizing and quantifying environmental value. Through digital technology and data analytics, platforms tightly link users' travel behaviors to their tangible environmental contributions, making abstract concepts like carbon reduction and pollutant mitigation quantifiable, trackable, and displayable. This mechanism enables users to intuitively perceive their actions' environmental impact, proactively choosing greener travel options in their decisions. This creates a closed-loop system of “green consumption – environmental contribution – incentive feedback.”

Taking Meituan Bike and E-bike as an example, the platform integrates user riding data, urban traffic information, and environmental benefit assessment models to quantify and visualize shared-ride carbon emissions reductions. It collects data such as user riding distance, routes, and usage frequency, then generates daily and cumulative carbon savings through an environmental benefit calculation module. This is combined with comprehensive assessments using metrics like reduced air pollutants. The platform links these quantified outcomes to incentive mechanisms like riding points, discount redemptions, green products, or charitable donations, forming a closed-loop green incentive system where user behavior value becomes both visible and tradable. The workflow of this quantification-and-feedback

process is depicted in Figure 1, which illustrates how green sharing platforms transform user behaviors into measurable environmental contributions.

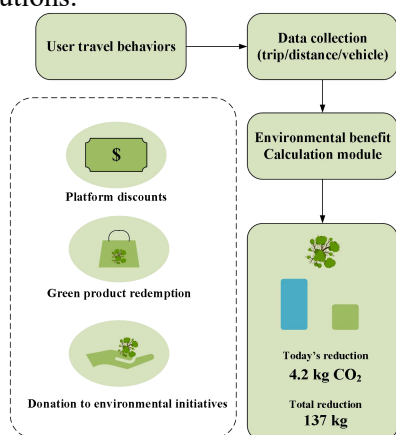


Figure 1. Visualization and Quantification of Environmental Value in Green Sharing Platforms.

According to official data, Meituan's shared two-wheeler service achieved a total annual riding mileage of 10.78 billion kilometers in 2024, cumulatively reducing carbon dioxide emissions by 583,000 metric tons. Since January 2019, the cumulative riding mileage has reached approximately 40.7 billion kilometers, with total carbon reduction exceeding 2.1 million metric tons, as illustrated in Figure 2, which summarizes Meituan's 2023–2024 riding and carbon-reduction statistics. At the individual trip level, the 2022 “Shared Biking Pollution Reduction and Carbon Reduction Report” released by the Development Center of the Ministry of Ecology and Environment indicates that each kilometer traveled by shared bicycle reduces CO₂ emissions by 48.7 grams, while shared e-bikes reduce emissions by 54.5 grams per kilometer. User surveys reveal that approximately 23% of Meituan Bike rides replace high-carbon transportation modes like private cars, while 36% of Meituan e-bike trips substitute high-carbon travel, achieving low-carbon optimization of the transportation structure.

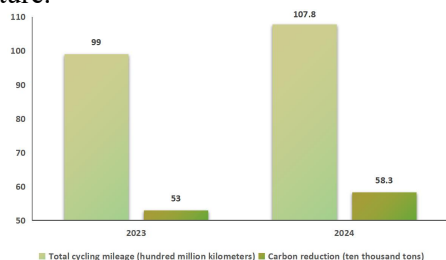


Figure 2. Meituan 2023–2024 Riding Data Statistics

In terms of full lifecycle management, Meituan practices an “end-to-end lifecycle” environmental philosophy, implementing circular economy requirements throughout the design, production, manufacturing, operation, and recycling stages of shared bicycles and e-bikes to achieve digital management across the entire vehicle lifecycle. According to official assessments, each bicycle achieves a net carbon reduction of 214 grams from use to final disposal, while each electric bicycle achieves a net reduction of 558 grams over its entire lifecycle. By quantifying these lifecycle contributions, Meituan internalizes environmental value and fosters sustainable development.

Additionally, Meituan actively advances carbon-neutral initiatives and recycling projects. Its 2020 “Bike-to-Court” public welfare program evolved into the “Carbon-Tracking Cycling Space” in 2024, repurposing discarded tires into plastic sports courts for rural and urban communities. To date, 62 courts have been donated, utilizing approximately 150,000 recycled bicycle and e-bike tires. The total court area spans 27,000 square meters, benefiting over 10,000 people. These initiatives not only visualize environmental value tangibly but also enhance user engagement and social impact, realizing value co-creation on a green sharing economy platform.

Through these practices, Meituan has significantly enhanced resource utilization efficiency and carbon reduction benefits. It has also provided quantifiable, visualizable, and replicable practical experience for business model innovation in green sharing economy platforms, fully demonstrating the synergistic effects of the platform in value proposition innovation, environmental value quantification, and user incentive mechanisms.

3.2 Value Creation Innovation: Technology Integration and Process Reengineering

In the business model innovation of green sharing economy platforms, enhancing value creation relies not only on expanding service scope but also on two key aspects: technological integration and operational process restructuring. By introducing and optimizing technologies, sharing platforms improve operational efficiency and extend product lifecycles. Through these means, platforms can maximize resource utilization efficiency, prolong asset lifespans,

reduce environmental impact, and enhance maintainability and recyclability via intelligent and modular designs. This approach builds a sustainable value creation system.

3.2.1 Modular Design and Enhanced Durability

Taking Lime, a leading platform in the shared micro-mobility sector, as an example, its official sustainability report indicates that the company employs modular components, replaceable batteries, and high-durability materials in the design of its electric scooters and bicycles. This modular and high-durability design not only extends the overall lifespan of the vehicles but also effectively spreads out the environmental costs incurred during the manufacturing phase. Concurrently, Lime has largely transitioned its operational, warehousing, and office facilities to renewable energy sources. The company plans to progressively convert its entire operational fleet to zero-emission electric logistics vehicles, further reducing carbon emissions throughout service delivery.

This strategy emphasizes long-term product usage, maintenance convenience, and material recycling. By extending service life and reducing environmental costs per unit mileage, it achieves comprehensive environmental efficiency optimization across manufacturing, transportation, and operational phases. Thus, integrating durability, maintenance, and remanufacturing into the design and operational processes of shared micro-mobility tools constitutes a critical innovation in value creation.

3.2.2 Intelligent Dispatch and Operational Process Reengineering

Beyond product design, Lime has achieved green transformation through intelligent operational management. It has invested heavily in developing a dispatch system based on big data and machine learning. By analyzing historical data and predicting user travel patterns, this system optimizes vehicle deployment and dispatch, enhancing vehicle turnover rates and resource utilization efficiency while reducing empty-mileage and operational costs.

Academic research further indicates that the environmental performance of shared micro-mobility depends not only on usage frequency but also on vehicle lifespan, maintenance frequency, and end-of-life management [7]. For instance, a case study in Barcelona revealed that relying solely on shared e-scooters, e-bikes, or e-mopeds does not necessarily lead to greenhouse gas reductions; if lifecycle design, maintenance

strategies, and modal substitution effects are not optimized, it may even increase carbon emissions. Therefore, by restructuring operational processes, optimizing vehicle dispatch, rationally planning maintenance and end-of-life disposal, and integrating digital management tools, platforms can maximize resource efficiency and minimize environmental impact across the entire lifecycle.

3.2.3 Supporting Role of Theory and Practice

Integrating modular design, durability, and remanufacturability principles with intelligent scheduling and lifecycle management forms the core innovation of green sharing economy platforms at the value creation level. This innovation not only effectively transforms environmental externalities into manageable, quantifiable, and controllable value by extending product lifespans, reducing new vehicle production frequency, and lowering overall resource consumption. It also achieves economic benefits and commercial sustainability by decreasing costs associated with frequent scrapping, maintenance, and replacement. Simultaneously, the platform enhances public trust and policy recognition through sustainable design, operational optimization, and environmental performance reporting—such as adhering to science-based net-zero targets, disclosing life-cycle analysis, or sharing carbon footprint data. This fosters a green competitive advantage while demonstrating corporate social responsibility. In summary, technological integration and process reengineering not only elevate platform operational efficiency but also provide replicable, scalable best practices for the sustainable development of the green sharing economy through systematic management and full-life-cycle optimization.

3.3 Value Capture Innovation: Diversified Revenue Models

Green sharing economy platforms exhibit diversified revenue models in value capture. While traditional sharing platforms primarily rely on transaction commissions, green sharing platforms diversify income streams through green certification services, carbon credit trading, and policy incentives, simultaneously enhancing environmental benefits.

Take Airbnb's "Green Listings" program as an example. The platform offers energy-efficient retrofitting solutions to transform properties into "Green Listings" that meet sustainability

standards, including energy-efficient appliances, waste sorting facilities, solar panels, and renewable energy sources. Upon obtaining green certification, hosts not only enhance their property's environmental credentials but may also gain increased platform exposure and traffic support, thereby strengthening their market competitiveness.

Research indicates that sustainability features or green certifications can boost user identification and loyalty toward platforms, influencing choice behavior to some extent. While actual economic returns vary across platforms and regions, green shared accommodations are generally recognized as having potential price premiums and higher occupancy rates. Energy-efficient renovations also contribute to reduced energy consumption and environmental impact.

Furthermore, as global emphasis on carbon reduction grows, green sharing economy platforms can generate additional revenue through carbon credit trading and similar mechanisms. For instance, some sharing platforms have begun offering carbon credit points to users and businesses. These points can be traded within the platform or used to offset fees, further diversifying the platform's revenue streams. Through such innovative revenue models, green sharing economy platforms integrate environmental protection with commercial interests. This approach not only drives green transformation but also creates new business opportunities and income sources, enhancing the platform's long-term sustainability.

4. Comparative Analysis and Reflections on Representative Cases

Analysis of representative platforms reveals significant disparities in their effectiveness when implementing green business models. To delve deeper into the practical outcomes of green sharing economy platforms, this paper examines two representative cases supported by publicly available data: the Bluebikes bicycle-sharing system and the shared micro-mobility (electric scooter/e-bike) platform. It analyzes their actual green transformation effects, conducts independent assessments of their green transition practices, and explores the challenges and limitations each faces.

4.1 Bluebikes: Green Practices in Bicycle Sharing

Bluebikes, a bike-sharing system operating in

Boston and surrounding areas, has played a significant role in short-distance urban travel since its launch in 2011. Public statistics indicate that between 2015 and 2024, Bluebikes users completed approximately 20.07 million rides. These trips partially substituted private car or taxi usage, significantly reducing greenhouse gas emissions. Life Cycle Assessment (LCA) studies reveal that the combined carbon emissions across vehicle manufacturing, operation, and disposal are substantially lower than equivalent mileage traveled by car, demonstrating particular advantages in energy consumption and carbon emission metrics.

Bluebikes' success extends beyond operational scale, relying heavily on high utilization rates and strategic fleet management. The platform maximizes environmental benefits by optimizing bike deployment and maintenance, enhancing vehicle turnover rates, and extending the lifespan of each bicycle. However, its emission reduction impact remains influenced by idle rates and vehicle lifespan. Premature scrapping or insufficient utilization would significantly diminish these benefits.

4.2 Shared Micro-Mobility: The Green Potential of Electric Scooters and Bicycles

Shared electric scooters and bicycles have rapidly expanded globally in recent years for short-distance urban travel. They are viewed as vital green transportation supplements with the potential to address first-mile and last-mile connectivity challenges [8]. Their lifecycle carbon emissions are primarily concentrated in the manufacturing and end-of-life disposal phases. Under conditions of high utilization rates and efficient operations, carbon emissions per passenger-kilometer can be lower than or comparable to public transit systems, offering potential contributions to urban transportation decarbonization. For instance, multiple urban studies indicate that when shared e-scooter usage intensity and operational efficiency reach certain thresholds, their overall carbon emissions can be approximately 30% lower than traditional car travel.

Despite the significant potential green value of micro-mobility tools, their actual benefits remain uncertain: low vehicle utilization rates, short lifespans, or excessively high emissions during charging and transportation processes could all undermine carbon reduction effects. Furthermore, policy and infrastructure conditions in different

cities significantly influence the realization of green benefits. For instance, in areas lacking charging networks or with inadequate regulation, the environmental benefits of micro-mobility platforms may not be fully realized.

4.3 Case Summary and Reflections

Analysis of Bluebikes and shared micro-mobility platforms reveals that the environmental benefits of the green sharing economy heavily depend on operational efficiency, lifecycle management, and the policy environment. Bluebikes achieved quantifiable environmental benefits and commercial value through high utilization rates and comprehensive lifecycle management. While shared micro-mobility platforms possess potential green value, their environmental benefits remain uncertain in practice due to constraints from utilization rates, lifespan, and policy frameworks.

These differences reveal that the success of the green sharing economy hinges not only on technological innovation and business model design but also on the refinement of external policy frameworks and regulatory systems. Platforms should strengthen collaboration with governments, industry associations, and third-party certification bodies while driving green transformation to ensure the implementation and sustainability of green certifications and environmental practices. Furthermore, platforms must establish robust incentive mechanisms to encourage active participation in green initiatives by both users and service providers, thereby maximizing green value.

5. Challenges and Collaborative Governance Pathways

The rapid growth of the green sharing economy has driven the transformation of sustainable consumption patterns globally. However, platforms still face multiple technical, behavioral, and policy challenges in implementing green business models. These challenges not only impact the overall effectiveness of the green sharing economy but also constrain its potential for further development. To effectively address these issues, platform enterprises, governments, and societal stakeholders must collaborate synergistically. Through technological innovation, user behavior incentives, and policy system optimization, they can advance the institutionalized development of the green sharing economy.

5.1 Technological Challenges and Pathways

Technological innovation serves as a key driver for the green sharing economy, particularly in sectors like electric vehicle sharing and smart mobility. However, one of the most significant current technological barriers is the inadequacy of charging infrastructure for electric vehicle sharing services. In many cities, especially second- and third-tier ones, the number and density of charging stations fall far short of market demand, directly impacting user experience and the sustainability of platform services. Statistics show that despite the continuous growth in electric vehicle numbers, charging infrastructure development lags in many regions, causing “range anxiety” among users and even disrupting the normal operation of sharing services.

To address this, platforms can strengthen collaborations with energy companies to advance technologies like V2G. V2G enables EVs to feed electricity back to the grid during idle periods, leveraging their unique energy storage capabilities for bidirectional interaction. This builds a dynamic “new energy vehicle + grid” energy system that enhances EV utilization efficiency while boosting the grid's load regulation capacity[9]. By partnering with energy suppliers to establish smart charging networks, platforms can ensure user convenience while reducing infrastructure costs, further boosting the adoption rate and economic efficiency of electric vehicle sharing services. Additionally, the platform should invest in developing mobile charging facilities or automated charging technologies to address the limitations of traditional charging stations. For instance, some platforms are exploring the use of charging vehicles or wireless charging technology to provide mobile charging services during peak demand periods. This not only enhances flexibility but also offers users greater service convenience.

5.2 Challenges and Solutions at the Consumer Behavior Level

Although an increasing number of consumers express support for environmental protection and green consumption, their actual behavior often deviates from idealized eco-friendly commitments, creating a so-called “intention-behavior gap.” This phenomenon is particularly pronounced in the green sharing economy. Many

consumers affirm eco-friendly principles in their attitudes, yet when selecting shared services, they are often constrained by factors like price and convenience, opting instead for traditional, more convenient high-carbon emission services. Therefore, how to effectively incentivize consumer participation in the green sharing economy has become a critical issue platforms must address in driving green transformation.

To tackle this challenge, platforms can leverage behavioral economics' "nudge theory" to design more appealing incentive mechanisms. First, platforms can guide users toward low-carbon, green transportation options by setting green defaults. For instance, making electric vehicles the default shared mobility choice or recommending green products (such as energy-efficient appliances or eco-friendly housing) to users minimizes the decision-making burden when making environmentally conscious choices. Second, platforms can incentivize green behaviors through reward systems, such as establishing green point systems where accumulated points can be redeemed for coupons or participation in environmental public welfare projects, thereby boosting consumers' motivation to engage in eco-friendly activities. Simultaneously, platforms can leverage social influence and interactive features to amplify the adoption of green behaviors. Displaying leaderboards of eco-friendly actions or showcasing users' green achievements can heighten environmental awareness and participation enthusiasm. By partnering with non-profit organizations to host public welfare activities like eco-friendly transportation or sustainable lodging initiatives, platforms can integrate environmental actions with social responsibility. This approach strengthens users' sense of social belonging, thereby increasing both participation rates and the sustainability of green behaviors.

5.3 Policy Challenges and Institutional Innovation

The further development of the green sharing economy hinges on effective policy support and guidance. Currently, it still faces numerous policy-level challenges, primarily manifested in the lack of environmental benefit accounting standards, imperfect regulatory systems, and insufficient policy incentives. Specifically, the absence of unified environmental benefit assessment standards means sharing platforms

lack recognized authority and transparency when reporting environmental benefits. This not only undermines the platforms' market competitiveness but also erodes consumer trust when selecting green services.

To address this, governments should expedite the establishment of unified environmental benefit accounting standards and certification systems, particularly in areas like carbon emissions accounting, green certification, and carbon credit trading. For instance, drawing from Europe's "carbon footprint" certification standards, China could develop green certification criteria tailored to its market and establish cross-departmental oversight mechanisms to ensure rigorous enforcement. Such unified standards would not only enhance platforms' global competitiveness but also provide consumers with reliable guidance for green consumption.

Furthermore, policy incentives are crucial for driving green transformation. Governments can encourage platforms to increase R&D investment in green technologies through tax breaks, subsidies, and green financing, thereby reducing transition costs. Concurrently, carbon market mechanisms should be refined to enable green sharing platforms to quantify and monetize environmental benefits via carbon credit trading, fostering sustainable development in green industries.

Cross-departmental collaborative governance is also a necessary pathway to standardize and institutionalize the green sharing economy. Governments should establish a cross-industry, cross-sector governance framework for the green sharing economy through coordinated efforts among multiple departments, including ecological environment, market regulation, and transportation. For instance, transportation authorities can collaborate with environmental protection agencies to establish carbon emission standards for sharing platforms, while market regulators can strengthen audits of platform green certifications to ensure the authenticity and transparency of green claims and environmental commitments.

5.4 Collaborative Partnership Model between Government and Platforms

Collaborative cooperation between government and platforms is crucial. In advancing the green sharing economy, governments must not only formulate and implement green policies but also

strengthen partnerships with platform enterprises to jointly develop green demonstration projects. Through policy incentives and financial support, governments can provide robust safeguards for green innovation by platform enterprises. In turn, platforms can offer practical support for government sustainability goals through green technological innovation and optimized green business models.

For instance, in specific cities or regions, governments can partner with platform companies to establish green shared economy demonstration zones. By offering financial subsidies, tax incentives, and other policies, they can encourage platform companies to pilot green projects locally, driving the adoption of green technologies and the promotion of sustainable business models. Through these demonstration projects, platform companies not only gain valuable practical experience but also provide data support to governments, helping them refine their policy frameworks.

First, crisis situations enhance the signaling value of leadership behaviors—within an environment where most organizations adopt conservative strategies, altruistic actions become more distinctive and credible due to their rarity and contrast. Second, based on conservation of resources theory, uncertainty intensifies employees' demand for stability, making organizational guarantees more psychologically valuable and effective. Third, shared experiences in coping with crises strengthen the emotional bonds between employees and the organization, deepening identification and belonging.

Empirical evidence shows that during the pandemic, Dettol's commitment to "no layoffs and no salary cuts" significantly improved employees' organizational trust. When market conditions later recovered, the company, benefiting from its stable team structure and high employee commitment, achieved a rapid performance rebound well above the industry average.

This complete causal chain confirms that environmental uncertainty not only directly reinforces the relationship between altruistic leadership and organizational trust but also amplifies the indirect effect of organizational trust on corporate sustainable performance.

In conclusion, the Dettol case validates the catalytic role of environmental uncertainty, refines the theoretical framework of how altruistic leadership drives humanistic

entrepreneurship, and provides robust empirical evidence for the proposed moderated mediation model.

6. Conclusions and Future Research Directions

By analyzing the business model innovations of green sharing economy platforms, this paper reveals the dual benefits of green transformation in enhancing both the competitiveness of the platform economy and environmental performance. Green sharing economy platforms not only improve resource utilization efficiency through technological innovation and operational optimization but also achieve significant progress in promoting environmental sustainability.

Despite achieving certain successes in business model innovation, the green sharing economy still faces numerous challenges. Future research could focus on leveraging digital technologies—such as blockchain and artificial intelligence—to enhance the quantification and transparency of environmental value, thereby further strengthening platforms' green performance. Additionally, cross-cultural studies will help understand variations in green consumer behavior across regions, providing a basis for designing more personalized green service solutions for platforms.

As globalization and localization demands intertwine, solutions within the green sharing economy will become increasingly diverse. Future research should further explore how local policies and market demands influence platforms' green transformation strategies, thereby advancing the realization of global green transition.

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