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M. Trabandt, W. Lasarov, G. Viglia

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- 1 **It's a pleasure to stay sustainably: leveraging hedonic appeals in tourism and hospitality**
- 2 Melanie Trabandt, Kiel University, Kiel, Germany
- 3 Wassili Lasarov, Audencia Business School, Nantes, France
- 4 Giampaolo Viglia, University of Portsmouth, Portsmouth, UK

5 **It's a pleasure to stay sustainably: leveraging hedonic**
6 **appeals in tourism and hospitality**

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8 Melanie Trabandt^a, Wassili Lasarov^b, Giampaolo Viglia^{c,d,1}
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22 **Declaration of Interest: none.**
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26 ^a Department of Marketing, Kiel University, Kiel, Germany

27 ^b Department of Marketing, Audencia Business School, Nantes, France

28 ^c School of Strategy, Marketing and Innovation, University of Portsmouth, Portsmouth, UK

29 ^d Department of Economics and Political Science, University of Aosta, Aosta, Italy

30
31 ¹ giampaolo.viglia@port.ac.uk, corresponding author, Richmond Building PO13DE Portsmouth, UK.
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34 **It's a pleasure to stay sustainably: Leveraging hedonic**
35 **appeals in tourism and hospitality**

36 **ABSTRACT**

37 The tourism sector is actively exploring methods to reduce its adverse environmental impact.
38 Our study introduces hedonic appeals as a novel approach to encourage guests to reduce their
39 room cleaning requests. We contend that combining this approach with sustainable appeals is
40 at least as effective as the previously identified most effective strategy, namely providing guests
41 with financial incentives. The effectiveness of hedonic appeals is channeled through guest value
42 creation. Our empirical evidence – involving a field experiment at a European hotel and a lab
43 experiment – supports the proposed effects and explanation mechanisms. We also demonstrate
44 that our new strategy is the most profitable by introducing a profitability index that considers
45 room cleaning requests, monetary investments, and side effects. We therefore recommend
46 hotels to adopt this cost-effective strategy to reduce room cleaning requests without affecting
47 overall guest satisfaction.

48

49 **Keywords:** sustainable tourism, field experiment, room cleaning practices, hedonic appeals,
50 financial incentives, sustainable appeals, guest value, guest behavior

51

52

53

INTRODUCTION

54

55 In light of climate change, overpopulation, and overconsumption, the calls for socially and
56 environmentally sustainable economic growth are growing louder (United Nations, 2021). The
57 tourism industry has substantially exacerbated these challenges, accounting for approximately
58 8–10% of global greenhouse gas emissions (Cevik, 2023; Gössling & Peeters, 2015). Hotel
59 managers recognize their business harms the environment (Bohdanowicz, 2006). Thus, many
60 hotels have implemented practical measures or interventions facilitating environmentally
61 friendly guest behavior to minimize their negative impact. Examples include reducing room
62 cleaning frequency, promoting towel and linen reuse, and low-emission food consumption
63 (Dolnicar et al., 2019; Knezevic Cvelbar et al., 2021; Gössling et al., 2019). These practices, in
64 turn, offer significant advantages to hotels. Doing so can enhance a hotel's reputation and appeal
65 to environmentally conscious guests (Sharma et al., 2018) or substantially reduce costs by
66 reducing water and energy consumption and minimizing waste (Kim et al., 2020; Becken &
67 Dolnicar, 2016; Dolnicar et al., 2020).

68 Past research has primarily focused on a limited range of guest behaviors, such as towel
69 reuse (e.g., Bohner & Schluter, 2014), food waste reduction (e.g. Dolnicar et al., 2020), and
70 water consumption (e.g., Joo et al., 2018), overlooking the significant environmental impact of
71 room cleaning (Demeter et al., 2023a). Moreover, many studies have examined normative or
72 informational interventions, such as communicating the environmental impact of sustainable
73 practices to guests (Dolnicar et al., 2018; Warren et al., 2017). However, reducing the frequency
74 of room cleaning requests can yield advantages for both the hotel and its guests, as well as
75 mitigate environmental consequences. By opting out of daily room cleaning, hotels can
76 decrease their operational costs associated with cleaning, and guests can enjoy greater freedom
77 and flexibility (Dolnicar, 2020). To date, incentive-based approaches that emphasize such guest
78 benefits have been explored in only a limited number of tourism-related studies (Demeter et al.,
79 2023a), and they primarily focus on financial incentives (e.g., Dolnicar et al., 2017; Morgan &

80 Chompreeda, 2015; Chan et al., 2022; Dolnicar et al., 2019). However, in a context where
81 individuals primarily seek pleasure, adapting hedonic appeals, such as emphasizing guests'
82 freedom and comfort during their vacation, can also effectively promote pro-environmental
83 behaviors (Dolnicar, 2020; Dolnicar et al., 2020). Hedonic appeals aim to provide "a sense of
84 pleasure and satisfaction to customers" (Deb & Lomo-David, 2020, p. 615). These appeals are
85 self-directed (Vigneron & Johnson, 2004; Kousi et al., 2023; Deb & Lomo-David, 2020),
86 meaning they specifically relate to the individual's personal experience. This contrasts with
87 symbolic appeals, which are other-directed (Deb & Lomo-David, 2020). Therefore, we
88 introduce a novel incentive-based intervention centered around hedonic benefits for hotel
89 guests.

90 Our paper makes four contributions to the literature. First, we investigate the influence of
91 hedonic appeals on reducing room cleaning requests, combined with the most effective
92 (financial incentives) and standard (sustainable information) interventions. We focus on a
93 setting where guests are required to request room cleaning, as studies have shown this
94 sustainable default, compared to the daily cleaning default, effectively promotes pro-
95 environmental guest behavior (Knezevic Cvelbar et al., 2021). Second, we address the potential
96 side effects of different interventions, such as a decrease in guests' sustainability rating of the
97 hotel. Though relevant, these effects have often been overlooked in studies, particularly
98 regarding guest retention and hotel image (Rodríguez & Cruz, 2007). Third, we examine the
99 underlying mechanisms that explain the impact of our newly explored interventions on pro-
100 environmental guest behavior. Using a value-creation approach, we show that benefits related
101 to the guests themselves (hedonic and financial) guide their decision-making. Hedonic guest
102 value mediates the positive influence of hedonic appeals on reducing room cleaning requests.
103 Finally, we introduce an intervention profitability index. This index considers not only the
104 percentage of room cleaning requests but also the costs incurred by the hotel (e.g., when
105 providing monetary incentives) and potential side effects, such as sustainability assessment and

106 guest satisfaction. Considering these factors, we demonstrate that hedonic appeals are the most
107 profitable strategy.

108 **CONCEPTUAL BACKGROUND**

109 **Environmental and financial impacts of room cleaning**

110 The environmental impact of hotel room cleaning is substantial, particularly regarding water
111 consumption (Dimara et al., 2017). For example, in a hotel with 100 rooms, opting out of daily
112 cleaning can save about 3,000 liters of water (see Appendix 3). This saving is significant when
113 compared to the average daily water use per person, which is 100 liters in Europe and 500 liters
114 in the United States. On a global scale, if hotels worldwide reduced room cleaning by just 1%,
115 the water saved could meet the basic annual needs of 5 million people (The University of
116 Queensland: Low Harm Hedonism Initiative, 2023). Dolnicar et al. (2019) also note that each
117 cleaning session in a hotel room typically consumes 100 ml of cleaning chemicals and 1.5 kWh
118 of electricity. Beyond environmental benefits, reducing room cleaning activities can also lead
119 to significant cost savings for hotels, with costs for cleaning a room between \$10 and \$17
120 (HotelTechReport, 2023; HospitalityNet, 2023).

121

122 **The effectiveness of no-room-cleaning defaults**

123 To date, only a few studies have explored the effectiveness of strategies to encourage guests
124 to waive daily room cleaning (e.g., Dolnicar et al., 2019; Knezevic Cvelbar et al., 2021). Among
125 these strategies, implementing "no room cleaning" as the default option has been demonstrated
126 to be highly effective, offering the potential to reduce the demand for room cleaning while
127 maintaining guest satisfaction (Knezevic Cvelbar et al., 2021). Many large hotel chains have
128 started implementing such opt-in practices in their room cleaning policies. For example, at
129 Hilton's hotels, guests must contact the front desk if they want someone to clean their room
130 (Forbes, 2021; The New York Times, 2023). Walt Disney World has introduced similar

131 measures, reducing their room cleaning services under a policy that they term "light
132 housekeeping." Likewise, Marriott typically provides room cleaning only upon request (CBS
133 News, 2022). Building upon these research findings and real-world observations, we have
134 adopted this condition as the basis for our work. In response to a recent call for investigating
135 the combination of multiple interventions (Demeter et al., 2023a), our paper is the first to
136 examine the synergy between this default option and various intervention approaches
137 (sustainable, financial, and hedonic).

138

139 **The effectiveness of sustainable vs. financial interventions**

140 *Financial incentives outperform sustainable appeals.* Sustainable appeals, including
141 normative messages, informative messages, and pro-environmental nudges, are identified as
142 the most prevalent intervention mechanisms in tourism (Demeter et al., 2023a). However, while
143 research on sustainable marketing (e.g., White et al., 2019; Mai et al., 2021; Dunning, 2007),
144 and environmental psychology (e.g., Bolderdijk et al., 2013) has shown that sustainable appeals
145 are effective in the home context, they often fail to elicit behavioral change in tourism (Dolnicar
146 & Demeter, 2023; Dolnicar et al., 2017). This is significant as many hotels still rely on these
147 appeals to promote sustainable guest behaviors (Dolnicar, 2020; Dolnicar et al., 2019). One
148 reason for this ineffectiveness could be the inherently hedonic nature of tourism (Demeter et
149 al., 2023b; Dolnicar et al., 2018; Dolnicar & Grün, 2009). While the home context also often
150 possesses hedonic qualities (e.g., hobbies), Demeter et al. (2023b) empirically demonstrate that
151 individuals perceive tourism as a more hedonically charged context compared to their everyday
152 life. In hedonic settings, individuals often overlook non-hedonic (conflicting) goals they
153 prioritize in daily life (Chen et al., 2016; Miao and Wei, 2013). Consequently, tourists may be
154 less likely to engage in sustainable behaviors, as these could reduce hedonic experiences by
155 requiring increased effort, reduced comfort, etc. (Dolnicar et al., 2019; Miao and Wei, 2013;
156 Dolnicar et al., 2018). Additionally, sustainable appeals usually trigger both positive emotions

157 (e.g., pride) and negative ones (e.g., guilt) (Kaiser, 2006; van Zomeren et al., 2010; White et
158 al., 2019). In general, both can lead to sustainable actions, stemming from individuals'
159 tendencies to pursue positive experiences and avoid negative ones (White et al. 2019; Carrus et
160 al., 2008; Koenig-Lewis et al., 2014). In the tourism setting, guests often process emotions
161 differently than they do at home. Specifically, negative emotions tend to be managed through
162 distinct regulation strategies instead of being immediately acted upon (Prebensen & Foss,
163 2011). These strategies encompass various approaches like distraction, savoring the moment,
164 and rationalization (Heiy & Cheavens, 2014; Thiruchselvam et al., 2012; Juvan & Dolnicar,
165 2014). Researchers therefore recognize that the effectiveness of sustainable appeals might be
166 overestimated in the tourism context, leading them to turn their attention to financial incentives.
167 Building upon research in sustainable consumption (e.g., White et al. 2019; Mai et al., 2021),
168 recent tourism studies have indeed demonstrated that financial incentives are more effective
169 than sustainable appeals (Chan et al., 2020; Dolnicar et al., 2019), with few of them in a towel
170 reuse and room cleaning context (Morgan & Chompreeda, 2015; Dolnicar et al., 2019).

171

172 **Leveraging guests' freedom as a hedonic appeal**

173 In light of the high effectiveness of financial incentives, academia often overlooks the
174 potential of other self-related interventions to foster sustainable guest behavior (Demeter et al.,
175 2023a). Nevertheless, research in sustainable consumption (White et al., 2019; Green & Pelozo,
176 2014) and tourism (Demeter et al., 2023a; Malone et al., 2014) suggests that offering non-
177 financial incentives can be equally or even more effective than financial incentives. This is
178 particularly relevant in tourism, where the hedonic nature of the experience can be leveraged as
179 a non-financial benefit to encourage sustainable practices. Additionally, the theory of hedonic
180 psychology (Kahneman, 1999) indicates a common human propensity for behaviors that deliver
181 instant utility, thus allowing individuals to continue their participation in an activity.
182 Experiencing pleasure is seen as a type of this positive utility (Kahneman, 1999). Given that

183 tourism frequently revolves around seeking pleasure, enhancing pleasure could be an effective
184 strategy that potentially has a significant influence on guest behaviors (Dolnicar, 2020).

185 *Hedonic goal activation in tourism.* Goal-framing theory can help understanding the
186 effectiveness of hedonic appeals in tourism. Grounded in motivational and cognitive
187 psychology, the central idea is that goals influence individuals' focus, attitudes, beliefs, and
188 actions (Lindenberg, 2006; Lindenberg & Steg, 2007). It identifies three primary goals driving
189 behaviors: Gain goals (maximizing utility and benefits), normative goals (evaluating the
190 appropriateness of actions), and hedonic goals (emotional responses to situations) (Steg et al.,
191 2014). Often, multiple (conflicting) goals, are activated in a single situation, with one typically
192 prevailing (Lindenberg & Steg, 2007). In the tourism context, hedonic and gain-oriented goals
193 frequently prevail (Dolnicar et al., 2017). The literature suggests that the relationship between
194 individuals' goal orientation and their subsequent behavior is influenced by whether the goals
195 activated in the environment are in alignment or conflict (Vansteenkiste et al., 2008). More
196 specifically, the connection between people's life goals, their achievements, and their
197 adjustment is determined by the match or fit between individuals' personally held life goals or
198 values and the types of life goals or values promoted by the environment (Vansteenkiste et al.,
199 2008). These effects have been identified under various labels, such as congruency effects
200 (Sagiv & Schwartz, 2000), match perspective (Vansteenkiste et al., 2008; 2010), or person-
201 environment fit (Amiot et al., 2006), and have been empirically investigated in related scientific
202 fields, including social psychology (Sagiv & Schwartz, 2000) and sports psychology (Amiot et
203 al., 2006). For instance, Sagiv and Schwartz (2000) illustrate that well-being is dependent on
204 the alignment (or match) between personal values and the values emphasized in the
205 environment. Therefore, when the environment corresponds with individual goals, people are
206 more likely to act in accordance and, thus, to translate their goals into behavior (e.g., Sagiv &
207 Schwartz, 2000; Vansteenkiste et al., 2008). Consequently, we expect that appeals resonating

208 with the predominant goals in a tourism setting, especially those highlighting hedonic aspects
209 or gains, will be more effective than non-matching appeals, such as sustainable ones.

210 *The impact of hedonic appeals.* Hedonic appeals, defined as self-directed enjoyment (Deb
211 & Lomo-David, 2020; Tsai, 2005; Vigneron & Johnson, 2004), effectively activate individual
212 hedonic goals. These appeals include aesthetic, experiential, and pleasure-related benefits from
213 consumption (Chitturi et al., 2007, 2008; Dhar & Wertenbroch, 2000). While hedonic appeals
214 are barely explored in tourism (Demeter et al., 2023a), they exhibit significant potential to
215 increase sustainable tourist behavior (e.g. Dolnicar et al., 2020: reduction of food waste).
216 Research in psychology (Corral-Verdugo et al., 2009; Steg et al., 2014) and marketing (White
217 et al., 2019; Rezvani et al., 2018; Oliver & Rosen, 2010) validates their effectiveness in
218 enhancing sustainable behaviors. For example, individuals are more likely to adopt (Kopplin et
219 al., 2021) and maintain (Kim & Kim, 2020) sustainable behaviors when experiencing hedonic
220 pleasure from their actions. Among other forms of hedonic benefits, providing consumers with
221 freedom and flexibility are shown as effective in marketing and retailing (Chitturi et al., 2008;
222 Childers et al., 2001). Reducing room cleaning requests can therefore provide guests with
223 hedonic benefits as they gain more freedom and flexibility, allowing for uninterrupted privacy,
224 independence, and personalized experiences.

225 *Potential side-effects.* In addition to the immediate effects of hedonic appeals on room-
226 cleaning requests, we anticipate potential side effects related to guests' assessment of the hotel's
227 overall sustainability. Considering these effects is of utmost importance, as they increase the
228 guests' willingness to pay (Su & Li, 2022; Han et al., 2010; Holmes et al., 2021) and the hotel's
229 general performance (González-Rodríguez et al., 2019; Rodríguez & Cruz, 2007). Traditional
230 approaches in hotel room-cleaning practices, such as sustainable appeals or financial incentives,
231 can unexpectedly backfire, potentially resulting in lower sustainability ratings from guests (e.g.,
232 Parguel et al., 2011; Bolderdijk et al., 2013). Two mechanisms can explain this effect. First,
233 when hotels solely emphasize the positive environmental impact of a sustainable initiative,

234 guests often show skepticism regarding the credibility of the hotel's environmental assertions
235 (Grazzini et al., 2018; Leonidou & Skarmeas, 2017). They may question the hotel's intrinsic
236 motivation and therefore perceive it as less sustainable (Lasarov et al., 2021; Parguel et al.,
237 2011). This negative effect can be mitigated if hotels employ an additional appeal, such as a
238 hedonic benefit. Second, by emphasizing only the financial benefits for guests, hotels might
239 inadvertently undermine their self-perception as altruistic and morally good, potentially
240 eliciting egocentric behaviors (Bolderdijk et al., 2013). Adding hedonic appeals can activate
241 two congruent benefits - both hedonic and financial - which do not evoke conflicting
242 motivational orientations for sustainable behavior (Maio et al., 2009). By incorporating hedonic
243 appeals alongside financial benefits, the altruistic reasons for sustainability can fade into the
244 background, allowing for a more balanced perception of sustainable behavior. Therefore, the
245 negative impact of presenting financial incentives can be mitigated by incorporating hedonic
246 appeals into the communication strategy.

247

248 **Hypothesis 1:** *The presence of hedonic appeals leads to (a) a decrease in guests'*
249 *room cleaning requests and (b) an increase in the guests' sustainability assessment*
250 *of the hotel.*

251

252 Previous research has established financial incentives as a highly impactful intervention in
253 promoting sustainable behaviors of guests (Dolnicar, 2020; Dolnicar et al., 2020), also in the
254 room cleaning context (Dolnicar et al., 2019). However, our study is the first to examine these
255 effects within the context of an opt-in default policy. In line with hypothesis 1, which proposes
256 that the presence of hedonic appeals reduces room cleaning requests, we believe that financial
257 incentives, which also provide self-related benefits, are more effective than appeals solely
258 focusing on sustainability. Consequently, when hedonic appeals are absent, we anticipate that
259 other personal benefits, such as financial incentives, will continue to be more effective than

260 approaches that solely emphasize pro-environmental factors. Importantly, while financial
261 incentives incur costs for the hotel, hedonic benefits typically have minimal impact on daily
262 hotel operations. This makes the profitability of hedonic benefits superior when compared.
263 Moreover, based on hypothesis 1, we expect that if hedonic appeals are absent, only financial
264 incentives lead to an increase in the sustainability assessment. Some research supports this
265 counterintuitive assumption, as guests seem to mistrust companies that emphasize altruistic
266 motivations, such as a pro-environment orientation, for their sustainable behavior (Parguel et
267 al., 2011). Providing an economic, extrinsic explanation for the hotel's sustainable efforts may
268 enhance guests' trust in the hotel's motivation and sustainable strategy, resulting in a higher
269 sustainability rating. Based on these considerations, we propose the following hypothesis.

270

271 **Hypothesis 2:** *When hedonic appeals are absent, only the presence of financial (vs.*
272 *sustainable) appeals leads to (a) a decrease in guests' room cleaning requests and*
273 *(b) an increase in the guests' sustainability assessment of the hotel.*

274

275 **The mediating role of guest value**

276 Drawing from research on customer value, we expect that hedonic and financial appeals
277 most effectively influence guest behavior if they provide a certain customer value to the guests
278 (Woodruff, 1997; Woodall, 2003). After the concept of customer value was initially formulated
279 as a relative evaluation of "giving" and "getting" elements (Zeithaml, 1988), many scholars
280 have redefined and expanded this conceptualization over the years (So et al., 2022; Smith &
281 Colgate, 2007). Within the domain of tourism and hospitality, customer value reflects guests'
282 perceived preference and assessment concerning various hotel attributes, attribute
283 performances, and outcomes derived from their (expected) stay experience (Woodruff, 1997).
284 Therefore, we entitle this concept guest value. Researchers in the field of tourism have
285 increasingly recognized the necessity for an approach to understanding value that encompasses

286 multiple dimensions. For instance, Zhang et al. (2019) investigated various dimensions of
287 perceived value, including functional, social, and emotional value, all of which contributed to
288 consumers' behavioral intention to pay premium prices for Airbnb accommodations. This study,
289 in line with others, demonstrates that creating value for guests can significantly influence their
290 perceptions and actions during their stay (Brady & Cronin, 2001; Gallarza & Saura, 2006,
291 Williams & Soutar, 2009).

292 Following a categorization from Smith and Colgate (2007), we focus on the value
293 dimensions which are directly associated with our investigated appeals. The hedonic value
294 dimension relates to the extent to which a measure or a hotel attribute creates a valued
295 experience or emotional value such as pleasure and enjoyment (Smith & Colgate, 2007). The
296 functional value dimension relates to the extent to which a measure or a hotel attribute fulfills
297 desired characteristics and leads to desired outcomes, such as financial benefits (Smith &
298 Colgate, 2007). We therefore investigate the mediating role of perceived guest value (hedonic
299 and financial) on the advertised behavior. Following prior research (Smith & Colgate, 2007;
300 Williams & Soutar, 2009), we hypothesize, that emphasizing the hedonic (financial) benefits
301 increases the perceived hedonic (financial) guest value that in turn facilitates the advertised
302 behavior, namely reducing room cleaning requests.

303

304 ***Hypothesis 3a:*** *The presence (vs. absence) of hedonic appeals increases the perceived*
305 *hedonic value which in turn leads to a decrease in guests' room cleaning requests.*

306

307 ***Hypothesis 3b:*** *The presence of financial (vs. sustainable) appeals increases the*
308 *perceived financial value which in turn leads to a decrease in guests' room cleaning*
309 *requests.*

310

311 Overview of studies

312 This paper reports a field experiment and a laboratory experiment that jointly explore our
 313 hypotheses (Figure 1). Study 1 focuses on a field experiment that examines the influence of
 314 hedonic appeals on room cleaning requests and their potential impact on sustainability
 315 assessment and satisfaction. Additionally, it investigates how hedonic appeals interact with
 316 established interventions, such as financial incentives and sustainable appeals. Building on
 317 this, Study 2 uses an experimental design to delve into the underlying mechanisms,
 318 specifically guest value creation, which drive these effects. This provides further robustness to
 319 the field results by examining them in a controlled environment.

320 **Figure 1.** Conceptual model
 321

	Study 1	Study 2
Purpose	Investigate the influence of hedonic appeals on room cleaning requests, sustainability rating and guests' satisfaction. Examine the interaction with financial incentives and sustainable information.	Investigate the underlying mechanisms of the intervention effects, specifically hedonic and financial guest value. Provide further robustness to the field results by examining them in a controlled environment.
Framework	<p>The diagram illustrates the conceptual model. It starts with two independent variables: 'Hedonic vs. no hedonic appeal' and 'Financial vs. sustainable appeal'. 'Hedonic vs. no hedonic appeal' has a direct path to 'Guest value' labeled H1. 'Financial vs. sustainable appeal' has a direct path to 'Guest value' labeled H2. There is also an interaction path between these two variables, indicated by a circle with an 'X' and labeled H3. 'Guest value' leads to a 'Profitability index' box, which contains four sub-boxes: 'Room cleaning requests', 'Sustainability assessment*', 'Financial savings*', and 'Satisfaction*'. The asterisk (*) likely denotes a significant or expected effect.</p>	
Design	Field experiment	Laboratory experiment
Results	The requests for room cleaning were highest when the interventions did not include any appeals related to guest benefits (hedonic, financial). The combination of hedonic and sustainable appeals is the most effective intervention when taking room requests, intervention costs, sustainability assessment and guest satisfaction into account (= profitability index).	Hedonic value mediates the negative influence of hedonic appeals on room cleaning requests. While perceived guest-related benefits (hedonic and financial) are relevant to decision-making, environmental benefits are not. Within guest-related values, hedonic values are more effective at reducing room-cleaning requests than financial ones.

322

323

324

STUDY 1

325 This field study investigates the influence of hedonic appeals on room cleaning requests and
326 potential side effects, as well as the interaction with other interventions (financial vs.
327 sustainable).

328

329 **Sample and procedure**

330 We ran the study in a European midscale hotel in May 2023 for five consecutive weeks. We
331 assigned 426 hotel stays to one of five different conditions (four manipulated conditions and a
332 control condition). Specifically, 357 room stays were randomly assigned to four experimental
333 conditions (i.e., hedonic-financial; no hedonic-financial; hedonic-sustainability; no hedonic-
334 sustainability) and 68 to the control condition (counterfactual). To mitigate any systematic
335 effects related to room types, we also employed randomization by assigning our treatment and
336 control groups across the rooms on each floor. This approach ensured that the specific room
337 type did not influence the results. We looked at the stays of at least four days to be able to
338 measure the actual cleaning room requests.

339 At the end of the check-in process, a trained hotel employee presented guests with
340 information letters and cards regarding a test of a new room-cleaning program. The guests were
341 randomly assigned to one of four experimental conditions. For the letters, we used wording
342 which was already successfully tested by Knezevic Cvelbar et al. (2021) and adapted it to our
343 context. Depending on the condition, guests received different information letters and cards
344 with varying information. Each letter included a standardized message to introduce the new
345 room-cleaning concept to the guests. The message clarified that the hotel would adopt an on-
346 request cleaning approach, meaning that the rooms would not be automatically cleaned daily,
347 which included the changing of towels and bed linen. However, it was mentioned in the text

348 that room cleaning would be possible upon request by placing a "Please clean my room today"
349 sign on the outside handle of the door before 10 am.

350 Right below the text that introduces the new concept, guests either read a paragraph that
351 introduces them to the hedonic benefits of the new program (present hedonic appeal conditions),
352 or these benefits were not mentioned (absent hedonic appeal conditions). More specifically, the
353 text in the *present hedonic appeals* conditions stated that the newly introduced room cleaning
354 concept enhanced the guests' hedonic experience by giving them more freedom, flexibility,
355 privacy, and independence. For example, guests would not need to worry about being
356 interrupted by housekeeping. Privacy and independence were also stressed, as guests could
357 request room cleaning whenever they wanted. Guests allocated to conditions with *absent*
358 *hedonic appeals* did not read such a paragraph.

359 Subsequently, guests read either a text with pro-environmental appeals (sustainable appeal
360 conditions) or financial appeals (financial appeal conditions). In the *sustainable appeals*
361 conditions, a paragraph informed the guests about the environmental impact of room cleaning.
362 This approach aligns with previous research that has tested the influence of environmental
363 information on promoting behaviors such as bed linen reuse (Gössling et al., 2019; Leon &
364 Arana, 2020), low-emission food consumption (Cozzio et al., 2021), or reduced water use
365 (Günther et al., 2020). The message presented to the guests stated that each room cleaning
366 would consume 100 ml of chemicals, 35 liters of water, and 1.5 kWh of electricity. Guests were
367 encouraged to make a difference and reduce the environmental burden of their stay by opting
368 for room cleaning upon request. The message concluded with an appeal: "Please help us make
369 a difference in the environment." In the *financial appeals* conditions, a paragraph informed the
370 guests that room cleaning also saves the hotel money, and the hotel intends to share the savings
371 with the guests. This manipulation is consistent with previous research on financial incentives
372 to towel reuse (Morgan & Chompreeda, 2015) and waiving room cleaning (Dolnicar et al.,
373 2019). The message displayed to the guests emphasized that saving water benefits the

374 environment and the hotel's finances. It further stressed that the hotel wanted to share the
375 financial savings with the guests by providing a 5 € voucher for a drink in the hotel restaurant
376 for each skipped room cleaning.

377 The manipulated flyers are provided in the Appendix (Appendix 1). One trained admin was
378 blind to the hypotheses and conditions and took the information on the cleaning requests. A
379 pilot test was conducted to test for the manipulations used. Forty-two participants took part in
380 the study ($M_{\text{age}}=32$; 64% males). We randomly assigned the participants to one of four
381 experimental conditions (i.e., hedonic-financial; no hedonic-financial; hedonic-sustainability;
382 no hedonic-sustainability). Then, they were asked to rate to what extent the message conveyed
383 hedonic benefits or not, as well as financial incentives or sustainability goals. The results
384 demonstrate the intended impact of our manipulations for the hedonic-framed message and the
385 financial vs. sustainability appeal. Participants in the hedonic conditions significantly indicated
386 a higher level of agreement regarding the appeal's emphasis on gaining additional free time
387 ($M_{\text{free}} = 6.03$, $M_{\text{no free}} = 2.31$, $p < 0.01$). Similarly, participants in the financial incentive
388 conditions significantly indicated a stronger belief that the message presented a monetary gain
389 compared to those in the sustainability conditions ($M_{\text{financial}} = 5.40$, $M_{\text{sustain}} = 1.39$, $p < 0.01$).

390

391 **Data analysis**

392 Our dependent variable was guests' requests for room cleaning, corresponding to the number
393 of days (calculated in percentage) when guests asked their room to be cleaned. Specifically, we
394 measured the proportion of cleaning requests with respect to the total possible requests (service
395 every day). For instance, if guests were requesting a service for two days out of four nights, the
396 index for that room would have been 0.5 (1 would have corresponded to a request every single
397 day). We also collected data on customers' satisfaction and sustainability perceptions at check-
398 out. Sustainability perceptions were ascertained by asking guests: "On a scale of 1 to 10, how
399 would you rate our hotel's sustainability efforts?" on a bi-polar scale ranging from 1 (extremely

400 unsustainable) to 10 (extremely sustainable). Guest satisfaction was measured by asking guests:
 401 "On a scale of 1 to 10, how satisfied are you with your stay at our hotel?" ranging from 1
 402 (extremely dissatisfied) to 10 (extremely satisfied).

403 Table 1 presents the main descriptive statistics from the field experiment, divided into our
 404 four conditions (i.e., hedonic-financial; no hedonic-financial; hedonic-sustainability; no
 405 hedonic-sustainability) and the control group. 33% of guests were female, while almost half of
 406 the customers were leisure guests (47%). The mean age of the sample was 42.32 years; 40% of
 407 guests traveled in groups (families, friends), and 48% were Italian (vs. Non-Italian). There were
 408 no significant differences regarding these variables between all groups.

409 **Table 1.** Descriptive Statistics for each experimental group

Variable	Statistic	TOTAL	NO HEDO /SUST	HEDO /SUST	NO HEDO /FIN	HEDO / FIN	CON TROL	ANOVA
Room cleaning index	mean (SD)	.53 (.44)	.55 (.42)	.41 (.43)	.38 (.40)	.41 (.44)	1	F(4, 421)=32.87, <i>p</i> < 0.001
Sustainability rating	mean (SD)	7.23 (1.56)	6.91 (1.84)	7.37 (1.14)	6.86 (1.80)	7.636 (1.30)	7.42 (1.49)	F(4, 421)=4.20, <i>p</i> = 0.002
Guest satisfaction	mean (SD)	7.43 (1.28)	7.32 (.99)	7.29 (1.23)	7.39 (1.61)	7.59 (1.20)	7.57 (1.36)	n.s.

410

411 First, we checked if any intervention was more effective in terms of room cleaning requests
 412 than no intervention at all. ANOVA results contrasting the four treatment groups with the
 413 control group reveal a significant effect ($F(1, 424) = 117.53, p < .001$). Compared to the room
 414 cleaning index value of "1" in the control group, meaning that rooms were cleaned every day,
 415 the mean value across all treatment conditions was .44 (SD=.43).

416 Table 2 presents the results of an OLS regression analysis, with guests' requests for room
 417 cleaning, sustainability rating, and overall satisfaction as dependent variables. For these
 418 analyses, we included only guests exposed to one of the four treatment conditions ($n = 357$).
 419 The explanatory variables in the full regression model include all the variables in Table 1. We
 420 included the interaction between absent hedonic appeals and sustainable information in the
 421 model to test for the moderation effects between these two factors. First, we examined the

422 influence of the different appeals on the guests' requests for room cleaning. Results suggest that
423 the absence of any incentive for the self (hedonic or financial) negatively influences guests'
424 sustainable behavior (i.e., increase of room cleaning requests). In line with H2a, we found a
425 significant interaction effect (Table 2, Model 2, $\beta = .20$, $p = .039$), while, contrary to H1a, there
426 was neither a significant main effect of the presence of hedonic appeals (Table 2, Model 2, $\beta =$
427 $.04$, $p = .572$), nor of the financial-sustainable appeal factor (Table 2, Model 2, $\beta = .00$, $p =$
428 $.993$). Results (Table 1) show that the requests for room cleaning were the highest if no benefit
429 for the self was communicated ($M_{\text{NoHedonic/Sus}} = .55$; $F(4, 421) = 32.87$, $p < 0.001$).

430 We employed the PROCESS add-on (v3.5.3, Hayes, 2017) to assess the interaction effect,
431 using model 1 (with centralized continuous variables and bootstrapping of 5,000 samples) for
432 determining the conditional effects. Consistent with Hypothesis 2, we examined the effects of
433 the financial appeal (vs. sustainable appeal), conditioned on the hedonic treatment. In the
434 absence of the hedonic appeal, the presence of the financial appeal (vs. sustainable appeal) had
435 a significant influence on room cleaning requests ($\beta = -.19$, $t = -2.90$, $p = .004$, $CI_{95}[-.313, -$
436 $.060]$). However, when the hedonic appeal was introduced, the effect of the financial appeal
437 was not significant ($\beta = .00$, $t = .01$, $p = .993$, $CI_{95}[-.124, .125]$). Results suggest that the
438 absence of hedonic and financial appeals has a detrimental effect on the guests' requests for
439 room cleaning. The highest room cleaning index was achieved if guests were solely presented
440 with sustainable appeals ($M_{\text{NoHedonic/Sus}} = .55$). Guests in this condition requested room cleaning
441 more frequently than guests in the financial-no hedonic condition ($M_{\text{NoHedonic/Fin}} = .38$; $t(176) =$
442 2.81 , $p = .005$), guests in the sustainability-hedonic condition ($M_{\text{Hedonic/Sus}} = .41$; $t(187) = 2.34$,
443 $p = .020$), and guests that were exposed to flyers with financial and hedonic appeals ($M_{\text{Hedonic/Fin}}$
444 $= .41$; $t(184) = 2.28$, $p = .023$). There was no significant difference between these three groups
445 in terms of room cleaning requests. This pattern is in line with our hypotheses.

446 Next, we examined the influence of our interventions on guests' overall guest satisfaction
447 and their rating of the hotel's sustainability. Regression analysis results reveal a significant main

448 effect of the hedonic appeals on the sustainability rating (Table 2, Model 4, $\beta = .24$, $p = .002$),
449 supporting H1b. Notably, the sustainability assessment of guests was significantly higher for
450 the conditions with hedonic appeals ($M_{\text{Hedonic/Sus}} = 7.37$; $M_{\text{Hedonic/Fin}} = 7.64$) than for the
451 conditions without hedonic appeals ($M_{\text{NoHedonic/Sus}} = 6.91$; $M_{\text{NoHedonic/Fin}} = 6.86$; $F(4, 421) = 4.20$,
452 $p = 0.002$). However, the mean values of these groups did not significantly differ from the
453 sustainability assessment in the control group ($M_{\text{Control}} = 6.91$; $F(2, 245) = 1.01$, $p = .365$) (Table
454 1). The results, therefore, indicate a backfire effect when guests were presented with sustainable
455 or financial appeals in the absence of hedonic appeals. In these cases, guests rated the hotel less
456 sustainable than in the control condition or the conditions where hedonic appeals were present.
457 Contrary to hypothesis 2b, there was no significant interaction effect on the sustainability rating
458 of the hotel.

459 Furthermore, we did not find any significant difference in the guests' satisfaction assessment
460 ($F(4, 421) = 1.03$, $p = .393$, Table 1). This is good news as introducing the new concept (no room
461 cleaning default) did not decrease guest satisfaction. By including control variables in the
462 regression analysis, we aimed to examine additional factors that might influence guests'
463 requests for room cleaning. Among these variables, only gender had a significant influence,
464 with females displaying a higher tendency to request room cleaning services ($p = .020$, Table
465 2).

466 **Table 2.** OLS regression analysis results

Dependent variable	Room cleaning						Sustainability assessment						Guest satisfaction					
	Model 1			Model 2			Model 3			Model 4			Model 5			Model 6		
	β	t	p	β	t	p	β	t	p	β	t	p	β	t	p	β	t	p
<i>Independent variables</i>																		
Present vs. absent hedonic appeals				.04	.57	.572				.24	3.13	.002				.05	.66	.509
Financial vs. sustainable appeals				.00	.01	.993				.08	1.20	.273				.11	1.52	.129
Interaction effect				.20	2.07	.039				.08	.84	.403				.05	.47	.638
<i>Control variables</i>																		
Age	.02	.43	.665	.02	.36	.722	.02	.39	.693	.01	.20	.844	.04	.71	.480	.03	.61	.542
Gender ¹	.12	2.18	.030	.13	2.34	.020	-.02	-.29	.773	-.02	-.32	.748	-.06	-1.15	.251	-.06	-1.17	.243
Guest type ²	-.00	-.04	.967	-.01	-.11	.917	-.01	-.14	.892	-.01	-.26	.796	-.02	-.42	.677	-.02	-.38	.704
Group ³	.01	.15	.885	.01	.19	.854	-.00	-.02	.985	.01	.16	.872	.06	1.20	.230	.06	1.18	.240
Nationality ⁴	-.01	-.13	.895	-.03	-.49	.625	.04	.77	.439	.04	.74	.461	.08	1.47	.141	.08	1.55	.122
R ²	.014			.043			.002			.044			.015			.024		

Notes. Ordinary least squares regression. ¹dummy-coded: 0 = male; 1 = female; ²dummy-coded: 0 = leisure; 1 = business; ³dummy-coded: 0 = group travelers; 1 = single. ⁴ dummy-coded: 0 = non-Italiens; 1 = Italiens

468 **Introducing the profitability index as a case example**

469 To evaluate the effectiveness and profitability of the tested interventions, it is essential to
 470 consider various factors that go beyond the change of room cleaning requests. Following our
 471 results, we propose an evaluation based on three factors: the decrease in room cleaning requests,
 472 the incurred costs for incentivization, and the sustainability assessment provided by the guests.
 473 Guest satisfaction does not seem an issue here, as it is unaffected by the interventions.
 474 Therefore, we introduce a profitability index to demonstrate the advantages of hedonic
 475 interventions over sustainable and/or financial interventions to reduce room cleaning requests.

476 The calculation of this index involves multiple steps. First, we calculated the financial
 477 savings per room as a percentage for each intervention. In this study, the hotel provided guests
 478 with a 5 EUR incentive for waiving room cleaning, representing 50% of the estimated room
 479 cleaning cost (10 EUR/day/room). Thus, for each skipped room cleaning, the hotel saved 10
 480 EUR when guests were not financially incentivized and 5 EUR when they were incentivized.
 481 To determine the room cleaning profitability index for each condition, we multiplied the savings
 482 per room cleaning with the corresponding room cleaning index. The equation for this
 483 calculation is as follows:

$$484 \quad \text{EQ 1} \quad \text{Average savings (AS)} = (1 - \text{Index}_{\text{RC}}) \times \text{Savings}_{\text{SRC}}$$

485 **Notes.** Savings_{SRC} = 100% for NoFinancial and 50% for Financial. RC = Room cleaning requests

488 Figure 2 (upper panel) illustrates the average savings in the sustainability-hedonic condition,
 489 which are the highest at 59%. On the other hand, both conditions involving financial appeals
 490 show the lowest savings. Despite the interventions being equally effective compared to the
 491 sustainability-hedonic condition, the hotel was only able to save half of the costs in the
 492 conditions where guests were presented with financial appeals. In the subsequent step, we
 493 incorporated the guests' sustainability assessment and satisfaction into the calculation. Thus,
 494 we utilized the following equation:

495

EQ 2 Room cleaning profitability index = AS x SUST x SAT

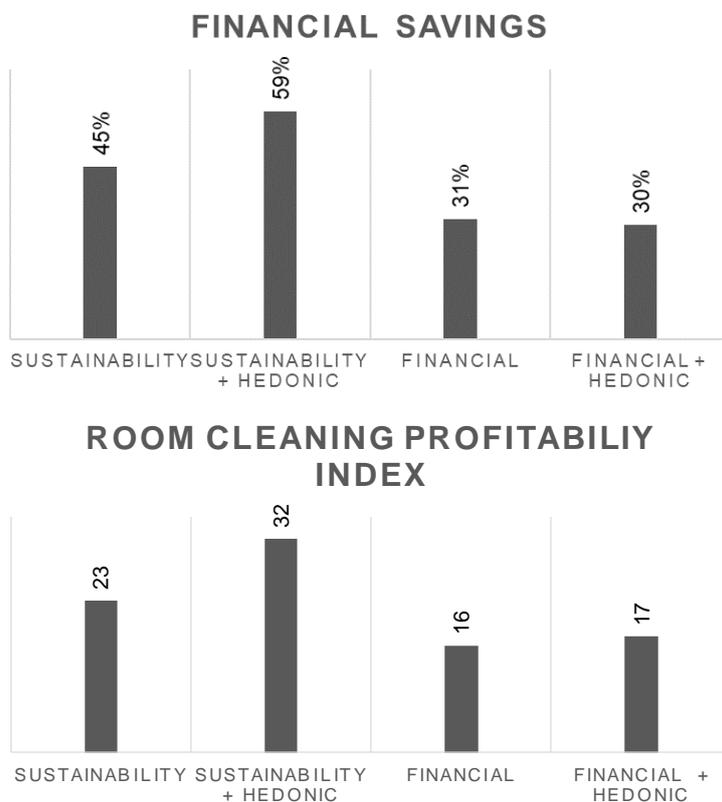
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Notes. AS = average savings, SUST = average sustainability assessment, ranging from 0 (extremely unsustainable) to 1 (extremely sustainable). SAT = average guest satisfaction, ranging from 0 (extremely dissatisfied) to 1 (extremely satisfied).

502 To calculate the room cleaning profitability index, we multiplied the financial savings (in
503 %) by the sustainability rating (on a scale of 1-10) and guest satisfaction scores (on a scale of
504 1-10). As an example, for the sustainability-hedonic condition, we obtained an index score of
505 $32 = .0591$ (savings) x 7.37 (sustainability rating) x 7.29 (guest satisfaction). As can be seen in
506 Figure 2 (lower panel), the advantage of the sustainability-hedonic appeals over the other
507 interventions even increases when taking the guest satisfaction and their rating of the hotel's
508 pro-environmental actions into account.

509 **Figure 2.** Average financial savings and room cleaning profitability index per intervention

510



511

512

513

STUDY 2

514 In Study 2, we test whether the observed effects are driven by the creation of guest value.
515 We therefore investigate the mediating role of both hedonic and financial guest value in the
516 relationship between our tested interventions and guests' room cleaning requests. By employing
517 a laboratory experiment, we also offer further robustness to our results in a controlled
518 environment.

519

520 **Sample and procedure**

521 Recruited through the platform prolific (average reward per hour: 9.89 USD), 157
522 individuals from the U.S. ($M_{\text{age}} = 54.14$, $SD_{\text{age}} = 13.99$; 42% female) participated in an online
523 laboratory experiment with a two-factorial between-subjects design. We presented participants
524 with a scenario that is similar to the one in the field study. We asked them to imagine they
525 would check in at a hotel and would receive information letters regarding a test of a new room-
526 cleaning program. As in the field study, the guests were randomly assigned to one of four
527 experimental conditions. We used the same information letters as in the field study.
528 Immediately following the manipulation, as our main dependent variable, we asked participants
529 to imagine they would stay in the hotel for 5 days and to indicate how often they would ask for
530 room cleaning during their stay ($M = 2.09$, $SD = 1.39$). To avoid confounding influences of the
531 duration of 5 days that we proposed in the scenario, we also employed a more general measure
532 of the guests' willingness to ask for room cleaning in this hotel on a 7-point Likert-scale as
533 robustness check ("I would often ask for room cleaning in this hotel," $M = 3.38$, $SD = 1.92$).
534 We then assessed our mediating variables. Consistent with research on customer value creation
535 (Smith & Colgate, 2007), we assessed perceived financial guest value ("What I value in the
536 new room cleaning policy of the hotel is that I can save money when waiving room cleaning,"
537 "... it is monetarily beneficial to me," $r = .93$ ($p < .001$), $M = 3.45$, $SD = 1.90$), hedonic guest

538 value (“What I value in the new room cleaning policy of the hotel is that it is comfortable,” “...
539 it is joyful,” $r = .70$ ($p < .001$), $M = 5.27$, $SD = 1.17$), and environmental guest value (“What I
540 value in the new room cleaning policy of the hotel is that it is sustainable,” “... it is
541 environmentally friendly,” $r = .90$ ($p < .001$), $M = 5.25$, $SD = 1.29$). To rule out the alternative
542 explanation that guests may be reluctant to participate in the room cleaning program because it
543 also benefits the hotel, we assessed another set of mediators. This assessment was also crucial
544 to validate our assumption that only guest-related benefits – and not benefits to the environment
545 or the hotel – are significant in this context. These mediators specifically address the perceived
546 benefits for the guests. (“This room cleaning policy is beneficial to me,” $M = 4.89$, $SD = 1.48$),
547 for the environment (“This room cleaning policy is beneficial to the environment,” $M = 5.45$,
548 $SD = 1.16$), and for the hotel (“This room cleaning policy is beneficial to the hotel,” $M = 5.27$,
549 $SD = 1.17$). We assess all mediating variables on a seven-point Likert scale. Lastly, participants
550 submitted socio-demographic information and were debriefed to ascertain they understood the
551 study was for experimental purposes only.

552

553 **Manipulation check**

554 We asked participants to assess the extent to which the messages conveyed hedonic benefits,
555 financial incentives, or environmental information. Participants in the hedonic condition
556 indicate a significantly higher level of agreement regarding the appeal’s emphasis on gaining
557 additional free time ($M_{\text{free}} = 5.55$, $M_{\text{no free}} = 3.30$, $t(155) = 5.60$, $p < 0.001$). Similarly,
558 participants in the financial incentive condition significantly indicate a stronger belief that the
559 message presented a monetary gain compared to those in the sustainability condition ($M_{\text{financial}}$
560 $= 5.98$, $M_{\text{sustain}} = 2.47$, $t(155) = 13.00$, $p < 0.001$).

561

562 **Results**

563 *Testing the main effects.* We ran hierarchical OLS regressions to analyze the effects of the
 564 experimental treatments on room cleaning requests. Model 1 in Table 3 includes only the socio-
 565 demographics as control variables to set the baseline. Neither age nor gender yield significant
 566 influence on room cleaning requests. Model 2 adds the experimental treatment. The presence
 567 of hedonic appeals has a significant negative influence on room cleaning behavior ($\beta = -.17, p$
 568 $= .041$), supporting H1a. There is no main effect of the financial-sustainable appeal factor.
 569 Remarkably, the interaction effect is also not significant, which is not in line with the field study
 570 results and H1b.

571 **Table 3.** Hierarchical OLS regression results

Dependent variable	Model 1			Model 2			Model 3		
	β	t	p	β	t	p	β	t	p
<i>Independent variables</i>									
Present vs. absent hedonic appeals				-.17	-2.06	.041	-.15	-1.86	.065
Financial vs. sustainable appeals				.09	1.18	.238	.14	1.59	.114
Interaction effect				.03	.34	.731	.04	.52	.603
<i>Mediators</i>									
Hedonic value							-.20	-2.12	.035
Monetary value							.11	1.20	.233
Sustainable value							-.08	-.91	.367
<i>Control variables</i>									
Age	.14	1.75	.082	.12	1.49	.141	.17	2.04	.042
Gender ¹	-.02	-.21	.837	-.02	-.23	.822	-.04	-.53	.593
R ²	.02			.06			.11		

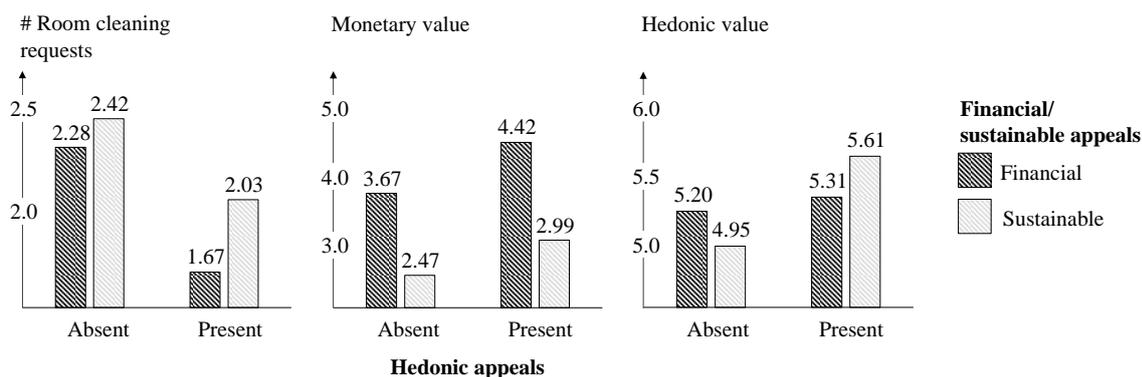
572

573 Figure 3 shows that room cleaning requests are the highest when hedonic appeals are absent
 574 ($M_{\text{NoHedonic/Sus}} = 2.42, SD = 1.52; M_{\text{NoHedonic/Fin}} = 2.28, SD = 1.40$). Conversely, conditions
 575 featuring hedonic appeals exhibit relatively lower rates of room cleaning requests ($M_{\text{Hedonic/Sus}}$
 576 $= 2.03, SD = 1.26; M_{\text{Hedonic/Fin}} = 1.67, SD = 1.21$).

577 **Figure 3.**

578

579



580

581

582 We conducted an OLS regression using an alternative dependent variable as a robustness
 583 check. The results confirm our main findings, indicating a significant impact of hedonic appeals
 584 ($\beta = -.16, p = .048$), with non-significant effects of the financial/sustainable factor and the
 585 interaction effect. Therefore, we can rule out that the duration of the stay confounded the results
 586 in our scenario.

587 *Testing the mediation through guest value.* Next, we investigated whether the effects on room
 588 cleaning requests are mediated by perceived guest value. We followed a three-step procedure
 589 as outlined by Baron and Kenny (1986) to conduct our mediation analysis. First, OLS regression
 590 results confirm that the financial/sustainable factor ($\beta = -.04, p < .001$) and the hedonic factor
 591 ($\beta = .15, p = .044$) significantly influence financial guest value, with no significant interaction
 592 effect detected. Additionally, the OLS regression results indicate a significant influence of the
 593 hedonic factor ($\beta = .17, p = .040$) on hedonic guest value, with no significant impact from the
 594 financial/sustainable factor or a significant interaction effect. Lastly, OLS regression results do
 595 not indicate significant influences for hedonic appeals, financial/sustainable appeals, or the
 596 interaction effect on environmental guest value (Appendix 2). We illustrate the patterns of the
 597 effects, including mean values per condition in Figure 3. Finally, a regression with the guest
 598 values as independent variables and room cleaning requests as a dependent variable reveals that
 599 only hedonic guest value significantly reduces room cleaning requests ($\beta = -.26; p = .004$).

600 Financial guest value ($p = .730$) and environmental guest value ($p = .876$) have no influence,
601 partly supporting H3b. In the subsequent mediation analysis step (Table 3, Model 3), after
602 introducing the mediators into the regression analysis, the direct impact of the hedonic appeals
603 factor on room cleaning requests becomes non-significant. However, the influence of hedonic
604 guest value on room cleaning remains significant ($\beta = -.20$; $p = .035$), supporting H3a.

605 *Post-hoc analysis.* In the OLS regression results with the alternative set of mediators (guest
606 benefits perception related to a) guests, b) the hotel, and c) the environment), only the hedonic
607 factor demonstrates a significant influence on guest-related benefits ($\beta = .16$, $p = .044$). The
608 financial-sustainable factor ($\beta = -.14$, $p = .070$) and the interaction effect ($\beta = .01$, $p = .937$) do
609 not exhibit significant effects. This reinforces our assumption that room cleaning request
610 decisions are primarily driven by benefits that directly affect the guests.

611

612 **Discussion**

613 This study's findings closely align with those observed in our field study, with a notable
614 exception: financial incentives, which were hypothetical in the lab, did not yield expected
615 results. Individuals might hesitate to admit that monetary rewards solely motivate their behavior
616 (social desirability bias). These deviations point at the intention-behavior gap in tourism (Viglia
617 & Acuti, 2023). Our mediation analysis reveals that guest decisions were primarily influenced
618 by hedonic values. Interestingly, while in the lab, hedonic benefits outperformed financial
619 incentives, our field study demonstrates their equal persuasiveness. In sum, our findings affirm
620 that only benefits directly relevant to guests (financial and hedonic) increase their value, which
621 impacts their behavior.

622

GENERAL DISCUSSION

623 Extensive research has been conducted on interventions promoting sustainable actions in the
624 tourism and hospitality industry. Studies have explored various areas such as preferences for

625 sustainable accommodations (Lee et al., 2010; Firth & Hing, 1999), sustainable tourism
626 activities (Karlsson & Dolnicar, 2016), and sustainable behaviors during the stay (Ballantyne
627 et al., 2009).

628 In the existing literature, most interventions to promote sustainable actions focus on
629 changing beliefs, particularly by highlighting the environmental impact of guests' actions.
630 Nevertheless, interventions that emphasize the benefits to guests are more effective (Demeter
631 et al., 2023a). Previous research has focused mainly on financial incentives, neglecting other
632 potential benefits such as freedom, comfort, and autonomy which align with the hedonic
633 tourism context.

634 In light of this, we demonstrate the impact of hedonic appeals in combination with
635 established sustainable and financial appeals. Using our newly introduced profitability index,
636 we pinpoint the combination of hedonic appeals and sustainable information as the most
637 effective approach. This approach matches the effectiveness of financial incentives while
638 offering the added advantage of eliminating the need to share cost savings. We also
639 acknowledge the significance of guest satisfaction and sustainability assessment, which have
640 unfortunately been largely overlooked in previous research (Kandampully & Suhartanto, 2000;
641 Kang et al., 2012; Demeter et al., 2023a). Furthermore, we showcase a backfire-effect that
642 occurs when hedonic appeals are not present. If hotels employ only sustainable appeals to
643 promote their room cleaning policy, the initial positive effect on the reduction of room cleaning
644 requests and the potential enhancement of sustainability ratings diminish. This observation
645 emphasizes that the hotel's actions can potentially evoke green skepticism (Lasarov et al., 2021).
646 This can lead not only to a lower sustainability rating by guests but also to less sustainable
647 behaviors, such as no reduction in room cleaning requests. To overcome the gap between self-
648 reported and actual behaviors, we investigate our variables of interest with a field experiment.
649 Therefore, we can draw valid causal conclusions about the effectiveness of different
650 interventions (Viglia & Dolnicar, 2020). In contrast to many other studies in sustainable

651 tourism, our research methodology includes a control group, which greatly enhances the
652 validity of our findings (Dolnicar, 2020; Viglia & Dolnicar, 2020). To replicate the effects in a
653 controlled setting and to comprehensively understand the underlying mechanisms, we
654 conducted a laboratory experiment. The results indicate that hedonic guest value plays a pivotal
655 role in mediating the positive impact of hedonic appeals on reducing room cleaning requests.

656

657

THEORETICAL CONTRIBUTIONS

658 Our work makes three clear theoretical contribution to the discipline. First, we advance
659 sustainable tourism and hospitality research by introducing hedonic appeals as a lever to reduce
660 room cleaning requests, an approach that is as effective as, or perhaps even more so than, the
661 most established methods. Addressing the call by Demeter et al. (2023a) to investigate the
662 combination of multiple interventions, we integrate this approach with the most effective
663 default option, which is the opt-in default (Knežević Cvelbar et al., 2021). Second, the literature
664 has primarily focused on room cleaning requests as the outcome variable. We expand this
665 standard variable by introducing side-effects, which are crucial for guest retention and the
666 hotel's image (Rodríguez & Cruz, 2007) as additional relevant outcomes. Therefore, by creating
667 a profitability index that considers multiple factors, including sustainability evaluation and
668 guest satisfaction, alongside room cleaning requests, we offer a practical tool for researchers
669 and practitioners to assess intervention effectiveness. This becomes particularly crucial in the
670 context of customer experience, where image and long-term relationships with customers are
671 essential (Lemon & Verhoef, 2016). Third, although some studies (e.g., Dolnicar et al., 2020)
672 have explored hedonic interventions in the tourism context, none have elucidated their effects
673 and underlying theories. We therefore contribute by providing a theoretical underpinning
674 grounded in goal framing theory (Lindenberg, 2006) and the foundations of hedonic psychology
675 (Kahneman, 1999) to explain the mechanisms behind the effects of hedonic appeals in

676 sustainable tourism. Building upon a value creation framework (Smith & Colgate, 2007), we
677 conceptualize and empirically validate the mechanisms that hedonic appeals induce.

678

679 **LIMITATIONS AND FUTURE RESEARCH AGENDA**

680 Our work suggests that hedonic appeals show particular potential and merit further
681 investigation. Furthermore, our work primarily focuses on appeals related to comfort, freedom,
682 and flexibility. Future research should consider other forms of hedonic appeals, such as
683 gamification. By exploring the potential of gamification as a hedonic appeal, researchers can
684 tap into the intrinsic motivation and enjoyment that games provide.

685 In addition to contextual and individual factors, the duration of the stay can shape the
686 intervention effectiveness. We focus primarily on stays of at least 4 nights. However, previous
687 research shows that the guests' willingness to participate in reuse programs tends to decline as
688 the length of stay increases (Gössling et al., 2019). These findings align with studies suggesting
689 that behavioral nudges, such as sustainable messages, may have limited long-term effects, with
690 guests potentially becoming less responsive after five days (van der Linden, 2015). We suggest
691 to examine how interventions influence guest behavior over an extended period, considering
692 the potential decline in responsiveness and the sustainability of the desired behaviors.
693 Furthermore, research suggests that integrating financial incentives may be necessary to sustain
694 guests' sustainable behaviors over time (Mai et al., 2021).

695 Our field experiment was conducted in a mid-sized hotel. Given that tourist behavior may
696 vary across different types of hotels, it is crucial to conduct field experiments in various hotel
697 settings to ensure the generalizability of our results (Rasoolimanesh et al., 2020).

698 Lastly, research indicates that changing room cleaning defaults from opt-out to opt-in does
699 not affect guest satisfaction and is not perceived as inconvenient (Knezevic Cvelbar et al.,
700 2021). However, some guests might be concerned about being perceived as untidy by hotel staff

701 when making frequent requests. This could potentially lead to feelings of embarrassment during
702 interactions. Additionally, having to consistently remember to request room cleaning might be
703 bothersome. Future studies should investigate how guests feel when required to request room
704 cleaning and how this will influence their satisfaction.

705 Further exploring these aspects will deepen our knowledge of how interventions influence
706 sustainable behaviors in tourism. This can lead to the broader adoption of eco-friendly practices
707 that benefit the environment, hotels, and guests alike.

708

709

MANAGERIAL IMPLICATIONS

710 To improve the sustainability of their room cleaning policies without financial or other
711 compromises we suggest the three below guidelines for hotels: First, we recommend that hotels
712 adopt an opt-in room cleaning protocol as their standard practice. This approach, which is
713 gaining popularity (The New York Times, 2023; CBS News, 2022) can cause a reduction of
714 about 50% in room cleaning requests compared to opt-out defaults (Knezevic Cvelbar et al.,
715 2021).

716 *// 1 // Adopt an opt-in room cleaning policy as the default //*

717

718 Second, to compensate guests for minimizing room cleaning requests, many hotels offer
719 financial incentives, such as vouchers for hotel services. While highly effective (Chan et al.,
720 2020; Dolnicar et al., 2019), and increasingly popular among chains (The Washington Post,
721 2020), this approach has a downside. Hotels need to allocate part of their cost savings from
722 reduced room cleaning to fund these incentives. Our results demonstrate that from a profit-
723 oriented perspective, this strategy might be counterproductive as the greater effectiveness
724 does not always offset the financial outlay.

725 *// 2 // Avoid overestimating the effectiveness of financial incentives //*

726

727 Third, although many hotels employ sustainable appeals to persuade guests to forgo room
728 cleaning, our findings suggest that such incentives are less effective than those offering personal
729 benefits, such as financial or hedonic rewards (Knezevic Cvelbar et al., 2021). Considering the
730 discussed downsides of financial incentives, we propose an innovative intervention strategy
731 that offers guests non-financial incentives. This strategy can be easily implemented by hotels
732 and lodging providers worldwide, irrespective of their size, star rating or guest segments. It
733 revolves around hedonic appeals, which involve communicating the personal benefits of
734 reduced room cleaning, like enhanced freedom and privacy, to guests. Moreover, combining
735 hedonic appeals with sustainable information could optimize profitability, as our profitability
736 index suggests. For example, integrating hedonic appeals can improve the hotel's sustainability
737 ratings, which aligns with the notion that sustainability measures are more credible when they
738 also enhance the guest experience. Interestingly, hotel chains less commonly use hedonic
739 appeals. While anecdotal evidence suggests their implementation, it appears to be informal or
740 not prominently communicated in policy. This could be because hedonic appeals might be
741 perceived as less compelling compared to sustainable appeals or financial incentives. Therefore,
742 we suspect that the potential of hedonic appeals is largely underestimated. We recommend that
743 hotels resist these trends and implement a combination of hedonic and sustainable appeals with
744 opt-in room cleaning, as this approach can most effectively reduce room cleaning requests.

745

// 3 // Incorporate hedonic appeals alongside sustainable appeals //

746 To underline the financial value of our implications, we conducted a cost analysis for a
747 typical upper-midscale hotel with 100 rooms (Statista.com, 2023). By advocating this method,
748 we align with practitioners (Avaneo Hotels, 2023) and research initiatives (The University of
749 Queensland: Low Harm Hedonism Initiative, 2023) that focus on harnessing the power of
750 hedonism for sustainability.

751 **Table 4.** Calculation example

	Room cleaning rate	Cleaning cost (per room/day) ¹	Cost for skipped cleaning (per room/day)	Total costs for cleaning (per day)
Full room cleaning	100%	13€	0€	1,300€
Opt-out room cleaning	71% ²	13€	0€	936€
Opt-in room cleaning				
+ sustainable appeals	55%	13€	0€	715€
+ financial appeals	38%	13€	5€	804€
+ sustainable and hedonic appeals	41%	13€	0€	533€

752 Notes. ¹hoteltechreport (2023); hospitalitynet (2023), ²Knezevic Cvelbar et al. (2021)

753 In conclusion, our paper presents hotels with an effective strategy that not only leads to
754 substantial cost savings but also creates guest value while maintaining high levels of
755 sustainability and guest satisfaction.

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APPENDIX

Appendix 1. Treatments used in Study 1 (wording adopted from Knezevic Cvelbar et al., 2021)

Experimental Group 1: Hedonic + Sustainability	Experimental Group 2: Freedom: Hedonic + Financial
<p style="text-align: center;">Try our new room-cleaning concept to get more freedom and to protect the environment!</p> <p>We are testing a new room-cleaning concept and will be cleaning the rooms upon request. This means that we will not automatically clean your room every day (including changing towels). But if you would like us to clean your room, we would be happy to do so. All you need to do is to place the “Please clean my room today” sign on the outside handle of your door before 10 am.</p> <p>With this concept we will enhance your experience while staying in our hotel and provide you with more freedom and flexibility. As you have your room for yourself, you do not need to worry about being interrupted by housekeeping knocking on your door. You can customize your stay while we keep your privacy. At the same time, you maintain as much independence as possible by requesting room cleaning whenever you want.</p> <p>Please note that every time we clean a room we use 100 ml of chemicals, 35 l of water and 1.5 kWh of electricity, which is not good for the environment. You can make a difference and reduce the environmental burden of your stay by having your room cleaned upon request. Please help us make a difference to the environment.</p> <p>Enjoy your freedom and protect the environment during your stay!</p>	<p style="text-align: center;">Try our new room-cleaning concept to get more freedom and a restaurant voucher for free!</p> <p>We are testing a new room-cleaning concept and will be cleaning the rooms upon request. This means that we will not automatically clean your room every day (including changing towels). But if you would like us to clean your room, we would be happy to do so. All you need to do is to place the “Please clean my room today” sign on the outside handle of your door before 10 am.</p> <p>With this concept we will enhance your experience while staying in our hotel and provide you with more freedom and flexibility. As you have your room for yourself, you do not need to worry about being interrupted by housekeeping knocking on your door. You can customize your stay while we keep your privacy. At the same time, you maintain as much independence as possible by requesting room cleaning whenever you want.</p> <p>Saving water not only benefits the environment but also saves us money as room cleaning includes 30 minutes for room attendants plus the cost of cleaning supplies and laundering linens and towels. We want to share our savings benefits with you. For each skipped room cleaning, we will give you a 5 € voucher for a drink in our restaurant.</p> <p>Enjoy your freedom and get a free drink for 5 € during your stay!</p>
<p>Message (handed over during the check-in and placed in the rooms)</p> <div style="border: 1px solid black; padding: 10px; text-align: center;"> <p><i>Room cleaning</i></p> <p>Every day, in a hotel all over the world, tons of towels are washed, liters of chemicals are used, which contaminates the water. Millions of kWh of electricity are consumed and our scare resource, water, is wasted.</p> <p>Is it really necessary to harm the environment to just have a clean room, new towels and new bed linen every day?</p> <p>Please decide...</p> <div style="display: flex; justify-content: space-around; align-items: center;">    </div> <p>...TO PROTECT THE ENVIRONMENT.</p> <p><i>. thank you .</i></p> </div>	<p>Message (handed over during the check-in and placed in the rooms)</p> <div style="border: 1px solid black; padding: 10px; text-align: center;"> <p><i>Room cleaning</i></p> <p>Every day, in a hotel all over the world, tons of towels are washed, liters of chemicals are used, which contaminates the water. Millions of kWh of electricity are consumed and our scare resource, water, is wasted.</p> <p>Is it really necessary to harm the environment to just have a clean room, new towels and new bed linen every day?</p> <p>Please decide...</p> <div style="display: flex; justify-content: space-around; align-items: center;">    </div> <p>...TO GAIN A VOUCHER FOR OUR BAR.</p> <p><i>. thank you .</i></p> </div>

Experimental Group 3:
No Hedonic + Sustainability

**Try our new room-cleaning concept to
 protect the environment!**

We are testing a new room-cleaning concept and will be cleaning the rooms upon request. This means that we will not automatically clean your room every day (including changing towels). But if you would like us to clean your room, we would be happy to do so. All you need to do is to place the "Please clean my room today" sign on the outside handle of your door before 10 am.

Please note that every time we clean a room we use 100 ml of chemicals, 35 l of water and 1.5 kWh of electricity, which is not good for the environment. You can make a difference and reduce the environmental burden of your stay by having your room cleaned upon request. Please help us make a difference to the environment.

Help us protect the environment during your stay!

Message (handed over during the check-in and placed in the rooms)

Room cleaning

Every day, in a hotel all over the world, tons of towels are washed, liters of chemicals are used, which contaminates the water. Millions of kWh of electricity are consumed and our scare resource, water, is wasted.

Is it really necessary to harm the environment to just have a clean room, new towels and new bed linen every day?

Please decide...


Hang to reuse





...TO PROTECT THE ENVIRONMENT.

. thank you .

Experimental Group 4:
No Hedonic + Financial

**Try our new room-cleaning concept and
 get a restaurant voucher for free!**

We are testing a new room-cleaning concept and will be cleaning the rooms upon request. This means that we will not automatically clean your room every day (including changing towels). But if you would like us to clean your room, we would be happy to do so. All you need to do is to place the "Please clean my room today" sign on the outside handle of your door before 10 am.

Saving water not only benefits the environment but also saves us money as room cleaning includes 30 minutes for room attendants plus the cost of cleaning supplies and laundering linens and towels. We want to share our savings benefits with you. For **each skipped room cleaning**, we will give you a **5 €** voucher for a drink in our restaurant.

Enjoy your free drinks during your stay!

Message (handed over during the check-in and placed in the rooms)

Room cleaning

Every day, in a hotel all over the world, tons of towels are washed, liters of chemicals are used, which contaminates the water. Millions of kWh of electricity are consumed and our scare resource, water, is wasted.

Is it really necessary to harm the environment to just have a clean room, new towels and new bed linen every day?

Please decide...


Hang to reuse





...TO GAIN A VOUCHER FOR OUR BAR.

. thank you .

Appendix 2. OLS Regression results of Study 2

Dependent variable	Perceived Guest Value								
	Hedonic			Financial			Environmental		
	β	t	p	β	t	p	β	t	p
<i>Independent variables</i>									
Present vs. absent hedonic appeals	.17	2.07	.040	.15	2.03	.044	-.02	-.22	.828
Financial vs. sustainable appeals	.03	.35	.728	-.35	-4.80	.000	-.04	-.54	.592
Interaction effect	.11	1.39	.167	-.02	-0.23	.820	-.11	-1.44	.152
<i>Control variables</i>									
Age	.09	1.11	.269	-0.15	-1.96	.052	.18	2.13	.034
Gender ¹	.03	.37	.714	0.19	2.65	.009	-.12	-1.47	.143
R²	.05			.23			.07		

Notes: Ordinary least squares regression. ¹dummy-coded: 0 = female; 1 = male

Appendix 3. Estimated water consumption

	Water consumption*	Estimated water consumption per room cleaning	Total estimated daily water consumption**
Sink faucets	3.0 gallons (11.35 liters) per minute.	Run for 5 seconds: 0.25 gallons (0.95 liters).	25 gallons (95 liters)
Showers	3.5 gallons (13.2 liters) per minute.	Run for 8 seconds: 0.47 gallons (1.78 liters).	47 gallons (178 liters)
Toilets	3.5 gallons (13.2 liters) per flush.	Are flushed twice: 7 gallons (27 liters) .	700 gallons (2,650 liters)
TOTAL		7.2 gallons (30 liters)	772 gallons (3,030 liters)

Note. *Data sources: <https://www.seattle.gov/documents/Departments/SPU/Documents/HotelWaterConservation.pdf>; American Laundry News, Vol. 24, No 11, November 1998, EDC Ozone Laundry Systems package: (972) 257-0322; <https://www.statista.com/statistics/823786/average-number-of-rooms-per-hotel-by-chain-type/>; ** Estimations for a common upper-midscale hotel with 100 rooms (statista.com, 2023)