The effects of green human resource management, green organizational culture and green service innovation on environmental performance

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Abstract— The issue of environmental challenges is creating the need for business to adopt green human resource management (GHRM) practices and activities with environment management. GHRM has the capacity to enhances green culture and green service innovations in the organization lead to achieving environmental performance and business sustainable. The aim of this study is to test the relationship of green human resource management, green organizational culture, green service innovation and environmental performance. Data were collected from 375 hotels in Thailand for testing. The path modelling is performed using structural equation modeling SEM. The results reveal that green human resource management has a significant and positive effect on green organizational culture. Green human resource management and green service innovation can have a significant and positive effect on environmental performance. Green organizational culture has a significant and positive effect on green service innovation. Furthermore, this study verifies green service innovation mediates the positive relationship between green organizational culture and environmental performance. Through findings this study green human resource management practices that contribute to green organizational culture and that predict to achieve green service innovation in the organization.

Index Terms— Green human resource management, Green organizational culture, Green service innovation, Environmental performance

I. INTRODUCTION

The topic of green human resource management (GHRM) has attracted considerable attention during this last decade [1]. Sustainability environmental, social, and economic performance is today considered a key responsibility that firm have toward society, particularly in activities directed at protecting the environment [2,3]. The adoption of GHRM practices has an impact to improved firm performance [4]. GHRM practice activities such as green recruitment and selection, green training and development, green performance management, green pay and reward [5,6,7,8]. Firms are more willing to adopt green human resource management as a critical strategy for implementing green practices that enhance environmental performance and achieve sustainable development [9,10,11]. [12] found that GHRM practices support the green organizational culture, and that green organizational culture is positively mediate the relationship between GHRM practices and environmental performance.

In recent years [13] found that green organizational culture positively effects on green innovation and competitive advantage. Green innovation is defined as innovations in product innovation or process innovation, that impact on environmental management [14]. Environmental problems and natural resources imbalances are changing organizations environmental management. The current companies should concern operations to include environmental management activities those innovative and sustainable to create innovations and environmental performance [15]. The HR function can help the diver of environmental sustainable development, green innovative practices can raise resource productivity efficiently and decrease pollution effectively. Green innovation has been an important green strategy of firms in the environmental era [16,17].

The goal of research is to fill these knowledge gaps the effect of various green human resource management, green organizational culture and green service innovation on environmental performance. The purpose of the study is developing a research model showing how GHRM and green organizational culture affects the environmental performance through green service innovation. The objectives of this research are threefold: First, GHRM positively influences green organizational culture, second GHRM and green organizational culture leads to green service innovation, which enhances the hotel environmental performance and finally GHRM and green organizational culture positively influences hotel environmental performance.
The next sections of this article outline the literature review, research methods, results, discussion and conclusions and finally recommendations.

II. LITERATURE REVIEW

A. Green human resource management (GHRM)

GHRM refers to Strategic HRM practices in creating and involves implementing environmental business strategies to promote environmental sustainability in the organization [8,18,19]. GHRM using perspectives from balance between Human Resource Management policies, systems, practices and activities with environmental management [20]. GHRM practice activities such as green recruitment and selection, green training and development, green performance management, green pay and reward to the overall organizational green management mission and objectives. [5,6,7,8,21].

Green HRM and green organizational culture

Human resource management should create green organizational culture because it critical resource of the values, beliefs, and behaviors of employees through the processes of hiring, training, appraisal, and incentive systems [22]. GHRM involves the systemic, planned alignment of typical Human Resource Management Practices effectively to successfully achieve with the organizations environmental goals through favorable employee attitudes and behaviors. GHRM practices can help in promoting environment management and tool for implementation of the environmental management in the organization [19,20]. Green culture provides the sharing of green values all employees to involved through leading the organizational green management and sustainability. The environmental awareness issue has implications for the HR function to integrated environmental management and practices into HRM activities [23]. Furthermore, [12] found that GHRM practices support the green organizational culture, and that green organizational culture is positively mediate the relationship between GHRM practices and environmental performance. A green organizational culture can therefore be defined as the value, beliefs, and behaviors of organizational employees concerning the natural environment [12].

**Hypothesis 1.** GHRM has a positive effect on green organizational culture.

Green HRM and green service innovation

Green innovation is defined as innovations in products or processes, that reduce the environmental impacts of all firm business activities that save energy, prevent pollution, waste recycling to impact on environmental management. Furthermore, green innovation increase firms enhance competitive advantage. [14]. Environmental challenges led to the initiation changing contemporary organizations management. The current society mostly concern with the consumption and efficient management of natural resources have the capacity to create innovations and beneficial outcomes for the environment and society [15]. The HR function can become the diver of environmental sustainable development, green innovative practices can raise resource productivity efficiently and decrease pollution effectively. Green innovation has become one of the most important green strategies in firms under the environmental era [16,17]. As firms adopt to encourage product, process, design, and technology innovation to create strategies for society that will enable operational activities on the natural environment to human future. GHRM provide an opportunity for assess efforts, initiatives and improvements concerning the natural environment for sustainable growth of business [17]. Some researchers [24,25] suggest that HRM performance relationship the green innovation and firm environmental performance.

**Hypothesis 2.** GHRM has a positive effect on green service innovation.

Green HRM and environmental performance

Green human resource management practices offer an essential practical way for organizations to develop human capital that can enhance the environmental objectives through the recruitment, training, appraisal, and incentive system of an environmentally conscious workforce performance and sustainable development of the firm [8,26]. Several past studies suggest that green human resource management has a significant positive impact on environment performance [8,27,28].

**Hypothesis 3.** GHRM has a positive effect on environmental performance.

B. Green organizational culture

Green human resources management practices require a culture based on the corporate ecological thinking, these investments in environmental practices are expected to affect environmental impact of organizations and enhance their performance [29,30]. The culture of an organization is perceived, value, beliefs, behavior and attitude of organizational employee harmful operational activities on the natural environment problems [12,31,32,33].

Green organizational culture and green service innovation

Green organizational culture can enhance the potential implications of green innovation because the value of green innovation activities. Green organizational culture helps organizational employees perceived green practices and achieving of green innovation performance [34]. Several authors have attempted to revealed that a positive relationship with green organizational culture and green innovation [13,35,36].

**Hypothesis 4.** Green organizational culture has a positive effect on green service innovation.

Green organizational culture and environmental performance
Green human resource management enhances to improve environmental performance become a cultural value activity commitment regarding green practices and supported by all organizational employees in the quest to achieve environmental performance goals [19,37,38,39]. Furthermore, there are positive green organization culture influences on the environmental performance [33,38].

**Hypothesis 5.** Green organizational culture has a positive effect on environmental performance.

**C. Green service innovation**

Innovation is seen as an important tool for businesses to increase their market shares and enabling competitive advantage, economic development in the long run. A successful innovation of new product or process development that improve the market position to attracts the customers and enable competitive advantage [39,40,41]. The development of green innovation activities has become necessary for companies to adopt to change managerial mindsets and strategies in business model transform environmental management to lead low impact of ecological [42,43]. Green service innovation is certainly a hot issue in terms of environmental management. Previous study found that innovation positively influences firm performance [44].

**Green service innovation and environmental performance**

Service innovation capability impacts the environmental performance of firms to have higher with the more innovative ideas and make meaningful contribution to achieve their business goals [14,19,25]. Furthermore, [24,25,35] suggests that Green innovation positively influences environmental performance. [16] found that green service innovation positively influences firm performance.

**Hypothesis 6.** Green service innovation has a positive effect on environmental performance.

**III. RESEARCH METHODS**

**A. Sample and data collection**

The data for this study are collected through and online survey which is initially sent 912 hotels (such as HR Managers, General Manager and chooses 3 - 5 stars’ hotel in Thailand). The unit of analysis in this study is business level. Finally, 393 responses are received, out of which, 18 hotels were incomplete answers; which represents an effective response rate of 41.12% (375 responses). The sample questions were presented using a five Likert scale and scores ranging from 1 (Strongly disagree) to 5 (strongly agree).

**B. Measurement**

Green human resource management (GHRM). The author adopted fourteen items GHRM scale from [1,2,19,23,27,47]. The sample items were “Attracting and hiring candidates with knowledge, skills, attitudes, and behaviors that conforms to environmental management;” “Including environmental criteria in the recruitment process;” “Our company has integrated training to create the emotional involvement of employees in environment management;” “We use green performance indicators in our performance management system and appraisals;” and “Our company relates employees’ workplace green behaviors to reward and compensation;”

Green organizational culture (GOC). The author adopted six items GOC scale from [1,19,47]. The sample items were “Our company offered practices for employees to participate in green suggestion schemes;” “Our company has environment-oriented policies in management and specific environmental tasks;” and “Our company has a clear developmental vision, mission, and value to guide the employees’ actions in the environmental management.”

Green service innovation (GSI). The author adopted nine items GSI scale from [46,48]. The sample items were “Our company has frequently offered new practices in selling products/services for the environment;” “Our company has frequently offered new practices in developing new product/service for the environment;” and “Our company has frequently innovated extends products/services based on its concern for the environment.”
Hotel environment performance (HEP). The author adopted eight items HEP scale from \([24,27,28,39]\). The sample items were “Our company reduced overall costs;” “Our company reduced waste within the entire value chain process;” “Our company reduced environmental impact by establishing partnerships;” and “Improved its position in the marketplace.”

Table 1. Convergent validity results.

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Variable</th>
<th>Factor loading</th>
<th>Cronbach’s α</th>
<th>CR</th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green human resource management</td>
<td>GHRM1</td>
<td>0.703</td>
<td>0.933</td>
<td>0.776</td>
<td>0.506</td>
</tr>
<tr>
<td></td>
<td>GHRM2</td>
<td>0.620</td>
<td>0.844</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>GHRM3</td>
<td>0.680</td>
<td>0.844</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>GHRM4</td>
<td>0.480</td>
<td>0.844</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Green organizational culture</td>
<td>GOC1</td>
<td>0.852</td>
<td>0.900</td>
<td>0.863</td>
<td>0.500</td>
</tr>
<tr>
<td></td>
<td>GOC2</td>
<td>0.880</td>
<td>0.900</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>GOC3</td>
<td>0.779</td>
<td>0.844</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>GOC4</td>
<td>0.706</td>
<td>0.844</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>GOC5</td>
<td>0.630</td>
<td>0.844</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>GOC6</td>
<td>0.704</td>
<td>0.844</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Green service innovation</td>
<td>GSI1</td>
<td>0.802</td>
<td>0.932</td>
<td>0.835</td>
<td>0.577</td>
</tr>
<tr>
<td></td>
<td>GSI2</td>
<td>0.403</td>
<td>0.844</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hotel environmental performance</td>
<td>HEP1</td>
<td>0.771</td>
<td>0.874</td>
<td>0.738</td>
<td>0.587</td>
</tr>
<tr>
<td></td>
<td>HEP2</td>
<td>0.706</td>
<td>0.844</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>HEP3</td>
<td>0.401</td>
<td>0.844</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Structural model goodness of fit indices.

<table>
<thead>
<tr>
<th>Fit index</th>
<th>Value</th>
<th>Critical acceptable value</th>
<th>Acceptability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi² df</td>
<td>5.56</td>
<td>Chi² df &lt; 6</td>
<td>Yes</td>
</tr>
<tr>
<td>RMSEA (root mean square error of approximation)</td>
<td>0.042</td>
<td>0.05-0.08</td>
<td>Yes</td>
</tr>
<tr>
<td>NFI (normed fit index)</td>
<td>0.953</td>
<td>&gt; 0.9</td>
<td>Yes</td>
</tr>
<tr>
<td>GFI (goodness of fit index)</td>
<td>0.940</td>
<td>&gt; 0.9</td>
<td>Yes</td>
</tr>
<tr>
<td>CFI (comparative fit index)</td>
<td>0.949</td>
<td>&gt; 0.9</td>
<td>Yes</td>
</tr>
<tr>
<td>SRMR (standardized root mean square residual)</td>
<td>0.048</td>
<td>&lt; 0.05</td>
<td>Yes</td>
</tr>
</tbody>
</table>

IV. RESULTS

Confirmatory factor analysis and structural equation modeling were employed to verify the hypotheses of the research framework.

A. Results of the measurement model

Table 1 shows a summary of the reliability analysis results. The Cronbach alpha was used to test the reliability of the model in this study and it ranges from 0.874 to 0.923. The Cronbach alpha values were higher than 0.7 for all constructs, indicating adequate reliability and consistency in the data. All factor loadings are greater than 0.6, and was higher than the standard value suggested by [49]. The values of CR were 0.770, 0.863, 0.835 and 0.738, all were higher than 0.7, respectively. [50] suggests that AVE value larger than 0.5 to indicate that the latent variable has convergent validity. The AVEs and construct reliability values, showing that AVEs of the four constructs were 0.565, 0.560, 0.717 and 0.587, respectively. AVE for each scale is more than 0.5, confirming that all measures had convergent validity. The convergent validity of all constructs was assessed through suggests the acceptability. The scores indicated adequate reliability and validity. The goodness of fit indices of the structural model are shown in Table 2. All values are acceptable value, and this model passed the test.

B. Structural model results

Table 3 lists the effects of factors based on the structural equation modeling example. Table 4 lists the results of structural model, and Figure 2 illustrates the results of the complete model in this study. The overall fit measures of the full model in structural equation modeling, as displayed in Figure 2, the fit of the model is acceptable (GFI = 0.949, RMSEA = 0.042, NFI = 0.953, and CFI = 0.960). According to the results presented in Table 4 and Figure 2, two Part coefficient estimates (H2 and H5) is not statistically significant. Consequently, H1, H3, H4 and H6 were supported, as presented in Table 4. Thus, the green service innovation completely mediates the relationship between the green organizational culture and hotel environmental performance. According to these findings, companies should increase their green service innovation to enhance their environmental performance.

Table 3. Effects of factors based on the structural equation modeling example
Table 4. The results of the structural model.

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Proposed effect</th>
<th>Path coefficient</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>&lt;</td>
<td>0.970**</td>
<td>H1 is supported</td>
</tr>
<tr>
<td>H2</td>
<td>&lt;</td>
<td>-0.912</td>
<td>H2 is not supported</td>
</tr>
<tr>
<td>H3</td>
<td>&lt;</td>
<td>0.802&lt;</td>
<td>H3 is supported</td>
</tr>
<tr>
<td>H4</td>
<td>&lt;</td>
<td>0.784&lt;</td>
<td>H4 is supported</td>
</tr>
<tr>
<td>H5</td>
<td>&lt;</td>
<td>0.460</td>
<td>H5 is not supported</td>
</tr>
<tr>
<td>H6</td>
<td>&lt;</td>
<td>0.699&lt;</td>
<td>H6 is supported</td>
</tr>
</tbody>
</table>

Note: **p < .01.

V. DISCUSSIONS AND CONCLUSIONS

This study investigated interplay of green human resource management, green organizational culture and green service innovation on environmental performance. The research results supported the hypotheses model by the generated findings of the study and previous studies of GHRM to impact green organizational culture [12]. GHRM affects environmental performance [12,24,39] green organizational culture affects green service innovation [13] and green service innovation affects environmental performance [24,25]. Furthermore, this study verifies green service innovation mediates the positive relationship between green organizational culture and environmental performance. Through findings this study green human resource management practices that contribute to green organizational culture and that predict to achieve green service innovation in the organization.

VI. RECOMMENDATIONS

A. Practices

The results of this study have three main implications to advance theory. First, the study contributes to HRM theory, the empirically tested GHRM influences the green organizational culture. The findings found that GHRM positively influences the green organizational culture, the findings suggest that the firm can enhance green organizational culture related to the
GHRM adopting. Human Resource Management (HRM) practices and organizational culture is key to successful organizational development. [51]. The purpose of green human resource management practice measures is to train employees to develop the level of abilities, skills and green knowledge and motivate them to use those skills and abilities with organizational goals. These training and incentives control by top managers of the organization will finally become part of the culture of the organization [52].

Second, the study found that green organizational culture positively affects green service innovation and promote environmental performance. Results of this study contributes to organizational culture theory. Previous studies indicate that green organizational culture has a positive effect on green innovation and competitive advantage [13]. The organizational culture theory can explain that green service innovation and environmental performance. Results of this study that green service innovation mediated the link between green organizational culture and environmental performance. [12] found that green organizational culture positively mediates the relationship between GHRM practices and environment performance. Green organizational culture is the main determinant for green organization and competitive advantage. In addition, green innovation acted as a full mediator of the effects of green organizational culture on competitive advantage. Especially, green organizational culture predicted green innovation, which in turn predicted competitive advantage [13].

Third, this study significantly theory and suggests that green human resource management practices that contribute to green organizational culture and that predict to achieve green service innovation in the organization.

B. Research Practical implications
First, the finding suggests that investing in GHRM is an important to enhance green organizational culture. The firms should provide GHRM practices, such as recruitment and selection, training and development, performance appraisal and reward system, which can enhance the green organizational culture. Therefore, firms should adopt GHRM to promoting environment management. GHRM should create green organizational culture to involves employee attitudes and behaviors leading the organizational green management.

Second, the finding indicate that green organizational culture positively and significantly affect environmental performance through green service innovation. Green organizational culture enhances to increase the capability of green service innovation activity, which important to achieve environmental performance goals. Green organizational culture should develop environmental practice to enhance implications of green service innovation. Therefore, the study offers numerous practical implications for firm and policy makes on how to attain environmental performance through green human resource management, green organizational culture and green service innovation.

C. Research limitations and further research directions
Future research can study other context industries. Second, the present research found that green human resource management can positively affect green organizational culture and contributes to achieve green service innovation in the organization. In the future researches, it is recommended green organizational culture to mediator between green human resource management and green service innovation.

REFERENCES


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