İktisadi İdari ve Siyasal Araştırmalar Dergisi
Journal of Economics Business and Political Researches

https://dergipark.org.tr/tr/pub/iktisad Yıl/Year: 2026, Sayı/No: 29 e-ISSN: 2564-7466

Eco-Innovation and Business Performance in the Context of the Circular Economy: Empirical Evidence from Tourism Accommodation SMEs in Muğla*

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Döngüsel Ekonomi Bağlamında Eko-Yenilikçilik ve İşletme Performansı: Muğla'daki Turizm Konaklama KOBİ'lerinden Ampirik Kanıtlar

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https://izlik.org/JA26AU78EH https://doi.org/10.25204/iktisad.1834192

Article Info

Paper Type: Research Paper

Received: 01.12.2025

Accepted: 12.06.2026

Abstract

This study aims to examine the intentions and behaviors of SMEs operating in the tourism accommodation sector regarding eco-innovative practices within the context of the circular economy. Grounded in the Theory of Planned Behavior, the research also holistically examines dynamic capabilities, organizational barriers, and business performance variables. Data were collected from 421 SMEs decision-makers affiliated with the Muğla Chambers of Commerce and Industry through both online and face-to-face methods. Data were analyzed using exploratory factor analysis (EFA) with IBM SPSS Statistics 27.0, followed by confirmatory factor analysis (CFA) and path analysis within a structural equation modeling (SEM) framework using Jamovi 2.3.28. The findings show that attitude, subjective norms, and perceived behavioral control have a positive and significant effect on eco-innovation behavioral intention. In addition, perceived behavioral control, eco-innovation behavioral intention, and dynamic capabilities have positive and significant effect on eco-innovation behavior, while organizational barriers have a negative but non-significant effect. Furthermore, dynamic capabilities and eco-innovation behavior have a positive and significant effect on business performance. These findings suggest that integrating eco-innovation practices within a circular economy framework can enhance both environmental sustainability and business performance in tourism accommodation SMEs.

Keywords: *Circular economy, eco-innovation, Tourism SMEs, theory of planned behavior.*

Makale Bilgileri

Makale Türü: Araştırma Makalesi

Geliş Tarihi: 01.12.2025

Kabul Tarihi: 12.06.2026

Öz

Bu çalışmanın amacı, turizm konaklama sektöründe faaliyet gösteren KOBİ'lerin döngüsel ekonomi bağlamında eko-yenilikçi uygulamalara yönelik niyet ve davranışlarını incelemektir. Planlı Davranış Teorisi temelinde gerçekleştirilen araştırmada dinamik yetenekler, organizasyonel engeller ve işletme performansı değişkenleri de bütüncül olarak değerlendirilmektedir. Araştırma verileri, Muğla Ticaret ve Sanayi Odalarına bağlı 421 KOBİ yetkilisinden çevrimiçi ve yüz yüze yöntemlerle toplanmıştır. Veriler, IBM SPSS İstatistik 27.0 kullanılarak açımlayıcı faktör analizi (AFA) yapıldı, ardından Jamovi 2.3.28 kullanılarak yapısal eşitlik modellemesi çerçevesinde doğrulayıcı faktör analizi (DFA) ve yol analizi yapıldı. Bulgular, tutum, öznel norm ve algılanan davranışsal kontrolün eko-yenilikçi davranış niyetini pozitif ve anlamlı şekilde etkilediğini göstermektedir. Ayrıca algılanan davranışsal kontrol, eko-yenilikçi davranış niyeti ve dinamik yeteneklerin eko-yenilikçi davranış üzerinde pozitif ve anlamlı etkileri bulunurken, organizasyonel engellerin etkisi negatif ancak anlamsızdır. Bunun yanında dinamik yetenekler ve eko-yenilikçi davranış işletme performansını pozitif ve anlamlı biçimde etkilemektedir. Bu bulgular, döngüsel ekonomi odaklı eko-yenilikçi uygulamaların turizm konaklama KOBİ'lerinde çevresel sürdürülebilirliği ve işletme performansını artırabileceğini göstermektedir.

Anahtar Kelimeler: *Döngüsel ekonomi, eko-yenilikçilik, Turizm KOBİ'leri, planlı davranış teorisi.*

Atıf/ Cite (APA): Yalçınkaya Akdemir, P., Çeken, H., & Uçma Uysal, T. (2026). Eco-innovation and business performance in the context of the circular economy: Empirical evidence from tourism accommodation SMEs in Muğla. *Journal of Economics Business and Political Researches,* (29), 563-590. https://doi.org/10.25204/iktisad.1834192

* This study is derived from the doctoral dissertation entitled "Determining Tourism Enterprises' Intentions and Behaviours towards Eco-Innovation Activities in the Context of Circular Economy and Measuring Their Impact on Business Performance: The Case of Muğla Province", conducted by Pınar Yalçınkaya Akdemir at the Social Sciences Institute, Department of Tourism Management, Muğla Sıtkı Koçman University, under the supervisions of Prof. Dr. Hüseyin Çeken and Prof. Dr. Tuğba Uçma Uysal.

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1. Introduction

Globalization and rapid technological change have reshaped global production and consumption patterns, exerting significant environmental pressures across various sectors, including tourism (Manniche et al., 2021, pp. 247-248). These strains are particularly evident in mass tourism destinations, where intense visitor flows frequently exceed the carrying capacity of local ecosystems. Annually, the tourism industry is estimated to generate over 35 million tons of solid waste, thereby contributing to biodiversity loss and environmental degradation (Zorpas et al., 2021, p. 889). Furthermore, the sector accounts for approximately 8%–10% of global greenhouse gas emissions, underscoring its substantial role in climate change (World Travel & Tourism Council [WTTC], 2024; Gössling & Scott, 2025, p. 645). Coastal destinations are especially vulnerable due to their ecological sensitivity and high visitor density, where overconsumption drives the significant accumulation of food, water, and plastic waste (Zorpas et al., 2021, pp. 889–890). Despite growing awareness of these ecological impacts, numerous tourism enterprises continue to operate within a linear economy framework (Pichlak & Szromek, 2022, p. 1). This take-use-dispose approach leads to inefficient resource use and intensifies environmental pressures. As a result, it accelerates resource depletion while contributing to biodiversity loss and increased pollution of air, soil, and water systems (Kiefer et al., 2021, p. 1531).

In response to the environmental problems associated with the linear economic model, the circular economy has emerged as a holistic approach for reorganizing material and energy flows. It aims to improve resource efficiency, reduce waste generation, and close material loops through strategies such as durable design, maintenance, repair, reuse, remanufacturing, and recycling (Geissdoerfer et al., 2017, p. 759). Beyond improving waste management, the circular economy seeks to reduce environmental pressures by fundamentally restructuring production and consumption systems (Cheng et al., 2026). Achieving this transition requires significant changes in the way firms design products, organize processes, and create value. For this reason, eco-innovation is considered a critical mechanism for moving from a linear to a circular economic model (Al Doghan et al., 2025; Bag et al., 2022, p. 62). The literature highlights that ecological transformation extends beyond technological improvements and involves broader changes aimed at reducing the environmental impacts of business activities (De Jesus et al., 2018, p. 3001). Accordingly, eco-innovation facilitates the implementation of circular economy principles by supporting the redesign of products, services, processes, and organizational structures (Kiefer et al., 2021, p. 1532). Eco-innovation refers to the introduction of new or significantly improved products, services, processes, organizational methods, or marketing practices that reduce resource use and environmental impacts throughout the product life cycle (O'Brien et al., 2013). As such, it serves not only as a tool for environmental improvement but also as a strategic capability that enables firms to integrate sustainability into their operations. Previous studies indicate that eco-innovation-based business models strengthen circular economy practices through resilient product design, recycling activities, and enhanced resource efficiency (Johl & Toha, 2021, p. 2; Khanna et al., 2022, p. 3). In tourism, the importance of eco-innovation and circular economy practices extends beyond environmental benefits. By reducing energy and food waste, lowering operational costs, and improving resource efficiency, these practices can enhance firms' economic resilience and competitiveness (Bugdol et al., 2023, p. 3). Therefore, eco-innovation is critical to the tourism sector because it simultaneously supports environmental sustainability and economic performance while enabling the practical implementation of circular economy principles.

The existing literature indicates that research on circular economy and eco-innovation in the tourism sector has received growing attention in recent years, although the field is still considered to be at an early stage of development (Alonso-Almeida et al., 2016, p. 3). Empirical studies generally associate eco-innovation and environmental practices with improved environmental and financial performance, particularly in the accommodation sector (Molina-Azorín et al., 2009; Magadán Díaz & Rivas García, 2018; Ahmed et al., 2023). However, the adoption of eco-innovation remains uneven. Tourism firms tend to prioritize operational and process-oriented practices, such as energy efficiency,

waste management, and resource conservation, while more advanced organizational and systemic innovations are less frequently implemented (Alonso-Almeida et al., 2016; De Oliveira Menezes & Da Cunha, 2016; Costa et al., 2024). The literature also shows that SMEs face significant barriers to adopting circular economy and eco-innovation practices, including financial constraints, limited knowledge, insufficient managerial capabilities, and inadequate infrastructure (Jaroszewska et al., 2019; Khan et al., 2021). Despite these challenges, eco-innovation is increasingly recognized as a strategic mechanism for improving competitiveness, operational efficiency, and stakeholder value in tourism enterprises (Lopes & Basso, 2023; Al-Romeedy & Khairy, 2024). SMEs occupy a central position in the sustainability transition because of their numerical dominance within tourism economies and their close relationships with local stakeholders (Gössling & Reinhold, 2025, p. 841; Koirala, 2019). The success of this transition inherently depends on the enterprises' capability to strike a strategic balance between optimizing existing operations and exploring novel, sustainability-oriented practices, which directly reflects an ambidextrous management approach essential for eco-innovation (Kokubun, 2025). As a result, eco-innovation has become an increasingly important topic in tourism research and policy discussions (OECD, 2021; WTTC, 2024). However, current research provides limited evidence on how tourism SMEs integrate multiple eco-innovation practices to support circular economy objectives, particularly across different geographical and institutional contexts. Although awareness of circular economy principles is increasing, the implementation of eco-innovation among tourism SMEs remains underexplored and requires further empirical investigation.

A review of the existing literature reveals several important trends and research gaps. First, most studies focus on large-scale tourism enterprises with substantial resources, whereas tourism SMEs, despite representing the majority of the sector, remain relatively under-researched (Khan et al., 2023; Leonidou et al., 2015; Rodríguez-Antón & Alonso-Almeida, 2019). Second, studies on eco-innovation adoption typically examine dynamic capabilities, organizational barriers, and performance outcomes in isolation rather than within an integrated framework (Chen et al., 2021; Pereira-Moliner et al., 2021; Mousavi et al., 2018; Rizos et al., 2016). In addition, empirical evidence highlights the role of technological and digital capabilities, including artificial intelligence, in shaping firms' eco-innovation behavior (Hussain et al., 2024). However, much of this evidence is derived from developed-country settings characterized by stronger institutional structures and easier access to financial resources. For example, the integrated models proposed by Khan et al. (2023) largely reflect the conditions of European Union member states, raising questions about their applicability to developing economies with different institutional environments, financial constraints, and sectoral dynamics. These limitations suggest that current research does not adequately explain how tourism SMEs in developing countries form eco-innovation intentions and translate them into actual behavior within the context of circular economy practices. To address this gap, this study examines the eco-innovation intentions and behaviors of accommodation SMEs operating in Muğla, one of Türkiye's foremost tourism destinations, through the lens of the Theory of Planned Behavior (TPB) (Gössling & Reinhold, 2025; Jain et al., 2024). Unlike previous studies that primarily focus on large firms or developed-country contexts, this research provides empirical evidence from tourism SMEs in a developing economy. This research collects primary data directly from managerial decision-makers of tourism SMEs through a structured survey design, thereby providing firm-level behavioral evidence from a developing country context. Furthermore, by applying TPB to the circular economy and eco-innovation context, the study offers an integrated explanation of how behavioral factors shape SMEs' eco-innovation intentions and practices, thereby extending the existing tourism and sustainability literature.

2. Theoretical Framework and Hypothesis Development

TPB is one of the most widely used frameworks for explaining the determinants of individual behavior (Ajzen, 1985; Yuriev et al., 2020). At the core of the theory is behavioral intention, which refers to an individual's willingness to perform a specific behavior. The stronger the intention, the higher the likelihood that the behavior will be carried out (Ajzen, 1991). According to TPB, behavioral intention is shaped by three key determinants. The first is attitude, which reflects an individual's positive or negative evaluation of the behavior. The second is subjective norm, which refers to the perceived social pressure to perform or not perform the behavior. The third is perceived behavioral control, which describes the extent to which an individual feels capable of performing the behavior or finds it easy or difficult to do so. Together, these three components play a key role in forming behavioral intention (Ajzen & Driver, 1992).

TPB is widely used to explain pro-environmental behaviors across different contexts, including recycling, energy conservation, low-carbon consumption, and sustainable transportation choices. In recent years, its application has expanded beyond individual behavior to include organizational and managerial decision-making, particularly in relation to environmental practices (Yuriev et al., 2020, p. 1). This shows that sustainability related actions in firms are closely linked to managerial cognition and decision processes. However, most tourism studies using TPB primarily focus on tourists or consumers, while organizational-level evidence, especially from managers and business owners, remains limited. Yet, environmental strategies in tourism enterprises are largely shaped by managerial attitudes, subjective norms, and perceived behavioral control (Ulker-Demirel & Çiftçi, 2020, p. 216). Eco-innovation behaviors and the adoption of circular economy principles represent specific pro-environmental actions shaped by managerial intentions. To better understand sustainability implementation in tourism enterprises, the cognitive framework of the Theory of Planned Behavior (TPB) should be aligned with these environmental practices. However, TPB based studies in organizational contexts remain limited, partly because the determinants of organizational behavior are not yet fully explained (Khan et al., 2023). Although TPB is a useful framework for explaining intentions and behaviors, scholars emphasize the need to include additional variables to strengthen its explanatory power (Singh et al., 2018; Erul et al., 2020). In particular, factors that directly influence both individual and organizational behavior should be considered to better explain environmentally friendly actions (Yuriev et al., 2020, pp. 7–8).

Circular economy thinking is often operationalized through the 9R framework, which emphasizes waste prevention and resource efficiency through strategies such as refuse, rethinking, reduce, reuse, repair, refurbish, remanufacture, repurpose, recycle and recovery (Potting et al., 2017, p. 15; Sauvé et al., 2016, p. 49). These strategies align with eco-innovation approaches aimed at reducing environmental impacts across product and service life cycles. Eco-innovation is commonly conceptualized in four dimensions: product, process, organizational, and marketing innovation (OECD/Eurostat, 2005, p. 16). Product eco-innovation refers to the development of environmentally improved goods and services, including green tourism facilities and environmental services such as waste and water management (Kemp & Pearson, 2007, p. 10). Process eco-innovation focuses on cleaner production, energy efficiency, recycling, and resource optimization (Porter & Linde, 1995; OECD, 2009; Hojnik & Ruzzier, 2016). Organizational eco-innovation includes environmental management systems such as ISO 14001 and EMAS as well as collaboration across the value chain (Kemp & Pearson, 2007, p. 10). Marketing eco-innovation integrates sustainability into communication strategies and business models targeting environmentally conscious customers (OECD, 2009, p. 43). Within this framework, the perspectives and expectations of enterprise decision-makers play a key role in shaping eco-innovation intentions and related behavioral outcomes. Based on the TPB, managers' attitudes toward eco-innovation, together with subjective norms and perceived behavioral control, represent distinct psychological factors that jointly influence behavioral intentions (Liao et al., 2022).

Despite these conceptual developments, SMEs tend to adopt eco-innovation and circular economy practices more slowly than large firms. This is mainly due to structural constraints such as limited financial resources, weak infrastructure, and managerial capability gaps (Dey et al., 2020; Mathivathanan et al., 2022). Additional challenges arise from insufficient digital sustainability capabilities (Dewasiri et al., 2026) and limited organizational responsiveness to external environmental pressures (Donis et al., 2026). These constraints indicate that eco-innovation adoption in tourism SMEs cannot be fully explained through behavioral intentions alone, but must also consider firm level capacities and structural conditions. To address this limitation, Khan et al. (2023) extend the TPB framework by incorporating organizational barriers, dynamic capabilities, and business performance in explaining eco-innovation behavior in tourism SMEs. This extended model links managerial intentions with firm-level resources and contextual constraints within a circular economy setting. Accordingly, TPB constructs attitude, subjective norm, and perceived behavioral control are used to explain managers' cognitive evaluations of eco-innovation. Attitude reflects managers' overall assessment of eco-innovation practices. Subjective norm captures perceived social and stakeholder pressures, while perceived behavioral control refers to available resources, capabilities, and managerial competence for implementation (Singh et al., 2018, p. 314). Dynamic capabilities are defined as a firm's ability to continuously reconfigure, develop, and transform its resources to adapt to changing environmental conditions (Teece, 2007, p. 1320). These capabilities are considered to support the development of eco-innovation within circular processes and to positively affect business performance (Khan et al., 2020a, p. 3018). In contrast, organizational barriers encountered during the transition to a circular economy are found to limit the development of innovative behaviors (Rizos et al., 2016; Ormazabal et al., 2018). More broadly, these barriers can be understood as a lack of necessary resources for eco-innovation within organizations (Khan et al., 2023, p. 1781), which also makes the transition to a circular economy more difficult (Ritzén & Sandström, 2017). Based on these theoretical foundations, this study adopts the extended TPB framework proposed by Khan et al. (2022) to examine eco-innovation intentions and behaviors in tourism accommodation SMEs. The proposed hypotheses are developed in line with this integrated conceptual structure.

Attitude: It refers to the degree to which an individual evaluates a particular behavior as favorable or unfavorable (Ajzen, 2020, p. 315). In the context of the circular economy, attitudes toward eco-innovation reflect enterprise decision-makers' evaluations of the expected positive or negative outcomes of implementing such practices (Singh et al., 2018, p. 314). Decision-makers who perceive eco-innovation as environmentally beneficial, economically valuable, and strategically advantageous are more likely to develop positive attitudes toward its adoption. Previous studies show that positive attitudes support the adoption of environmentally oriented technologies and practices. For example, Zhang et al. (2013) found that attitudes positively influence the adoption of clean production technologies in firms. Similarly, Roxas and Coetzer (2012, p. 463) argue that managers with favorable views toward environmental protection are more likely to support eco-innovation initiatives within their organizations. Consistent with TPB, positive attitudes toward a behavior increase the intention to perform it (Cordano & Frieze, 2000, p. 628). Accordingly, the following hypothesis is proposed:

H_1: The attitudes of accommodation SMEs' decision-makers have a positive and significant effect on their enterprises' intentions to adopt eco-innovation practices within the context of the circular economy.

Subjective norm: Refers to the perceived social pressure that decision-makers experience regarding whether to perform a particular behavior. In this framework, it reflects managers' perceptions of the extent to which important stakeholders such as customers, competitors, neighboring organizations, and public authorities approve or disapprove of engaging in a given behavior (Jia et al., 2023, p. 2). In the context of eco-innovation, these perceptions play a key role in managerial decision-making processes (Sánchez-Medina et al., 2014, p. 4). In particular,

environmental regulations are considered important mechanisms for promoting circular economy practices and increasing sustainability awareness among firms. Similarly, customer expectations strongly influence firms' environmental engagement, while also encouraging neighboring organizations to adopt more sustainable practices through spillover effects (Corral, 2003, pp. 413–414). Accordingly, environmental decision-making is often shaped by the expectations of key stakeholders. Firms tend to prioritize these expectations because they can strengthen stakeholder collaboration, enhance corporate reputation, and create new business opportunities (Papagiannakis & Lioukas, 2012, p. 43; Singh et al., 2018, p. 314). From this perspective, subjective norm is a key determinant of eco-innovation behavioral intentions in tourism SMEs. Therefore, the following hypothesis is proposed:

H_2: The subjective norms of accommodation SMEs decision-makers have a positive and significant effect on these enterprises' intentions to adopt eco-innovation practices within the context of the circular economy.

Perceived behavioral control: Refers to individuals' perceived ability to perform a specific behavior and is considered a key determinant within the TPB (Davis et al., 2002, p. 4). In the context of eco-innovation within the circular economy, it reflects enterprise decision-makers' perceptions of how easy or difficult it is to implement such practices, including both facilitating and constraining factors (Ajzen, 1991, p. 122; Singh et al., 2018, pp. 314-315). In this regard, perceived behavioral control includes firms' access to technological resources, collaboration with suppliers, financial capacity, and stakeholder engagement mechanisms (Han et al., 2010, p. 327; Zhang et al., 2013, p. 64). Together, these factors represent the level of control managers perceive over the implementation of eco-innovation practices (Corral, 2003, p. 413). From this perspective, perceived behavioral control is expected to positively influence both eco-innovation intentions and actual eco-innovation behavior. Previous studies support this relationship, showing that higher perceived control increases both intention and behavior (Han et al., 2010; Zhang et al., 2013). Similarly, Jia et al. (2023) report that perceived behavioral control has a significant effect on eco-innovation intentions, while Fishbein and Ajzen (2011) emphasize that it can directly influence both intention and behavior. Accordingly, this study conceptualizes perceived behavioral control as the knowledge, skills, and capabilities of accommodation SMEs decision-makers regarding the implementation of circular eco-innovation practices. Based on this theoretical and empirical foundation, the following hypotheses are proposed:

H_3: The perceived behavioral control of accommodation SMEs decision-makers have a positive and significant effect on these enterprises' intentions to adopt eco-innovation practices within the context of the circular economy.

H_4: The perceived behavioral control of accommodation SMEs decision-makers have a positive and significant effect on these enterprises' eco-innovation behaviors within the context of the circular economy.

Intention: Refers to the extent to which an individual is willing to exert effort to perform a specific behavior (Lortie & Castogiovanni, 2015, p. 937). Within the TPB, intention is considered a key determinant of actual behavior; stronger intentions increase the likelihood that the behavior will be performed (Ajzen, 1991; Cordano & Frieze, 2000, p. 628). In the context of eco-innovation, behavioral intention reflects enterprise decision-makers' willingness to adopt environmentally oriented practices. Accordingly, intention is an important antecedent of eco-innovation behavior in tourism SMEs (Corral, 2003, p. 412). Empirical studies support this relationship. Raab et al. (2018) find a positive relationship between sustainability intentions and actual behavior in tourism food and beverage enterprises. Similarly, Khan et al. (2020b) show that stronger intentions toward circular economy practices increase the of eco-innovation behavior practices in SMEs. Based on this, Hypothesis H_5 is formulated as follows:

H5: The eco-innovation intentions of decision-makers in accommodation SMEs have a positive and significant effect on the eco-innovation behaviors of these enterprises within the context of the circular economy.

Barriers: Refer to the technical and non-technical constraints that prevent firms from integrating eco-innovation into their strategies, business models, and operations, even though its importance for sustainability within the circular economy is widely recognized (Geng & Doberstein, 2008; Kiefer et al., 2018; Ormazabal et al., 2018). Rizos et al. (2016) emphasize that such barriers make the transition toward a circular economy more difficult for SMEs. Similarly, Yuriev et al. (2020, pp. 6-7) state that identifying and assessing organizational barriers is essential for reducing the environmental footprint of businesses. These barriers commonly include limited financial resources, lack of qualified personnel and environmental experts, time constraints, lack of physical space in facilities, and insufficient information about potential stakeholders (Rizos et al., 2016; Ormazabal et al., 2018; Khan, 2020). Even when decision-makers have positive intentions toward eco-innovation, these organizational constraints may hinder the implementation of such behaviors (Khan et al., 2023). Based on this reasoning, the following hypothesis is proposed:

H6: Organizational barriers of accommodation SMEs have a negative and significant effect on the eco-innovation behaviors of these enterprises within the context of the circular economy.

Dynamic Capabilities: Refer to firms' ability to integrate, build, and reconfigure internal and external competences in response to rapidly changing environments (Teece et al., 1997, p. 516). In essence, they involve adapting to changing customer needs and technological opportunities, developing new products and processes, and designing effective business models (Teece, 2007: 1320). In the context of sustainability and the circular economy, dynamic capabilities are considered key enablers of organizational adaptation and transformation (Marrucci et al., 2022, p. 2642). Previous studies show that dynamic capabilities support circular economy practices in SMEs and contribute to improved business performance (Khan et al., 2020a). Similarly, Zhou et al. (2019) find that dynamic capabilities foster innovation behavior and positively influence firm performance. Overall, dynamic capabilities are expected to have a direct effect on both eco-innovation behavior and business performance. Based on this theoretical and empirical foundation, the following hypotheses are proposed:

H7: Dynamic capabilities of accommodation SMEs have a positive and significant effect on the eco-innovation behaviors of these enterprises within the context of the circular economy.

H8: Dynamic capabilities of accommodation SMEs have a positive and significant effect on the business performance of these enterprises.

Eco-innovation Behavior and Business Performance in the Context of the Circular Economy: Researchers commonly use TPB constructs to explain and predict individual-level behavioral outcomes. However, consistent with Papagiannakis and Lioukas (2012), Sánchez-Medina et al. (2014), Singh et al. (2018), and Khan et al. (2020b), this study also extends the framework to predict eco-innovation behavior at the organizational level within the circular economy context. As March and Simon (1958, p. 26) argue, propositions about organizations are ultimately propositions about human behavior, and Liedtka (1991) similarly emphasizes that decisions are made by individuals rather than organizations. In line with Khan et al. (2023), actual behavior in this study refers to the extent to which accommodation SMEs implement eco-innovation practices within the circular economy. These practices include waste reduction, reuse and recycling, food waste reduction, and the use of renewable energy. Their effective implementation is expected to support the development of the circular economy (Khan et al., 2020b, p. 3). Empirical evidence on the performance implications of eco-innovation remains mixed. Reyes-Santiago et al. (2019) find that eco-innovation improves environmental performance in hotels but does not enhance overall organizational performance. In contrast, several studies suggest that circular economy practices can

improve both environmental and financial performance (Zhu et al., 2010; Khan et al., 2020a). Similarly, Chen et al. (2021) show that different types of eco-innovation have distinct effects on performance: organizational eco-innovation improves economic performance, while product and process eco-innovation contribute more to environmental performance. Furthermore, Fernando et al. (2021) report that circular economy-oriented behaviors enhance resource efficiency, product performance, and overall competitiveness. Based on this theoretical and empirical background, the following hypothesis is proposed:

H_9: The eco-innovation behaviors of accommodation SMEs have a positive and significant effect on the business performance of these enterprises.

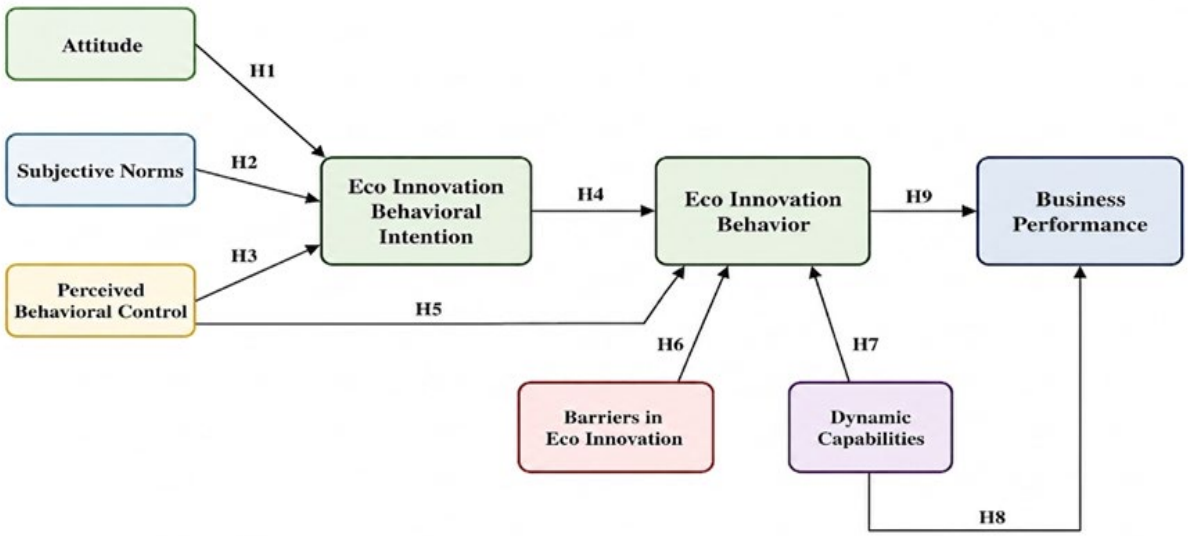

Figure 1. Research Model

The study included five independent variables: attitude (ATT), subjective norm (SUN), perceived behavioral control (PBC), barriers (BAR), and dynamic capabilities (DC); and three dependent variables: intention (INT), eco-innovation behavior (BEH), and business performance (BUSPER). In line with the research's purpose, Figure 1 illustrates the research model.

3. Method

3.1. Research Design and Sample

As stated by Khan et al. (2023), the primary population of this research consisted of accommodation SMEs operating in Muğla, considering that eco-innovation behaviors, dynamic capabilities, and business performance within the circular economy for hotels and travel agencies might differ based on their activities. A non-probability purposive sampling method was employed in this study. Within this scope, responsible for the relevant subject decision-makers from tourism accommodation SMEs operating in Muğla and registered with the Chambers of Commerce and Industry were contacted, and one respondent from each enterprise was included in the study. The main reason for choosing Muğla as the population is that Türkiye is a significant tourism destination, and many SMEs in the tourism sector are concentrated in this region. For the pilot test of the study, between September and December 2023, 110 tourism SMEs decision-makers were contacted. Data were collected through face-to-face and online surveys. For the main data collection, which took place between June and October 2024, a total of 650 enterprises were approached; however, survey forms that were incomplete or answered randomly were excluded. Of these, 421 surveys received valid responses, resulting in a valid response rate of 64.8%. Given that accommodation enterprises account for 97.1% of the sample, the analysis was conducted with a specific focus on the accommodation sector. In

addition, the participants were predominantly SMEs characterized by relatively low annual income levels.

Table 1. Descriptive Information About the Participants

What is the district where your organization is located?	**f**	**%**
Muğla (Menteşe)	10	2.4
Marmaris	99	23.5
Fethiye	139	33.0
Bodrum	102	24.2
Milas	7	1.7
Ortaca	31	7.4
Ula	30	7.1
Datça	3	.7
Total	421	100.0

What is your organization's annual turnover (approximately)?	**f**	**%**
1. Less than 1.000.000 TL	25	5.9
1.000.000-2.000.000 TL	57	13.5
2. More than 2.000.000 TL	339	80.5
Total	421	100.0

What is the field/type of your organization's activity?	**f**	**%**
Hotel and similar accommodation organizations	409	97.1
Holiday and other short-term accommodation organizations	12	2.9
Total	421	100.0

Number of employees in your organization?	**f**	**%**
1-5	94	22.3
6-9	62	14.7
10-25	87	20.7
26-49	50	11.9
50-99	44	10.5
100-249	84	20.0
Total	421	100.0

Your task at the organization?	**f**	**%**
Founder of the organization	64	15.2
Organization Manager	332	78.9
Accounting Manager	7	1.7
Quality Manager	18	4.3
Total	421	100.0

In SMEs research, surveys often yield inconclusive results due to low response rates and misinterpretation of questions (Singh et al., 2018). To address this, the concept of the circular economy was explained to each participant, and data were gathered through self-reporting. Descriptive statistics of the participants are presented in Table I.

Ethics committee permission was obtained from Muğla Sıtkı Koçman University Social and Human Sciences Research and Publication Ethics Committee (Date: 25.06.2024, Protocol No: 220195, Decision No: 80).

3.2. Measurement Instrument

In this study, the questionnaire used to measure the variables was adapted from Khan et al. (2023). The survey was translated into Turkish using a translation and back-translation procedure. First, a language expert academician and a tourism guidance specialist translated the instrument into Turkish. The translations were then compared to develop a consensus version. This draft was reviewed by two academic experts to ensure conceptual and cultural appropriateness, and revisions were made where necessary. The Turkish version was then back-translated into English by two independent experts and compared with the original scale to check the consistency of item meanings. The final Turkish form was tested during a pilot study. This process improved the clarity, quality, and overall validity of the questionnaire. Therefore, the pilot test was conducted without removing any items from the scale.

The TPB model proposed by Ajzen (1991) includes five core constructs: ATT, SUN, PBC, INT, and BEH. In this study, the survey instrument was extended based on Khan et al. (2023) by including additional variables such as BAR, DC, and BUSPER. As a result, the questionnaire consists of five items for ATT, four for SUN, three for PBC, three for INT, eleven for BEH, six for BAR, twelve for DC, and eight for BUSPER. At the end of the survey, five questions were included to collect demographic information from respondents. Items related to ATT, SUN, PBC, INT, BAR, and DC were measured using a five-point Likert scale ranging from 1 (Strongly disagree) to 5 (Strongly agree). BEH items, which assess respondents' consideration and implementation of specific eco-

innovation practices, were also measured using a five-point scale: 1 (Not implementing and not considering implementation), 2 (Not implementing but considering implementation), 3 (Planning necessary resources for implementation), 4 (Having started implementation), and 5 (Fully implementing). BUSPER items were measured using a five-point scale ranging from 1 (Not important at all) to 5 (Important).

3.3. Data Analysis

Due to the adaptation of the measurement instrument from another language, the pilot study data was analyzed using exploratory factor analysis (EFA) with IBM SPSS Statistics 27.0 (IBM Corp., 2021) to pre-evaluate the factor structure of the scales. The EFA process was carried out to assess the fit of the scales' factor structure with the dataset and to identify possible structural problems (Özdamar, 2013, p 236). The findings were found to meet the threshold values suggested in the literature, and accordingly, the main study was proceeded with without any revisions to the scale. In the main study, the structural equation modeling (SEM) approach was adopted. SEM consists of two main stages: evaluation of the measurement model and testing of the structural model (Aksay & Ay, 2016, p. 2). In this context, the measurement model was used to evaluate the validity and reliability levels of the variables, while the structural model was used to test the relationships between the variables (Anderson & Gerbing, 1988, p. 412; Weston & Gore, 2006, p. 720). Accordingly, the main analyses were performed using Jamovi 2.3.28 software. The validity of the measurement model was tested with confirmatory factor analysis (CFA), and the structural model was evaluated through path analysis.

4. Findings

4.1. Data Analysis of the Study

The validity and reliability of the measurement model were evaluated using CFA. The CFA results are presented in Table 2. During the analysis process, methods accepted in the literature were followed to improve the model fit indices. In this context, items with low factor loadings and statistically insignificant indicators were gradually removed from the model. Furthermore, covariances between some error terms were defined in accordance with theoretical justifications. CFA was run again after each adjustment, and the process continued until the model fit indices reached acceptable levels. Both convergent and discriminant validity were evaluated within the scope of the construct validity of the measurement model. For convergent validity, Cronbach's alpha (α), composite reliability (CR), and average variance extracted (AVE) values were examined. CR values were calculated based on factor loadings and reported in the relevant table. All obtained values were found to be above the recommended thresholds. Cronbach’s alpha and McDonald’s omega coefficients were reported to evaluate the internal consistency of the scales. The omega coefficient is considered a more flexible reliability measure that takes factor loadings into account and, together with Cronbach’s alpha, allows for a more comprehensive assessment of internal consistency (McDonald, 1999; Zhang & Yuan, 2016, p. 388; Kalkbrenner, 2024, p. 95).

Table 2. Confirmatory Factor and Validity and Reliability Analysis Results for the Measurement Instrument

Variables	Indicators	Factor Loadings	CR	Cronbach's Alpha	McDonald's Omega	AVE
Attitude	ATT1*	0.711	0.812	.839	.811	.506
	ATT2*	0.817				
	ATT3	0.783				
	ATT4	0.637				
	ATT5	0.663				
***To assess the model fit of the research model, a covariance was specified between items 1 and 2. Prior to estimating this covariance, the AVE value was 0.522.**						
Variables	**Indicators**	**Factor Loadings**	**CR**	**Cronbach's Alpha**	**McDonald's Omega**	**AVE**
Subjective Norms	SUN1	0.663	.758	.759	.757	.511
	SUN2	0.774				
	SUN3	0.753				
	SUN4*	0.696				
*** To maintain the AVE value at the desired level and accurately capture the model's goodness of fit, item 4 with low factor loadings was removed. Before removal, the AVE value was 522.**						
Variables	**Indicators**	**Factor Loadings**	**CR**	**Cronbach's Alpha**	**McDonald's Omega**	**AVE**
Perceived Behavioural Control	PBC1	0.848	.805	.791	.803	.579
	PBC2	0.837				
	PBC3	0.614				
Variables	**Indicators**	**Factor Loadings**	**CR**	**Cronbach's Alpha**	**McDonald's Omega**	**AVE**
Intention (INT)	INT1	0.812	.861	.855	.857	.667
	INT2	0.889				
	INT3	0.755				
Variables	**Indicators**	**Factor Loadings**	**CR**	**Cronbach's Alpha**	**McDonald's Omega**	**AVE**
Behavior	BEH1	0.697	.863	.862	.863	.512
	BEH2	0.680				
	BEH3	0.673				
	BEH4	0.618				
	BEH5*	0.521				
	BEH6*	0.512				
	BEH7*	0.616				
	BEH8*	0.567				
	BEH9*	0.616				
	BEH10	0.809				
	BEH11	0.771				
***In order to improve the AVE, which was initially 0.415, items 6 (0.512), 5 (0.521), 8 (0.567), 9 (0.616), and 7 (0.616) were sequentially removed from the analysis.**						
Variables	**Indicators**	**Factor Loadings**	**CR**	**Cronbach's Alpha**	**McDonald's Omega**	**AVE**
Barriers	BAR1	0.687	.749	.749	.749	.499
	BAR2	0.662				
	BAR3	0.691				
	BAR4*	0.603				
	BAR5*	0.597				
	BAR6*	0.583				
***Since the average value was 0.407 before the item deletions and increased to 0.499 thereafter, the path analysis was subsequently conducted.**						
Variables	**Indicators**	**Factor Loadings**	**CR**	**Cronbach's Alpha**	**McDonald's Omega**	**AVE**
Dynamic Capabilities	DC1*	0.599	.909	.914	.907	.520
	DC2**	0.626				
	DC3**	0.671				
	DC4	0.753				
	DC5	0.649				
	DC6	0.805				
	DC7	0.820				
	DC8	0.757				
	DC9	0.808				
	DC10	0.781				
	DC11	0.617				
	DC12*	0.601				
***Before the items were removed, the average value was 0.497. Items 1 and 12, which exhibited low factor loadings, were excluded in order to better meet the recommended threshold values and improve the model's goodness of fit.** ****Subsequently, a covariance was specified between items 2 and 3.**						
Variables	**Indicators**	**Factor Loadings**	**CR**	**Cronbach's Alpha**	**McDonald's Omega**	**AVE**
Business Perfromance	BUSPER1*	0.431	0.848	.855	.846	.519
	BUSPER2*	0.512				
	BUSPER3	0.540				
	BUSPER4	0.625				
	BUSPER5	0.728				
	BUSPER6**	0.727				
	BUSPER7**	0.861				
	BUSPER8	0.805				
***AVE 0.419 before the specified items are deleted.** ****Covariance was performed between 6-7 to capture the goodness of fit of the research model.**						

Researchers suggest that internal consistency reliability is generally supported when Cronbach's alpha and CR values are equal to or exceed the recommended threshold of 0.70. In terms of convergent validity, the AVE is expected to be at least 0.50, while factor loadings are ideally above 0.70. Nevertheless, as noted by Hair et al. (2011, p. 145), when AVE exceeds the recommended threshold of 0.50, factor loadings in the range of 0.40 to 0.70 may still be considered acceptable depending on theoretical justification and overall model adequacy. As presented in Table 3, all constructs in the current study meet these recommended criteria, indicating satisfactory levels of reliability and convergent validity.

On the other hand, in this study, the potential issue of common method variance (CMV) was assessed using Harman's single factor test. All measurement items were entered into an exploratory factor analysis, and the number of factors was constrained to one. The results showed that a single factor accounted for 28.2% of the total variance. According to the literature, CMV may be a concern when a single factor explains more than 50% of the total variance. Since the obtained value (28.2%) is below this threshold, it can be concluded that common method bias is not a serious concern in this study (Eihhorn, 2014, p. 4).

To ensure acceptable model fit indices and convergent validity, items with low factor loadings that weakened the model fit were removed from the analysis. The excluded items from the BEH scale relate to economic and operational practices reusing water and/or wastewater, reusing furniture, small appliances, and bathroom, recycling waste, using materials made of recycled products, using renewable energ. In the BAR scale, items reflecting barriers such as lack of time, lack of space in the facility, lack of information about potential partners were also excluded. This may be related to contextual differences, as the scale was originally developed for tourism SMEs in European Union countries (Khan et al., 2023), whereas this study was conducted with accommodation SMEs operating in Muğla, Türkiye, a developing country tourism destination. Therefore, the exclusion of these items should be interpreted not only as a statistical requirement but also as an indication of the socioeconomic context in which the scale was applied. Differences in economic, sectoral, and cultural conditions can directly influence the adoption level of eco-innovation practices, which may limit the relevance of some items to respondents' actual experiences. The removal of these items suggests that high-cost environmental technologies, advanced circular economy practices, and innovations requiring substantial organizational transformation may be perceived as beyond the current capacity of the enterprises. Similarly, statements related to time and spatial constraints appear to be relevant operational barriers for firms in more institutionalized and developed markets, whereas they do not seem to resonate at the same level within the context of accommodation SMEs operating in the Muğla tourism destination. In addition, the lack of information regarding potential stakeholders can be interpreted as an important limitation in organizational capacity, stemming from insufficient integration of firms into the eco-innovation and sustainability ecosystem. In this regard, the exclusion of items with low factor loadings during the analysis process should not be viewed merely as a technical procedure aimed at improving model fit. Rather, it should also be considered part of an adaptation process to achieve a measurement structure that is more consistent with the study context. Indeed, differences in economic development level, sectoral structure, and institutional capacity for eco-innovation practices directly can influence how scale items are perceived by respondents. This highlights the importance of ensuring cultural adaptation, contextual sensitivity, and measurement invariance when applying research instruments across different socioeconomic settings. Therefore, the removal of certain items due to low factor loadings represents not only a statistical adjustment to improve model fit, but also a conceptual adaptation that reflects the influence of local socioeconomic conditions on the adoption of sustainable tourism practices.

To achieve acceptable model fit indices, it is recommended to combine the error terms of items associated with the same variable in the modification indices table provided by the jamovi software package and to specify the covariance relationship accordingly (Alparslan, 2022, p. 302).

Table 3. Covariance Matrix Between Items

			95% Confidence Interval			β 95% Confidence Interval				
Variable1	**Variable2**	**Estimate**	**SE**	**Lower**	**Upper**	**β**	**Lower**	**Upper**	**z**	**p**
ATT1	**ATT2**	0.0907	0.0128	0.0656	0.1158	0.4688	0.3836	0.5540	7.080	<.001
DC2	**DC3**	0.1496	0.0200	0.1104	0.1888	0.4189	0.3374	0.5005	7.481	<.001
BUSPER6	**BUSPER7**	0.1205	0.0250	0.0715	0.1695	0.3546	0.2472	0.4621	4.819	<.001

According to the analysis results presented in Table 3, a covariance relationship was specified between two items belonging to the same construct due to their high correlation values (Özalp, 2022, pp. 126–127). By correlating the error terms of the relevant items, an improvement in the overall model fit of the research model was achieved.

Table 4. Confirmatory Factor Analysis Model Fit Results

Compatibility Criteria	**Good Compatibility**	**Acceptable Compatibility**	**Reliability Coefficients of the Research Scale**
Chi-Square (χ^2/sd) Degree of Freedom	$0 \leq \chi^2/sd \leq 2$	$0 \leq \chi^2/sd \leq 5$	1464/680 2.152
RMSEA	≤ 0.05	≤ 0.08	0.052
SRMR	≤ 0.05	≤ 0.08	0.054
CFI	≥ 0.95	≥ 0.90	0.911
Tucker-Lewis İndeks (TLI)	≥ 0.95	≥ 0.90	0.903
IFI	≥ 0.95	≥ 0.90	0.911
GFI	≥ 0.95	≥ 0.90	0.982
AGFI	≥ 0.95	≥ 0.85	0.979
NFI	≥ 0.95	≥ 0.90	0.846

Source: Karagöz **(**2017, p. 466).

According to the CFA results in Table 4, the model fit indices were calculated as $\chi^2 = 1464$, df = 680, $\chi^2/df = 2.152$, p <.001, RMSEA = 0.052, SRMR = 0.054, CFI = 0.911, TLI = 0.903, IFI = 0.911, GFI = 0.982, AGFI = 0.979, and NFI = 0.846. When compared to the threshold values accepted in the literature, the fit indices indicate that the model demonstrates an acceptable level of fit.

Discriminant validity was assessed to determine the extent to which the constructs in the measurement model are distinct from one another. In this regard, the Heterotrait–Monotrait ratio (HTMT) has been widely recommended in the literature as a robust approach for evaluating discriminant validity. HTMT was used to evaluate discriminant validity. HTMT values were obtained from the SEM outputs of the Jamovi software and were found to be below acceptable limits across all constructs. These results indicate that the measurement model has sufficient discriminant validity. (Henseler et al., 2015, p. 116; Hair et al., 2021, pp. 78-79). HTMT values below the thresholds of 0.90 or, more conservatively, 0.85 indicate that adequate discriminant validity has been established between constructs (Henseler et al., 2015; Hair et al., 2019, p. 9).

Table 5. HTMT Analysis Report

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
ATT (1)	1							
SUN (2)	0.621	1						
PBC (3)	0.524	0.798	1					
BAR (4)	0.096	0.071	0.137	1				
DC (5)	0.352	0.560	0.589	0.120	1			
INT (6)	0.694	0.728	0.754	0.066	0.517	1		
BEH (7)	0.437	0.505	0.566	0.141	0.562	0.503	1	
BUSPER (8)	0.328	0.430	0.340	0.085	0.409	0.372	0.296	1

When the results presented in Table 5 are evaluated, it can be seen that the measurement model meets the required threshold values. Accordingly, a structural model was established in order to proceed with the path analyses.

4.2. Evaluation of the Structural Model

It is recommended to examine the Variance Inflation Factor (VIF) values in order to assess potential multicollinearity among the constructs in the structural model. Multicollinearity refers to a situation where there is a high level of correlation between independent variables. This makes it difficult to determine the effect of each variable on the dependent variable separately and clearly. It can also weaken the statistical significance of the results by increasing the standard errors of the coefficients. Therefore, measures such as VIF are used to check for multicollinearity in the model. In general, VIF values below 3, or at most 5, indicate the absence of a multicollinearity problem among the variables included in the structural model (Hair et al., 2019, p. 11).

Table 6. VIF Values for Multiple Linear Connections in the Structural Model

INTENTION	**VIF Value**
ATT→ INT	1.49
SUN→ INT	1.93
PBC→ INT	1.64
BEHAVIOR	
PBC→ BEH	1.82
INT→ BEH	1.73
BAR→ BEH	1.02
DC→ BEH	1.40
BUSPER	
DC→ BUSPER	1.32
BEH→ BUSPER	1.32

As presented in Table 6, all VIF values were below the threshold of 3, indicating the absence of multicollinearity among the variables. To evaluate the structural model, path analysis was performed using the Jamovi software package, which enables the examination of the entire model within a multivariate framework (Polatçı, 2022, pp. 312–313). In the path analysis, R^2 values were examined to assess the extent to which the dependent variables were explained by the model. The R^2 coefficient represents the proportion of variance explained in each endogenous variable and serves as an indicator of the model's explanatory power within the sample. Ranging from 0 to 1, higher R^2 values indicate greater explanatory power of the model (Hair et al., 2019, p. 12).

Table 7. R^2 Values Table

		95% Confidence Interval	
Variables	**R^2**	**Lower**	**Upper**
INT	0.542	0.475	0.604
BEH	0.332	0.258	0.405
BUSPER	0.143	0.086	0.209

In this context, the R^2 values for eco-innovation behavioral intention, eco-innovation behavior, and business performance were found to be 0.542, 0.332, and 0.143, respectively. According to Hair et al. (2019), R^2 values of 0.75, 0.50, and 0.25 can be interpreted as substantial, moderate, and weak, respectively. However, in exploratory studies or within certain research contexts, R^2 values as low as 0.10 may still be considered acceptable (Khan et al., 2022, p. 11). Accordingly, the obtained R^2 values fall within acceptable limits and are consistent with theoretical expectations.

Table 8. Structural Model Path Analysis Effect Coefficients

				95% Confidence Interval			
Hypothesis	**Relationships Between Variables**	**Estimate**	**Standart Estimate**	***β***	**Z**	**P Value**	**Findings**
H_1	ATT→ INT	0.3722	0.0471	0.3176	7.90	<.001	**Supported**
H_2	SUN→ INT	0.1977	0.0399	0.2271	4.95	<.001	**Supported**
H_3	PBC→ INT	0.2974	0.0366	0.3431	8.12	<.001	**Supported**
H_4	PBC→ BEH	0.2460	0.0628	0.2144	3.92	<.001	**Supported**
H_5	INT→ BEH	0.2445	0.0678	0.1846	3.61	<.001	**Supported**
H_6	BAR→BEH	-0.0564	0.0361	0.0626	-1.56	0.119	**Not Supported**
H_7	DC→BEH	0.4039	0.0629	0.2965	6.42	<.001	**Supported**
H_8	DC→BUSPER	0.3367	0.0541	0.3193	6.22	<.001	**Supported**
H_9	BEH→BUSPER	0.0781	0.0398	0.1009	1.96	0.049	**Supported**

Table 8 shows that ATT ($\beta = 0.318$, $p < 0.001$), SUN ($\beta = 0.227$, $p < 0.001$), and PBC ($\beta = 0.343$, $p < 0.001$) all have significant and positive effects on the intention to engage in BEH. In addition, both PBC ($\beta = 0.214$, $p < 0.001$) and INT ($\beta = 0.185$, $p < 0.001$) have significant positive effects on BEH. In contrast, organizational BAR ($\beta = 0.063$, $p = 0.119$) shows a negative but not statistically significant effect on BEH. Moreover, DC ($\beta = 0.297$, $p < 0.001$) has a significant positive effect on BEH. Finally, both DC ($\beta = 0.319$, $p < 0.001$) and BEH ($\beta = 0.101$, $p = 0.049$) have significant and positive effects on BUSPER.

5. Discussion and Conclusion

This study examines eco-innovation intentions and behaviors of tourism and accommodation SME decision-makers within the context of the circular economy, using the TPB. The research model incorporates dynamic capabilities, organizational barriers, and business performance in a holistic framework. The findings show that the model provides a meaningful explanation of behavioral dynamics at both individual and organizational levels. Path analysis results indicate that SME decision-makers' attitudes have a significant and positive effect on eco-innovation intentions. Accordingly, H_1 was supported. The results suggest that SME decision-makers' attitudes are primarily shaped by the perceived social benefits of the circular economy, the associated financial gains, and the risks of non-adoption. Therefore, it is clear that the attitude of enterprise decision-makers is a decisive factor in the adoption and development of eco-innovation. This finding is consistent with previous studies highlighting the importance of managerial attitudes in adopting eco-innovation practices (Khan et al., 2020b; Singh et al., 2018; Papagiannakis and Lioukas, 2012).

It was found that subjective norms are an important determinant of eco-innovation behavioral intention. Based on Ajzen's (1991) definition of subjective norms as "perceived social pressure to perform or not perform a behavior," the findings confirm the important role of the social environment in environmental decision-making within tourism accommodation SMEs. Accordingly, H_2 was supported. Expectations from employees, customers, and other key stakeholders regarding circular economy practices create social pressure on managers and also strengthen shared value understanding. Along with this, the findings are consistent with previous studies showing that stakeholder pressure encourages eco-innovation intentions (Zhang et al., 2013; Singh et al., 2018; Khan et al., 2020b). Managers consider stakeholder expectations important in environmental decision-making mainly because they help strengthen cooperation among stakeholders, improve corporate reputation, and create competitive advantage. This is also perceived as an important business opportunity (Papagiannakis & Lioukas, 2012, p. 43). Similarly, Tapaninaho and Heikkinen (2022) highlight that collaborative pressures and sustainability expectations from key stakeholders play a key role in the adoption and development of the circular economy. Accordingly, the expectations and attitudes of SME stakeholders such as employees, customers, and competitors

regarding circular economy practices significantly influence decision-makers' eco-innovation intentions.

The study found that perceived behavioral control has a significant and positive effect on both eco-innovation behavioral intention and eco-innovation behavior. The literature highlights perceived behavioral control and behavioral intention as key determinants of actual behavior (Ajzen, 1991). Accordingly, H_3 and H_4 were supported. In line with this framework, previous studies also show that perceived behavioral control positively influences both intentions and behaviors of managers (Han et al., 2010, p. 327; Zhang et al., 2013, p. 64). Managers' knowledge of circular economy practices and their perceived ability to control management processes directly shape both their intentions and actions (Jia et al., 2023). Given that SME decision-makers generally have a high level of control over organizational processes, their knowledge and self confidence in implementing circular economy practices strengthen eco-innovation tendencies. In this sense, higher levels of knowledge about a behavior are associated with a greater likelihood of adopting that behavior (Khan et al., 2023, p. 14). Accordingly, the findings suggest that policymakers and relevant institutions should strengthen knowledge sharing mechanisms through capacity building initiatives, technical training programs, and targeted eco-innovation support schemes (Akdemir, 2021, p. 377).

On the other hand, Raab et al. (2018) found a positive relationship between tourism food and beverage managers' intentions to adopt sustainable practices and their actual implementation of these practices. This finding is important as it demonstrates that the intention behavior link is particularly strong in the service sector. Similarly, the findings of this study confirm that accommodation SME decision-makers' intentions have a significant and positive effect on eco-innovation behaviors. Accordingly, H_5 is supported. However, analysis of eco-innovation practices shows that accommodation SMEs tend to prioritize low cost and easy to implement circular economy practices. Practices such as reducing energy use, reducing food waste, reducing plastic consumption, reducing water use, and providing sustainability training for staff are more widely adopted. In contrast, reuse and recycling-oriented practices remain relatively limited. Consistent with previous research (Rodríguez-Antón & Alonso-Almeida, 2019), this suggests that circular economy practices in tourism accommodation SMEs are still in a gradual development process. More specifically, practices such as water and wastewater reuse, the use of recycled materials, and the reuse of goods, small appliances, and bathroom items are implemented at low limited levels. This suggests that, particularly in the service sector where hygiene standards are critical, managers may have certain reservations about these practices and therefore approach them more cautiously. Polyportis et al. (2022) examined the factors influencing the acceptance of products made from recycled materials and the potential barriers to their adoption. Although recycled and reused materials offer important environmental benefits, consumers may still perceive various risks associated with their use. In this context, circular economy practices are shaped not only by technical capabilities but also by perceptual and psychological factors.

The results indicate that organizational barriers have a negative and statistically non-significant, effect on eco-innovation behavior. Accordingly, H_6 is not supported. Although this finding is consistent with the resource and capacity constraints frequently highlighted in the literature, it also emphasizes the context-sensitive nature of eco-innovation in tourism accommodation SMEs. In these enterprises, environmental practices often involve low-cost operational improvements rather than radical innovations that require advanced technologies. Energy efficient systems, basic waste separation practices, and efforts to reduce plastic use can be implemented even when resources are limited (Koirala, 2019; Kokubun, 2025). Recent studies similarly suggest that financial and organizational constraints do not necessarily discourage innovation intentions rather, they encourage enterprises to adopt incremental environmental practices that align with their existing capacities (Donis et al., 2026; Kokubun, 2025). In addition, external stakeholder pressures and corporate expectations may encourage enterprises to adopt a certain level of sustainability practices despite their internal constraints (Dewasiri et al., 2026). As noted by Rizos et al. (2016), the importance of

each barrier varies across SMEs. For some enterprises, financial constraints may be the main challenge, whereas for others, a lack of stakeholder collaboration or insufficient information may be more critical. Accordingly, findings from Muğla, one of Türkiye's major tourism destinations, further highlight the importance of contextual factors in shaping eco-innovation practices. The varying effects of barriers such as limited financial resources, a lack of environmental expertise, and insufficient sustainability-related skills may be explained by differences among tourism accommodation SMEs in terms of their infrastructure, operational characteristics, and income levels. In this context, the strong intentions, perceived behavioral control, and dynamic capabilities of decision-makers can help reduce the negative effects of these barriers on eco-innovation practices. This finding suggests that strengthening organizational capabilities may play an important role in sustaining eco-innovation activities despite resource and capacity constraints. From a practical perspective, initiatives aimed at improving process management, internal communication, employee training on circular economy practices, and sustainability-oriented incentive mechanisms may contribute to creating a more supportive environment for eco-innovation.

The findings of this study show that dynamic capabilities have a significant and positive effect on both eco-innovation behaviors and business performance in SMEs. Accordingly, H_7 and H_8 are supported. These results are consistent with Khan et al. (2020a), who report a strong positive relationship between dynamic capabilities, circular economy practices, and firm performance. Zhou et al. (2019) argue that dynamic capabilities facilitate innovation and thereby enhance improve firm performance. Such these capabilities include the adoption of innovations that enhance firm performance, the development of competitive services, the effective use of new technologies, efficient resource utilization for generating new ideas and services, and collaboration with partners, suppliers, and industry associations. In this regard, participation in sectoral networks and collaborative initiatives may strengthen firms' ability to access knowledge, resources, and market opportunities. These capabilities may also contribute to greater recognition by public authorities and to improved employee satisfaction, organizational commitment, and loyalty. Overall, the effective deployment of dynamic capabilities appears to support both eco-innovation activities within the circular economy and broader organizational performance outcomes.

The results indicate that eco-innovation behavior has a direct and positive effect on business performance. Accordingly, H_9 is supported. This finding is consistent with Mura et al. (2020), who reported a positive relationship between circular economy practices and business performance. Similarly, Shih et al. (2018) argue that eco-innovation plays an important role in enhancing organizational performance. However, the relatively low explanatory power of the model for business performance ($R^2 = 0.143$) highlights the multidimensional nature of performance in the tourism sector. Business performance is influenced not only by internal organizational factors but also by external conditions, including destination characteristics, economic circumstances, seasonality, competitive intensity, and marketing capabilities. Consequently, the contribution of eco-innovation may extend beyond immediate performance outcomes and emerge through indirect and long-term mechanisms. Benefits such as enhanced corporate reputation, increased customer satisfaction, stronger stakeholder trust, and sustainable competitive advantage may not be fully reflected in short-term financial indicators.

Overall, the findings suggest that eco-innovation behavior in tourism accommodation SMEs is shaped by managerial attitudes, subjective norms, perceived behavioral control, and dynamic capabilities. These factors contribute to business performance both directly and indirectly, although their effects may materialize gradually over time. The findings further suggest that the adoption of circular economy practices in tourism accommodation SMEs is a context-dependent and multidimensional process influenced by both organizational and behavioral factors.

This study contributes to the literature by extending the Theory of Planned Behavior through the integration of dynamic capabilities, organizational barriers, and business performance within a

single framework, thereby providing a more comprehensive understanding of the mechanisms underlying eco-innovation in tourism accommodation SMEs. Future research may further enhance this understanding by incorporating external determinants of performance, such as macroeconomic conditions, crisis periods, destination characteristics, and competitive intensity.

5.1. Theoretical Implications

While large scale tourism enterprises currently possess a scale advantage in integrating Sustainable Development Goals into their operational processes, the role of SMEs which constitute the majority of the tourism sector is critically important in the transition toward a circular economy. Owing to their strong embeddedness in the local context and flexible organizational structures, SMEs have the potential to act as dynamic agents in the adoption and diffusion of eco-innovation practices within a circular economy framework. This study, grounded in the TPB, namely attitude, subjective norms, and perceived behavioral control, examines the eco-innovation intentions and behaviors of tourism accommodation SMEs within a comprehensive model by integrating dynamic capabilities and organizational barriers. The findings contribute to the literature in several key respects, demonstrating that eco-innovation processes cannot be explained solely by individual psychological factors, as dynamic capabilities and contextual constraints also play a decisive role.

Firstly, the results indicate that attitude, subjective norms, and perceived behavioral control the core components of TPB serve as significant determinants in shaping strategic environmental decision-making at the SME level. According to Upper Echelons Theory, strategic decisions are largely shaped by the cognitive foundations and values of top level managers (Hambrick & Mason, 1984). From this perspective, it is seen that firm owners and top-level managers play a decisive role in shaping strategic decisions in SMEs. Similarly, Behavioral Theory of the Firm suggests that organizational decisions are made under conditions of bounded rationality rather than perfect rationality and are shaped by the cognitive limitations of decision-makers as well as organizational routines developed over time (Cyert & March, 2020). Considering that the corporate identity and decision-making mechanisms of SMEs are mostly integrated with the strategic vision of firm owners or top level managers, this study confirms the power of TPB in explaining in organization managerial intentions and supports the theory's explanatory power in understanding organizational transformation processes in tourism (Ulker-Demirel & Ciftci, 2020). In this respect, the research enriches the organizational behavior literature on sustainability and circular economy by extending the explanatory scope of TPB beyond individual level boundaries.

Secondly, one of the most original contributions of this study is that it demonstrates that organizational barriers do not operate as absolute constraints that fully impede eco-innovation, but rather function as structural filters that shape the direction and depth of innovation activities. This perspective moves beyond the static, barrier centered approach in the existing literature by emphasizing the dynamic and context sensitive nature of constraints. The tendency of SMEs, particularly those operating under resource constraints, to gravitate toward low cost and incremental eco-innovations rather than radical transformations suggests that organizational barriers, while restrictive, simultaneously compel firms to adapt and develop alternative learning processes.

Thirdly, the central role of dynamic capabilities in shaping eco-innovation behavior and business performance underscores the importance of organizational learning, flexibility, and resource reconfiguration capabilities in sustainability transitions. The findings indicate that external corporate pressures or regulatory requirements alone are insufficient to drive the adoption of circular economy practices; instead, internal dynamic capabilities act as key catalysts in this transformation process. This result extends the Natural Resource Based View (NRBV) and the dynamic capabilities perspective within the context of the tourism service sector by highlighting the role of intrinsic capabilities in adapting to a circular economy.

Finally, the relatively low explanatory power observed for business performance suggests that performance outcomes in the tourism sector are inherently multidimensional and highly sensitive to external environmental conditions. This finding implies that the effects of eco-innovation behaviors on performance are more likely to be indirect and long term rather than immediate and direct. Accordingly, future research should enhance explanatory capacity by incorporating macroeconomic conditions, destination specific characteristics, and sectoral uncertainties into the analytical framework. In developing countries such as Türkiye, and in tourism intensive destinations like Muğla, eco-innovation processes grounded in circular economy principles are shaped not only by dynamic capabilities and individual psychological factors, but also by structural determinants such as macroeconomic volatility, destination level governance capacity, and industry specific uncertainties. Therefore, the development of more integrative models that simultaneously account for macro- and micro-level dynamics is expected to substantially improve the explanatory power of future research in this field.

5.2. Practical and Managerial Implications

The findings of this study indicate that the eco-innovation transformation of SMEs in the tourism and hospitality sector is shaped not only by environmental awareness, but also by the complex interplay among attitudes, subjective norms, perceived behavioral control, and internal dynamic capabilities. Accordingly, coordinated actions at both micro (enterprise) and macro (destination/policy) levels are required to accelerate the adoption of eco-innovation practices.

When evaluated from the perspective of enterprise and management-level implications, firstly, the significant role of the attitude construct suggests that eco-innovation transformation can be effectively accelerated through appropriate cognitive framing. Given that a substantial proportion of the SMEs included in this study are family-owned enterprises, and that decision-makers often approach circular economy investments predominantly from a cost oriented and skeptical perspective, eco-innovation communication strategies should be carefully redesigned. Environmental practices should be framed not as a normative obligation, but as an integral component of a strategic business model that delivers cost reduction, operational efficiency, and sustained competitive advantage.

Furthermore, the strong influence of dynamic capabilities on both eco-innovation and business performance indicates that competitive advantage in SMEs is primarily derived from learning, adaptability, and resource reconfiguration rather than static resource endowments. In this regard, the integration of SMEs into digital transformation processes and sectoral knowledge-sharing networks emerges as a strategic necessity. In addition, firms should adopt multidimensional performance measurement systems that prioritize long-term intangible indicators such as corporate reputation, customer loyalty, and stakeholder trust rather than focusing solely on short term financial outcomes.

When evaluated from the perspective of implications at the policy, destination, and ecosystem levels, the significant effect of subjective norms in the model demonstrates that behavioral transformation does not occur in isolation, but rather within a socially embedded, network-based structure. Destination Management Organizations (DMOs) should therefore strengthen positive social pressure mechanisms on SMEs by fostering shared sustainability expectations among customers, suppliers, and local stakeholders.

The finding that organizational barriers shape the intensity and direction of innovation, rather than completely constraining it, calls for a fundamental shift in policy design. Instead of expecting radical transformations from resource-constrained firms, policymakers should initially promote low cost and quick win practices such as energy efficiency, waste management, water management as entry points. The transition toward more advanced circular economy practices should subsequently be supported through technical capacity building instruments, including on site consultancy services and digital advisory platforms that enhance SMEs' perceived behavioral control.

In the data collection process, insufficient coordination among firms and inadequate infrastructure were identified as major structural challenges, particularly in tourism-intensive destinations such as Muğla. To address these issues, scalable and collective solutions are required. In this context, the role of central policymakers (e.g., the Ministry of Environment, Urbanization and Climate Change of Türkiye) should evolve from a purely regulatory function toward that of a transformative coordinating actor. In this context, several priorities are proposed. Collective infrastructure investments, including smart grid systems and integrated waste treatment infrastructures aimed at reducing water, food, and energy consumption, should be made accessible to SMEs at affordable costs through coordinated support from local and national authorities. In addition, sharing economy and cooperative networks should be strengthened through the development of industrial-scale shared facilities (e.g., communal laundry systems) for joint use by multiple SMEs, as well as digital industrial symbiosis platforms developed in collaboration with universities and industry stakeholders to facilitate the exchange of second-hand equipment, organic waste, and packaging materials. Furthermore, performance monitoring and incentive mechanisms should be established through regular local authority monitoring systems based on measurable indicators such as reuse and composting rates, while high-performing enterprises could be rewarded by integration into municipal eco-tourism routes. In addition, green transformation grants and low-interest sustainability loans may function as key financial instruments supporting the development of this ecosystem.

5.3. Limitations and Future Directions

Most of the SMEs participating in the study can be characterized as family-owned enterprises. In this context, enterprises owners tend to prioritize cost considerations and generally demonstrate hesitation toward the adoption of eco-innovation practices. In addition, the registration of multiple enterprises under chambers of commerce and industry, which are managed by a single individual, constitutes one of the sampling limitations of the study. Specifically, the management of three to five organizations operating under the same NACE code but with different company names by a single manager results in both a substantial managerial workload and challenges regarding the comparability of different types of hospitality enterprises in terms of their alignment with circular economy practices. Moreover, in this study the use of a purposive sampling method and the restriction of data collection to tourism accommodation SMEs in the Muğla destination limit the generalizability of the findings. The predominantly coastal tourism structure of Muğla restricts the applicability of the results to regions where different types of tourism are dominant. In addition, the fact that the data collection period coincided with the peak tourism season posed difficulties in reaching decision-makers and consequently limited the number of participants. The sample, which is largely composed of accommodation enterprises and relatively small-scale SMEs, does not represent other sub-sectors of the tourism industry or the dynamics of large-scale firms. Therefore, future research is recommended to employ more balanced samples that include different regions and tourism sub-sectors, and to adopt longitudinal research designs where possible.

In line with these limitations, future research is recommended to incorporate macroeconomic and environmental variables that may influence business performance into the analytical model. In particular, the effects of exchange rate fluctuations, economic crises, destination characteristics, seasonality in tourism demand, digital marketing capacity, and regional infrastructure conditions on business performance may be examined. Such an approach would enable a more comprehensive and holistic understanding of tourism SMEs' performance dynamics. Furthermore, comparative analyses of circular economy practices across different tourism subsectors are encouraged. Extending the scope beyond accommodation enterprises to include food and beverage, transportation, travel agencies, and recreation enterprises would contribute to a more nuanced understanding of sectoral differences and contextual variations within the tourism industry.

This study employed a quantitative research design. Future research is recommended to adopt qualitative approaches in order to gain a more in depth understanding of decision-makers experiences, perceptions, and decision-making processes regarding eco-innovation practices. In particular, interview-based qualitative studies or mixed-methods designs may offer significant contributions to explaining the underlying rationale of the quantitative findings and to more comprehensively exploring why the organizational barriers variable yielded statistically insignificant results. Moreover, longitudinal research designs are suggested to enable a more robust examination of the long-term effects of circular economy practices on firm performance.

In future studies, digital infrastructure components, smart sharing platforms, and technological capabilities may be incorporated into the model as mediating or moderating variables. Digitalization can be regarded as a critical factor supporting eco-innovation behaviors by facilitating access to information, resource sharing, waste management coordination, energy efficiency monitoring, and stakeholder collaboration. Therefore, it is recommended that constructs such as digitalization capacity, digital infrastructure adequacy, and the level of utilization of digital sharing platforms be included in future models. In this way, the direct and indirect effects of digitalization on eco-innovation behavior can be examined more comprehensively. Additionally, conceptualizing business performance as a two-dimensional construct comprising financial and environmental performance may enhance the explanatory power and distinctiveness of the model.

Another noteworthy issue emerging from the study relates to the management of multiple enterprises operating under the same NACE code by a single decision-maker. This situation contributes to the centralization of decision-making processes and may compromise the homogeneity of the sample structure. In particular, the representation of different enterprise types under a single managerial authority may obscure variations in perceptions and evaluations of circular economy practices. Therefore, future research is recommended to construct separate datasets for each enterprise or to incorporate control variables such as decision-maker complexity or management intensity into the model. This would enable a more accurate assessment of inter firm differences.

Finally, a comparative analysis of tourism SMEs operating in both developed and developing countries would provide a clearer understanding of how contextual differences influence eco-innovation practices within the framework of the circular economy. Similarly, examining circular economy practices across other tourism subsectors such as travel agencies, transportation businesses, and food and beverage enterprises would allow for a more comprehensive comparison of sectoral differences and contextual dynamics.

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