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# How Does Green Human Resource Management Improve Sustainable Organizational Performance in Public Services?

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## Abstract

**Research Aims:** The issues, such as global warming, increasing levels of pollution, increasing carbon, and climate change, make it mandatory for all organizations to strive to preserve the environment and work for the welfare of society. The aim to be achieved in this study was to explore the practice of green human resource management (GHRM) and its contribution to increasing sustainable organizational performance (SOP) through green service innovation (GSI) in the local government organizations of Semarang City, Indonesia.

**Design/Methodology/Approach:** This research used a quantitative method. The data in this study were collected using closed online questionnaires for the leaders of the civil servants in each regional government organization in Semarang City. The data analysis employed the Structural Equation Model-Partial Least Square (SEM-PLS) utilizing the software of Smart PLS 3.

**Research Findings:** The results of the data analysis demonstrated that all proposed hypotheses were accepted. It has been proven that GHRM and GSI could, directly and indirectly, improve SOP in Semarang City Government through the primary indicator of the vision of developing environmental management and services for the community and environmentally friendly digital service innovations.

**Theoretical Contribution/Originality:** GSI could mediate the relationship between GHRM and SOP. In addition, this study revealed that the digital elements of public services in GSI enormously increased SOP.

**Practitioners/Policy Implications:** The results have been good news for leaders in public service organizations with different policies on becoming sustainable organizations and preserving environmentally friendly practices in serving the community.

**Research Limitations/Implications:** The authors recognize that the current study has limitations. This research only focused on organizational performance. Since the authors see that GHRM and GSI practices play a decisive role for employees, this study recommends further research to investigate the role of GHRM and GSI on employee performance.

**Keywords:** Digital Green Service Innovation; Green Human Resource Management; Sustainable Organizational Performance

## Introduction

Challenges, such as climate change, increasing pollution levels, carbon footprint, and floods, make organizations strive to protect the environment and advance the welfare of society (Khan et al., 2022; Mukherji & Bhatnagar, 2021). Currently, the aspects of the environment, social, and economic sustainability are considered primary responsibilities

that organizations have to culture and nature, particularly in activities related to environmental protection (Ly, 2023). This concern has been the primary goal of the United Nations (UN) with its program, the Sustainable Development Goals (SDGs). It began in 2015 and is a global action plan that all nations have agreed to (Helmer et al., 2021). The three main pillars are reducing poverty and inequality and protecting the environment (Pujara et al., 2019). Specifically, the concept of protecting the environment and the aspects of sustainability encourage a new practice in organizations, i.e., green human resource management (GHRM), environmental recognition, and thinking into internal organizational policies practice resource humans to recognize the importance of ecological carbon employees (Anwar & Abdullah, 2021; Baliyan & Fatima, 2021; Jashari & Kutllovci, 2020; Ly, 2023). The idea of GHRM is mainly on how the ability and capacity of an organization to recruit, train, and retain employees using environmentally friendly practices (Cahya, 2021). Ahakwa et al. (2021); Cahya (2021); Khan et al. (2022) define GHRM as a policy and practice of human resources to encourage and support applying the environmental policy in organizations to reduce waste, prevent environmental pollution, and achieve efficient utilization of natural resources and energy sustainable to improve sustainable organizational performance. Many studies have shown that GHRM can significantly enhance organizational performance (Aburahma et al., 2020).

Furthermore, green service innovation (GSI) gets more concerned when organizations must innovate to create environmentally friendly products or services and overcome environmental problems (Chen et al., 2015). GSI is an innovation in product development or a process system that aims to reduce environmental impacts (Awwad Al-Shammari et al., 2022). Khammadee and Ninaroon (2022) showed that GSI positively affects the increase in manufacturing organizations' performance. The GSI stimulus proliferates because people's environmental concerns increase daily (Lin & Chen, 2018). However, the authors found that GSI was studied more in manufacturing organizations alone, and no research indicates that GSI improves public service organizations' performance (Chen et al., 2015). For that reason, the urgency of this study is to investigate the use of GHRM and GSI practices on SOP in public service organizations and the relationship between the two.

Then, the GHRM implementation is not limited to manufacturing companies but also covers non-profit organizations, such as the government, large-scale companies, and small businesses (Blom, 2020). In the current era, protecting and managing the environment sustainably is an essential part of the responsibility of the government, society, and all parties (Sugiartha & Widiati, 2020). In this case, the seriousness of environmentally friendly practices in public service organizations has been the concern of the Semarang City Government as a public service organization that innovates in building the environment and sustainability. One of the forms of innovation, environmental problems, and sustainable aspects performed by the Semarang City Government is a smart city program, a form of green service innovation (GSI) of online and digital-based public services to the community. The innovative city concept was built and designed by the Semarang City Government to assist public services and community activities in managing existing resources efficiently. The other goal is to provide convenience in accessing information for the community, maximize community services, and support sustainable development. In addition, the primary purpose of a smart city is to build a safe

and comfortable city for the community to strengthen competitiveness and form a sustainable city with a sustainable economy, society, and environment (Hasibuan & Sulaiman, 2019).

Further, performance achievements in the smart city are said to be SOP since the objective is mainly to build a public service organization aimed at economic, social, and environmental development consisting of nine achievements: 1) rapid growth economics; 2) contribution related to trade and services; 3) contribution in the category of processing industry; 4) investment value; 5) percentage of flood and tidal areas; 6) Human Development Index; 7) gender development index; 8) poverty rate; 9) open unemployment rate; 10) bureaucratic reform index. The smart city is also a chart of green service Innovation (GSI) organizations because it is considered an organizational practice using innovations such as digital systems related to products or services as a form of sustainable service innovation. Khammadee and Ninaron's (2022) research uncovered that GSI improves SOP in an organization because this innovation has future-oriented strategic planning. Rubel et al. (2021) also revealed that GSI is becoming a critical parameter for organizations updating their services to adapt to environmental phenomena. Besides, Kainzbauer et al. (2021) argue that GHRM practices are the implementation of SOPs internally within an organization.

Previous studies have found that GHRM and GSI positively impact SOP. Due to the occurring phenomena, the proper integration of SOP within an organization develops (Medne & Lapina, 2019). According to Kordab et al. (2020), SOP is an achievement of organizational success as measured through the central performance taken from the organization's complex strategic objectives (social, economic, and environmental). Moreover, organizational sustainability is a strategic issue in sustainable development (Zhang et al., 2019). An organization will achieve sustainable development when it pays attention to the balance of three aspects, such as economic, social, and environmental (Kordab et al., 2020). This research aligns with the resource-based view (RBV), which states that organizations have the resources to give them advantages, be competitive, and have long-term performance (Rasool et al., 2019). Therefore, organizations must prioritize financial and economic goals, consider social benefits, and preserve the environment (Hristov & Chirico, 2019).

Furthermore, sustainable performance requires that every organization meet the needs of the present without compromising the needs of future generations (Rehman et al., 2020). Hristov and Chirico (2019) assert that today's organizations realize that sustainability achievements may strengthen their competitive organizational advantages with innovations in processes, products and services, markets, and business models in the future. The researchers recognize that no research has contributed to offering a conceptual model with SOPs as a new issue to study in GHRM and GSI practices, particularly in public service organizations. In this regard, SOP is a development resulting from a stimulus from existing environmental phenomena that organizational performance must have a sustainable value. This research, therefore, aims to solve the importance of caring for the environment so that public service organizations have and achieve sustainability values.

## **Literature Review and Hypotheses Development**

The RBV theory of Úbeda et al. (2022) is highly relevant and accepted in business strategy management. The RBV theory states that organizational resources include all assets, capabilities, organizational processes, company attributes, information, knowledge, and others controlled by a company that enables the company to understand and implement strategies to increase organizational efficiency and effectiveness (Rafiq et al., 2020). Many studies have empirically proven that sustainability performance is influenced by the capability dimension (Sun et al., 2022). In studies, for example, it was explained that there is a positive effect between the dynamic integration of external capabilities and the three pillars on sustainability performance (Sun et al., 2022). The three pillars are economic, social, and environmental performance (Sun et al., 2022). Based on resource-based value (RBV) theory, market orientation, entrepreneurship, organizational learning, and innovation capabilities can influence performance (Rafiq et al., 2020).

Organizational performance is a form of achievement level indicator that will be achieved and reflects the success of an organization. It is a form of outcome accomplished by individual behavior in the organization (Hidir et al., 2021). Several studies have proven the relationship/linkage between GHRM practices and organizational performance (Aburahma et al., 2020). According to Khammadee and Ninaroon (2022), applying GHRM will significantly improve organizational performance since it is essential to successfully implement a strategy in an organization's environmental management practices (Zhang, 2019). In the efforts to practice GHRM in organizations, it takes the form of performance management, rewards, organizational cultural innovation, and training and development (Alshammari, 2020; Anwar & Abdullah, 2021). Investment in GHRM practices in organizations will drive employee performance directly and indirectly through organizational performance (Shah et al., 2021).

For organizations to maximize the impact of SOPs on their organizational activities, they must ensure that organizational SOPs can result from implementing ideas about the positive effect of stakeholders on long-term organizations (Sun et al., 2022). Zhao et al. (2021) argue that SOPs can be maintained when organizational goals and policies can be supported by prioritizing social, economic, and environmental aspects. For organizations to maximize the impact of SPO on their organizational activities, their managers must also ensure that they require economic, social, and environmental movements to have a positive effect on their internal community (employees) and external community (society) (Deshpande & Srivastava, 2022). In this case, GHRM offers an essential way for an organization to develop human capital (HR) that can improve environmentally friendly goals. These objectives are implemented through recruitment, training, assessment, and incentive systems to enhance their organizational performance so they know the role of the environment and sustainable development. Previous studies have shown that GHRM positively affects organizational performance (Rawashdeh, 2018). Other studies revealed that the current GHRM system has shifted to a different modern working method (Wijesingha et al., 2020). The relationship between GHRM and SOP was also confirmed in research by Zhao et al. (2021), who stated that GHRM positively impacted SOP.

***H<sub>1</sub>: Green human resource management (GHRM) significantly positively affects sustainable organizational performance (SOP).***

GHRM is required to create a change related to innovation in organizations, which includes recruitment, training, assessment, and incentive systems for their employees (Qureshi et al., 2020; Ghouri et al., 2020; Mishra, 2017; Khammadee & Ninaroon, 2022; Rasheed & Alam, 2020; Shafaei et al., 2020). GHRM must involve a systematic and planned explanation of human resource management (HRM) practices (Pham et al., 2019). In addition, green innovation provides green values for every employee to be involved in GHRM practices in sustainable organizations, which will affect the HR function (Awwad Al-Shammari et al., 2022). Khammadee and Ninaroon (2022) found that GHRM practices would greatly positively support GSI culture, demonstrating the ability to mediate between GHRM practices and organizational performance. GSI also has a sustainability value that is more than just organizational performance (Rubel et al., 2021). It involves going much deeper into considering environmental, social, and economic risks in organizational decision-making. Moreover, GSI is defined as a set of values, principles, and beliefs that govern behavior and activities regarding the environment and nature (Chen et al., 2015). It proves that the desire or responsibility of the organization is dedicated to the environment and sustainability.

Green organizational cultural practices are crucial for successfully implementing GHRM strategies and organizational policies. Therefore, alignment of environment-based thinking requires employee orientation to environmental initiatives and practices (Imran et al., 2021). The current reality of GSI reflects planning to protect the organizational environment and asking organizational leaders to pay more attention to organizational activities to enable employees to play an active role in providing services to minimize environmental pollution in the workplace (Lin & Chen, 2018). According to Hadjri et al. (2020); Chen et al. (2015); Khammadee and Ninaroon (2022); Lin and Chen (2018), researchers have looked at the performance of GSI, and several studies have revealed that GSI could significantly improve SOP.

***H<sub>2</sub>: Green human resource management (GHRM) significantly positively affects green service innovation (GSI).***

GSI is defined as a form of innovation in product development or a process system that aims to reduce the environmental impact of all activities carried out by a company/organization (Khammadee & Ninaroon, 2022). According to Lin and Chen (2017), GSI is described as an innovation in products or processes that reduces the environmental impact of all companies' business activities to be energy efficient, prevent pollution, and recycle waste to impact environmental management. Furthermore, GSI can increase competitive advantage and organizational performance (Khammadee & Ninaroon, 2022). The GHRM function can propagate environmentally sustainable development, and GSI practices can efficiently increase resource productivity and reduce pollution (Chen et al., 2015).

The process from GSI is expected to save energy, prevent pollution, and recycle waste through digitization (Lin & Chen, 2018). According to Chen et al. (2015), GSI applied to an organization will increase its competitive advantage. In this regard, innovation is seen as an essential tool for business and public services. It is to increase the competitive value of an organization (Khammadee & Ninaron, 2022). Successful innovation will benefit the organization's development and economic value (Oncioiu et al., 2018). One of the developments in service innovation is green service innovation, which organizations must implement to adopt and change mindsets and managerial strategies in the transformation model of environmentally friendly and sustainable management (Staples et al., 2020). The ability to innovate in service will significantly impact organizational performance. It is because the ideas generated by green service innovation are more innovative and can substantially contribute to achieving organizational goals (Alhadid & Abu-Rumman, 2014). GSI generally uses knowledge and can be classified as knowledge-intensive business services (Khammadee & Ninaron, 2022). Service innovation includes modification, line expansion, repositioning, and service improvement (Lin & Chen, 2018).

Furthermore, the opinion of Rubel et al. (2021) implies that technological, human, and organizational competencies are crucial for GSI. In addition, GSI innovation must relate to customized services (Lin & Chen, 2018). GHRM capabilities positively affect an organization's ability to achieve and sustain GSI excellence (Khammadee & Ninaron, 2022). According to Lin and Chen (2018), GSI can produce sustainable performance if organizations use environmental structures to emphasize ecological benefits. GSI can also help organizations achieve better SOPs and gain sustainability benefits and values (Sun et al., 2022). In this era, people prefer organizations that work for the welfare of society and reduce negative impacts on the natural environment (Frempong et al., 2021). Technological elements are deemed to increase the quality of GSI since they tend to be environmentally friendly and minimize carbon footprints (Hu et al., 2022). The previous research results by Khammadee and Ninaron (2022) revealed that GSI positively impacted organizational performance and supported the direction of organizational sustainability.

***H<sub>3</sub>: Green service innovation (GSI) significantly affects sustainable organizational performance (SOP).***

## **Research Methods**

This research was conducted in Semarang City Government, Indonesia, for two months, from January to March 2023. This research employed a quantitative method. The data in this study were collected utilizing a closed online questionnaire for leaders' status apparatus civil servants (ASN) in each regional government organization (OPD) in Semarang City. The population of this research was the leadership at each OPD in Semarang City, totaling 56 people. Information on the study population is presented in Table 1. A sampling technique was utilized. Using the census, 56 respondents were obtained. Data were collected to measure the influence of GHRM implementation on SOP and GSI. Data analysis employed Partial Least Squares, utilizing the software Smart PLS 3 (Hair et al., 2017).

**Table 1** Respondent Demographics

| Variable  | Classification | Frequency | %   |
|-----------|----------------|-----------|-----|
| Gender    | Female         | 10        | 18  |
|           | Male           | 46        | 82  |
| Age       | 30-40          | 25        | 44  |
|           | 41-50          | 31        | 56  |
| Education | Bachelor       | 10        | 18  |
|           | Master         | 46        | 82  |
| Total     |                | 56        | 100 |

Resource: Primary data (2023).

The demographic table reveals that 46 male respondents made up 82% of all respondents when broken down by gender. Respondents by age were dominated by respondents aged 41–50 years, with as many as 31 respondents with a percentage of 56%. Meanwhile, respondents by education were dominated by master's education respondents, with as many as 46 respondents and a percentage of 82%.

### Variable Measurement

The measurement items used in this study were adopted from previous studies with modifications according to the research objectives. Each variable was measured using a seven-point Likert scale, from strongly agree to strongly agree. Research variables and indicators of GHRM, GSI, and SOP can be seen in Table 2.

**Table 2** Operational Variables

| Variable                                    | Theory                                                                                   | Label | Instrument                                                                       |
|---------------------------------------------|------------------------------------------------------------------------------------------|-------|----------------------------------------------------------------------------------|
| GHRM<br>(7 items)                           | (Mishra, 2017; Zhao et al., 2021)                                                        | X1    | Environmentally friendly branding                                                |
|                                             |                                                                                          | X2    | Environmentally friendly management                                              |
|                                             |                                                                                          | X3    | The vision of environmental management and service                               |
|                                             |                                                                                          | X4    | HR practices for environmental management                                        |
|                                             |                                                                                          | X5    | Environmental management and service training                                    |
|                                             |                                                                                          | X6    | Setting environmentally friendly goals                                           |
|                                             |                                                                                          | X7    | Awards in eco-friendly practices                                                 |
| GSI<br>(5 items)                            | (Rustiarini, 2021; Tjahjadi et al., 2020; Weng et al., 2015; Khammadee & Ninaroon, 2022) | Z1    | New digital-based services                                                       |
|                                             |                                                                                          | Z2    | Developing digital services                                                      |
|                                             |                                                                                          | Z3    | Eco-friendly digital services innovation                                         |
|                                             |                                                                                          | Z4    | Improving environmentally friendly services.                                     |
|                                             |                                                                                          | Z5    | Technologies for sustainable organizational practices                            |
| SOP<br>(4 items)                            | (Baeshen et al., 2021; Hossin et al., 2021; Sapta et al., 2021)                          | Y1    | Sustainable organizational performance for financial and non-financial           |
|                                             |                                                                                          | Y2    | Continuous organizational performance for organizational image                   |
|                                             |                                                                                          | Y3    | Sustainable organizational performance as a measure of environmental performance |
|                                             |                                                                                          | Y4    | Sustainable oriented leader                                                      |
| Green human resource management: GHRM       |                                                                                          |       |                                                                                  |
| Green service innovation: G.I.              |                                                                                          |       |                                                                                  |
| Sustainable organizational performance: SOP |                                                                                          |       |                                                                                  |

## Results and Discussion

### Data Analysis

This research model was analyzed using the SEM-PLS (Structural Equation Model-Partial Least Square) technique with smart-PLS 3.0 software (Sharma et al., 2022). The SEM-PLS technique is appropriate in this study because it works effectively and efficiently on small sample sizes with complex models (Hair et al., 2020). The reason for using this analytical technique is that it can test mediating effects simultaneously. In the SEM-PLS test, two test stages were carried out, namely the outer model (measurement model) and the inner model (structural model) (Hair et al., 2011).

### Measurement Model Test Results (Outer Model)

The outer model test consists of several stages of validity and reliability testing (Hair et al., 2011). The validity test consists of two tests: convergent validity and discriminant validity. Concurrent validity is essential for assessing the research indicators used to represent latent variables between two measures with the same concept (Zeng et al., 2021). Convergent validity testing can be seen from the loading factor value of the construct indicator and the Average Variance Extracted (AVE) value. AVE is the value of the average extracted variant (Dash & Paul, 2021). The convergent validity test is fulfilled if the loading factor value is higher > than 0.7 and the AVE value is higher > than 0.5 (Hair et al., 2020). Furthermore, discriminant validity is measured by comparing the AVE value of each latent variable, which must be higher than the square of the correlation  $R^2$  of the other latent variables. The discriminant validity test is fulfilled if the factor loading value of each variable is higher than the cross-loading of other variables (Hair et al., 2020).

**Table 3** Convergent Validity

| Variable                                     | Indicator | Loading Factor | Status |
|----------------------------------------------|-----------|----------------|--------|
| Green human resource management (GHRM)       | X1        | 0.950          | Valid  |
|                                              | X2        | 0.948          |        |
|                                              | X3        | 0.959          |        |
|                                              | X4        | 0.956          |        |
|                                              | X5        | 0.950          |        |
|                                              | X6        | 0.930          |        |
|                                              | X7        | 0.922          |        |
| Green service innovation (GSI)               | Z1        | 0.944          | Valid  |
|                                              | Z2        | 0.946          |        |
|                                              | Z3        | 0.921          |        |
|                                              | Z4        | 0.933          |        |
|                                              | Z5        | 0.909          |        |
| Sustainable organizational performance (SOP) | Y1        | 0.935          | Valid  |
|                                              | Y2        | 0.964          |        |
|                                              | Y3        | 0.962          |        |
|                                              | Y4        | 0.947          |        |
| R-Square $Y^1$ = GHRM->SOP = 0.907           |           |                |        |
| R-Square $Y^2$ = GHRM, GSI->SOP= 0.909       |           |                |        |
| Q <sup>2</sup> = 0.991                       |           |                |        |

Resource: Smart-PLS 3 (2023).

Afterward, the reliability test was used to determine the consistency of the measurement results if the measurement was carried out twice or more for the same symptoms with the same measuring instrument. The reliability test loading rule met the composite reliability (C.R.) criteria, and Cronbach's alpha is higher than  $> 0.7$  (Sarstedt et al., 2020).

**Table 4** Discriminant Validity

|      | Mean  | S.D.  | GHRM  | GSI   | SOP   |
|------|-------|-------|-------|-------|-------|
| GSI  | 22.57 | 5.672 | 0.952 |       |       |
| GHRM | 39.68 | 7.493 | 0.938 | 0.952 |       |
| SOP  | 22.57 | 4.596 | 0.946 | 0.953 | 0.929 |

Resource: Smart-PLS 3 (2023).

**Table 5** Reliability Test

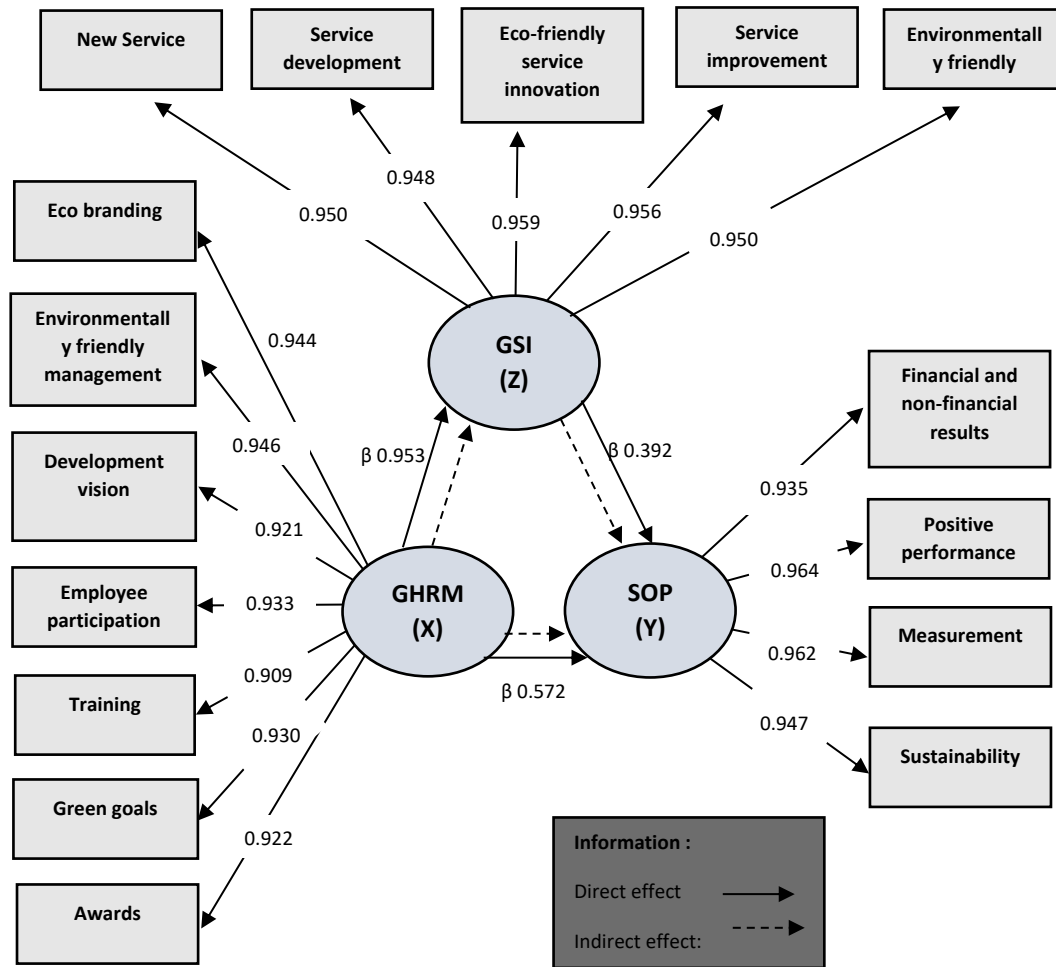
| Variable | Cronbach's Alpha | rho_A | Composite Reliability (C.R.) | Average Variance Extracted (AVE) | Result   |
|----------|------------------|-------|------------------------------|----------------------------------|----------|
| GHRM     | 0.965            | 0.966 | 0.975                        | 0.906                            | Reliable |
| GSI      | 0.974            | 0.974 | 0.980                        | 0.907                            | Reliable |
| SOP      | 0.974            | 0.974 | 0.978                        | 0.863                            | Reliable |

Resource: Smart-PLS 3 (2023).

In Table 3, the convergent validity results showed that all indicators of this study had a loading factor  $> 0.7$ , so it can be stated that all indicators used were valid for use. The test results of the reliability test measurement model revealed that all indicators on the GHRM, GSI, and SOP variables had an AVE value of more than  $> 0.5$  and a C.R. value of greater than  $> 0.7$ . As a result, all research variables were reliable and valid. The reliability test results are shown in Table 4. In addition, the discriminant validity check in Table 5 indicates that each construct in this research model meets the criteria. The square root value of AVE was greater for each construct assessed than the correlation between constructs. It denotes that discriminant validity has been established and meets the requirements.

### Structural Model Test Results (Inner Model)

In the structural model of this study, measurements were made to predict and see the causal relationship between the latent variables used (Hair et al., 2011). The test parameters in the model were the R-Square test ( $R^2$ ) and the predictive relevance model Q2 (Sharma et al., 2022). A high  $R^2$  value illustrates a good research model because it has precise measurement accuracy. In contrast, the Q2 value indicates the level of model results estimated for the parameters being assessed (Hair et al., 2020). To determine the level of significance in hypothesis testing, it is indicated by the value of the path coefficient (inner model). The loading path coefficient values of the accepted hypothesis shown by the t-statistic value must be higher than 1.96 for the two-tailed hypothesis in hypothesis testing using a p-value of 0.05 (Sharma et al., 2022).



**Figure 1** Structural Model of GHRM, GSI, and SOP

**Table 6** Hypothesis Testing

|                | Original Sample (O) | Sample Mean (M) | Standard Deviation (STDEV) | T-Statistics ( O/STDEV ) | P-Values | Result    |
|----------------|---------------------|-----------------|----------------------------|--------------------------|----------|-----------|
| GSI-> SOP      | 0.392               | 0.388           | 0.144                      | 2.727                    | 0.007    | Supported |
| GHRM-> SOP     | 0.572               | 0.576           | 0.145                      | 3.959                    | 0.000    | Supported |
| GHRM-> GSI     | 0.953               | 0.953           | 0.010                      | 94.178                   | 0.000    | Supported |
| GHRM->GSI->SOP | 0.374               | 0.370           | 0.137                      | 2.733                    | 0.006    | Supported |

Note: All T-statistic >1.96, and P-value <0.05\*\*\*

Green human resource management: GHRM

Green service innovation: G.I.

Sustainable organizational performance: SOP

Resource: Smart-PLS 3 (2023).

The measurement model results demonstrated SOP with a Q2 value of 99.1%. It can be concluded that the proposed research model was excellent and predictive. The three proposed direct effect hypotheses were all supported. It can be seen from testing the hypotheses using bootstrap analysis. H1, stating that green human resource management (GHRM) has a significant positive effect on sustainable organizational performance (SOP), was accepted as seen from the T-statistic value of 3.959 more than >1.96 and a P-value of 0.000 less than <0.05, with a coefficient value ( $\beta$  0.572). Then, H2, proposing that green human resource management (GHRM) has a significant positive effect on green service innovation (GSI), was accepted as seen from the T-statistic value of 94.178, more than >1.96, and the P-value of 0.000, less than <0.05, with a coefficient ( $\beta$  0.953). Lastly, H3, assuming that green service innovation (GSI) has a significant positive effect on organizational sustainability, was accepted as seen from the T-statistic value of 2.727 more than >1.96 and the P-value of 0.007 less than <0.05, with a coefficient value ( $\beta$  0.392).

Moreover, the SOP non-structural model test results with a Q2 value of 90% indicate that the proposed research model was excellent and predictive. The proposed indirect effect test was supported. It can be seen from the bootstrap test results that green human resource management (GHRM) had a significant positive effect on sustainable organizational performance (SOP) through green service innovation. It was accepted because the T-statistic value was 2.733, more than >1.96, and the P-value was 0.006, less than <0.05, with a coefficient ( $\beta$  0.374). The hypothesis testing results can be seen in Figure 2 and Table 4.

## **Discussion**

The research revealed that GHRM had a positive effect and a strong relationship with SOP in Semarang City Government organizations. It indicates that efforts to improve organizational performance in public service organizations sustainably require human resource practices concerned with the environment. The contribution of development vision indicators to guiding organizational members in environmental management and services at GHRM is critical to influencing SOP. It explains that, in public service organizations, the role of vision development supports the value of sustainability in that the draft and operational vision of a service organization built to serve the community will increase positive performance to achieve sustainable organizational performance and enhance the positive organizational image (Qureshi et al., 2020). Previous research elucidates that the practices of environmentally friendly organizations will improve the economy (economic aspects), increase attention to the quality of community life (social aspects), and pay attention to the environment (environmental factors) (Deshpande & Srivastava, 2022). In this study, GHRM is a determinant of the success of SOPs in organizations. The empirical results of this study are reinforced by the findings of Zhao et al. (2021) that GHRM had a significant contribution to SOP. Amjad et al. (2021) also stated that the GHRM policy act is an influential antecedent and positively impacts organizational performance. According to Zhao et al. (2021), GHRM is part of the SOP organization because it can simultaneously improve economic, social, and environmental performance. Also, there is a growing understanding that environmental impacts on

GHRM practices contribute to and help the organization achieve higher performance (Aburahma et al., 2020). This phenomenon corresponds to public sector organizations in Indonesia, especially the government, which is still pursuing sustainable development and identifying sustainable development as one of the critical elements to ensure access to fair and inclusive development and environmental protection as part of economic recovery. The government has recently prioritized sectors that concentrate on issues related to sustainability. The theme of inclusive and sustainable development is one of the pillars of the overall theme of the G20 in Indonesia (Solechah & Sugito, 2023). Further, the RBV theory clarifies this result: organizational resources have many scopes in the form of all assets, capabilities, knowledge, organizational attributes, and various other areas, and organizational responsibility is not sufficient in managing and understanding to implement the strategy to improve efficiency in the future (Sun et al., 2022).

The results of this study indicate that GHRM had a positive effect on GSI in the organization of the Semarang City Government. It suggests that GHRM practices improve GSI in public service organizations significantly. The role of development vision indicators in guiding organizational members in environmental management and services at GHRM becomes the dominant factor in influencing GSI. It explains that developing a vision, especially concerning the environment, will increase the quality of services provided to society. Developing a policy vision for environmental management and environmentally friendly services has strategic value in driving sustainable performance in an organization. In addition, creating an image will guide the organization in expanding digital services for the effectiveness and efficiency of services to the community. The results of previous empirical studies have shown that GHRM contributes to increasing GSI (Khammadee & Ninaroon, 2022; Zhang et al., 2019). In addition, from the process aspect, GSI describes organizational processes that reduce negative environmental impacts on processing materials, resources, and knowledge (Rubel et al., 2021). This study uncovered that the innovation in GSI demonstrated in green digital services is the ability to know, communicate, integrate, identify, and commercialize services effectively for organizational performance. These results are reinforced by the phenomenon in Indonesia, where the main focus of public services is to create environmentally friendly human resources by using digital service innovations to accelerate inclusive, sustainable, and environmentally friendly digital transformation (Amin et al., 2022) because digital elements are deemed to have a less polluting impact. Thus, the role of HR in being ecologically friendly needs to be increased for the success of GHRM practices to increase GSI (Hu et al., 2022).

The research results also denote that GSI positively affected SOP in Semarang City Government organizations. These results suggest that the provision of environmentally friendly services found in GSI improves the SOPs of public service organizations. New services, development, innovation, improvement, and ecologically friendly practices support public service organizations in achieving SOPs. The indicators of organizational innovation in expanding digital services for the effectiveness and efficiency of services to the public at GSI are the dominant factors influencing SOPs by innovating and developing services using digital elements. Previous empirical research demonstrating that GSI is significant for organizational performance supports this conclusion (Khammadee &

Ninaroon, 2022). In this study, GSI encourages digital technology innovation efforts to spur the creation of digital service breakthroughs for environmentally friendly organizations and low-carbon and zero-emission public services (Rubel et al., 2021). This effort also aligns with the Indonesian government, which has recently been encouraging the development of digital infrastructure networks to support sustainable economic, social, and environmental performance (Hasmawaty et al., 2022). It follows the RBV theory, which states that existing valuable and scarce resources can be aimed at creating a competitive advantage so that their resources can last a long time and are not easily copied, transferred, or replaced (Rafiq et al., 2020).

Moreover, the data analysis showed that GHRM indirectly affected SOP through GSI's mediation. It implies that an increase in GHRM in an organization enhances GSI. An increase in GSI will also boost SOP. Based on the recognized indirect effect results, GHRM practices will improve positive service quality to create sustainable organizational performance. The results of the empirical research show that, as previously explained, a resource-based view (RBV) is appropriate in developing GSI and GHRM to maximize performance (Lin & Chen, 2018). In their journal, Solechah and Sugito (2021) argue that sustainable public performance integrates performance that broadly benefits all sectors across regional, national, and even cross-generational boundaries. Sustainable performance will impact the potential impact on the public/society, environment, and economy and consider future effects (Peng & Zhang, 2022). Solechah and Sugito (2021) also elucidate why organizations should engage in green services strategically rather than idly. In this case, the organization's beliefs regarding green management have strategic ramifications. At the corporate level, green management can be crucial to business strategy and organizational distinction. Therefore, a strategic investment must be considered to generate sustainable performance (Khan et al., 2022).

Finally, it has been shown that GHRM and GSI improved SOP in public service organizations, which has not been investigated before. It provides a new perspective on science by showing that environmentally friendly HR practices and environmentally friendly services support organizations in achieving sustainability values, as reflected in improved SOP.

## **Conclusion**

In conclusion, this study concentrates on and explores what factors drive the practices of GHRM and GSI to improve the SOP of Semarang City Government organizations. From the data analysis results, it was revealed that GHRM and GSI had a significant positive effect on SOP. The critical factors in this study seek to explore GHRM practices in improving SOPs to create much better economic, social, and environmental synergy for the present and the future. The stimulus of ecological phenomena that continues to be a problem and is unresolved is a concern for this. The results also revealed that GHRM and GSI in Semarang City Government organizations had a strong relationship in this research. This relationship was reflected in the dominant indicators, i.e., developing a vision guiding actions in environmental management and services. It would increase innovation in expanding

environmentally friendly digital services for the effectiveness and efficiency of services in the community. In other words, the better the practice of GHRM, the better the GSI.

The results of GHRM on SOP in Semarang City Government organizations are the second relationship in the study. The relationship between the two was reflected in the dominant indicators that mutually reinforced this relationship; developing a vision to guide employee actions in environmental and service management will create positive, sustainable performance in public service organizations. It denotes that the better the practice of GHRM, the better the SOP in Semarang City Government organizations. Furthermore, the GSI for SOP in Semarang City Government organizations is the third relationship in the research. This relationship can be seen from the dominant indicators of the two, which mutually reinforced the relationship between the two; innovation in expanding environmentally friendly digital services for the effectiveness and efficiency of services to the community will increase sustainable organizational performance to support the positive performance of the employees and a positive organizational image. The other result of the study is that GSI could bridge GHRM and SOP. This current study revealed that digital GSI-based services could strengthen GHRM in SOP because the services built on digital elements were more environmentally friendly, particularly in public service organizations serving the community. For example, digital-based services enable people to benefit anywhere without accessing conventional services. It allows the resulting carbon footprint to be further reduced.

Since the future of public service organizations continues to develop, SOP implementation toward better performance will encounter various challenges that must be resolved together. The biggest challenge of the SOP is how to provide understanding to all parties to align social, economic, and environmental interests. The authors believe that the results of this research encourage the implementation of good strategies in the future, particularly in public service organizations, in implementing service and performance policy strategies for better synergy in the environment and sustainability. The authors also recognize that the current study has several limitations. First, the sample size was relatively small because there were fewer than 100 respondents. Second, this research also only focused on organizational performance. Because the authors see that the practices of GHRM and GSI have a vital employee role, this research recommends that future research investigate the roles of GHRM and GSI for employee performance. The recommendations of this research can be used as a policy direction for leaders of Semarang City Government organizations in determining environmentally friendly and sustainable policies. Furthermore, the research results can be developed as a basis for service innovation in society with digital technology.

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