



Promoting Green Human Resources Management to Business Model Innovation in SMEs

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Abstract—The study aims at analyzing the direct and indirect effects of green human resources management, green innovative work behavior, knowledge sharing and business model innovation of the small medium enterprises (SMEs) in Bali. Respondents were 300 SMEs in Bali. Path analysis is used in the Structural Equation Modeling (SEM) equation with the help of Smarts. The results showed that: 1) Green human resources management has a positive effect on business model innovation, 2) Green human resources management has a positive effect on green innovative work behavior, 3) Green human resources management has a positive effect on knowledge sharing, 4) Green innovative work behavior has a positive effect on business model innovation, 5) Knowledge sharing has a positive effect on business model innovation, 6) Green innovative work behavior partially mediates the relationship between green human resources management and business model innovation, and 7) Knowledge sharing partially mediates the relationship between green human resources management and business model innovation.

Keywords—*Green human resources management; green innovative work behavior; knowledge sharing; business model innovation*

I. INTRODUCTION

A substantial body of literature examined that business model innovation (BMI) is critical to firm survival, business performance, and a source of competitive advantage [1]. Exploring BMI helps businesses to approach and develop value propositions, creating, and capturing value for customers, suppliers, and partners [2]. BMI is a breakthrough in increasing employment opportunities, changing customer expectations, technological advancements, and deregulation [3, 4]. However, most established frameworks of BMI are less focused on green human resources management (GHRM) [5]. Focusing on GHRM is required for the new business to motivate and involve individuals in the innovation process [6]. Therefore, implementing BMI must focus on human capital to support innovation [1, 9, 8, 10]

Knowledge sharing is the proclivity to learn, share, and codify knowledge to improve self-competence [15, 17] and is a pivotal trigger for transforming the business model's competence [11]. However, there has been little research into the relationship between GHRM, knowledge sharing and business model innovation. The relationship between those variables is critical, both theoretically and strategically [4].

This study was conducted on pro-environment-oriented SMEs. Nowadays, SMEs have encouraged green transformation which contributes to the achievement of the SDGs. SMEs with green transformation are fit-perceived to support social development and have a green perspective in a sustainable manner. The goal of this research is addressing two research gaps: first, promoting GHRM as an alternative that has rarely received attention in previous research. Several previous studies have focused on emphasizing the value proposition into the business model [1, 3]. The focus on human values is critical as a pro-environment business model prioritizes the sustainability of relationships with fellow human beings. A pro-environment business model will be able to survive if it is supported by the simultaneous interaction of humans and the environment to achieve harmonious relationships.

Second, propose and test a model of green human resources management to business model innovation, as well as to demonstrate how it leads to knowledge sharing and innovative work behavior. The previous literature observed a fragmented section between GHRM and BMI [2, 7, 13]. In fact, GHRM and BMI will create a model that explain the form of innovation comprehensively. This study contributes to understand business model innovation by investigating the impact of green human resources management. Furthermore, it investigates the role of innovative work behavior and knowledge sharing as a mediator. This research adds to the body of knowledge in both theoretical and practical ways of creating a more comprehensive business model innovation.

II. THEORETICAL REVIEW AND HYPOTHESIS DEVELOPMENT

A. Green Human Resources Management (GHRM)

Researcher postulates the definition of GHRM as a bundle of human resources practices that involve green recruiting, green hiring, green training, green performance and appraisal, and green rewards [2]. A set of GHRM is based on green awareness, competencies, knowledge, and standards to measure employee green sustainability performance and meet green targets [14]. A form of its implementation, such as job sharing, teleconferencing, virtual interviews, recycling, online training, and the creation of energy-efficient office spaces. It is a powerful mechanism for promoting pro-environmental behavior in the workplace [13]. GHRM significantly improves employees' environmental awareness, attitudes, and behaviors [7].

B. Knowledge Sharing (KS)

The concept of knowledge sharing (KS) is a complex definition as it involves multiple perspectives to observe. The comprehensive concept entails a mutual exchange between implicit and explicit knowledge that aims to create new knowledge [9]. Based on the process, KS consists of two forms; give knowledge and receive knowledge. KS is integrally connected with communication and distribution of information which is considered elaborated by activities and practices [15]. The author also argues that the whole process of KS actively engaged with employees to gain and consequently share knowledge with other employees [16]. In summary, employees conduct KS, through which knowledge, experiences, and skills are employed in the workplaces.

C. Green Innovative Work Behavior (GIWB)

GIWB elaborates three components that promote individual innovation [12]. The three components are idea creation, idea promotion, and idea implementation. Idea creation is the first step to generating an idea that is valuable and impactful in any field. Idea promotion is when an individual engages in social activities to promote an idea. Finally, idea implementation is a process that involves developing innovative prototypes or ideas that have an impactful prospect of being tried or used to solve organizations' problems. With the belief that individual innovative work behavior has positive effects on work outcomes, several researchers have dedicated increasing attention to factors that potentially foster IWB such as, KS and IWB [17] and KS determinants, behaviors, and GIWB [18].

D. Business Model Innovation (BMI)

Business model innovation is defined as a configuration of the entire business model or individual elements [1]. BMI exists as a response to opportunities or challenges in the organization's environment for diversification and innovation [8]. Furthermore, BMI can be created in a variety of ways, ranging from an evolutionary process of continuous fine-tuning to a revolutionary process of replacing existing business models.

E. Research Hypothesis

Companies whose business models are aligned with innovation require qualified human resources [14]. Consequently, their organizational structures necessitate a workforce committed to innovation with sustainability concerns. The product launches and requires employees with the proper beliefs, attitudes, behaviors, and decision-making abilities. In addition, employees must demonstrate a "green culture" perspective and be able to provide products and services that place value and importance on the longevity of the planet. In short, green human resource management (HRM) is in vogue [19]. Based on this, a hypothesis is formulated as follows:

H1. Green human resources management has a positive effect on business model innovation

Innovative work behavior is perceived as a crucial component to maintain firms' competitive advantage [20]. Furthermore, it has been observed that GHRM are predictors of innovation outcomes in the organization [21]. Implementing GHRM to green innovative work behavior is based on behavior devoted toward green ideas generation, promotion, and realization [22]. On the relationship between GHRM and GIWB, it can be argued that GHRM can positively contribute to GIWB for the following reasons. First, employees who received GHRM will promote more environmental knowledge and innovative concepts that contribute to business model innovation [1]. We propose that GHRM will improve green innovative work behavior among employees. Therefore, we propose the following hypotheses:

H2. Green human resources management has a positive effect on green innovative work behavior

Scholars have investigated the underlying relation between GHRM and knowledge sharing. For example, GHRM help firms to sustain and enhance positive environmental outcome through their role in managing the learning of knowledge [24]. GHRM influences employee's performance in the project-based SMEs in Pakistan [25]. Likewise, the study found that knowledge sharing mediates the relationship between GHRM and innovation performance.,

Researchers show knowledge sharing as a core process of knowledge management. It has been studied at both the organizational level [26] and the individual level [27]. At an individual level, knowledge sharing is perceived as the underlying mechanism to which employees share their acquired knowledge with their peers. It is becoming critical to employees to share their knowledge as it is possibly contributing to the firm's profits. Therefore, we propose the following hypotheses:

H3. Green human resources management has a positive effect on knowledge sharing

Individual innovative work behavior has positive effects on innovation since there have been an increasing attention to the factors that potentially foster IWB such as, KS [17] and KS determinants, behaviors, and IWB [18], Based on this, a hypothesis is formulated as follows:

H4. Green innovative work behavior has a positive effect on business model innovation

It is essential to the success of any business model to share knowledge [3]. To encourage and motivate employees to share their productive knowledge about new business models, knowledge sharing is a useful tool. For a successful business model, organizations must recognize the importance of knowledge transfer at every level of management. Many have argued that in the new, rapidly expanding business models, traditional mechanisms of knowledge sharing are still effective and feasible [4]. Based on this, a hypothesis is formulated as follows:

H5. Knowledge sharing has a positive effect on business model innovation

GIWB is a powerful mechanism for promoting pro-environmental behavior in the workplace [13]. According to recent research, the degree of business model innovation determines a firm's survival [10]. However, changing business models is said to be difficult because it necessitates a systemic and holistic approach that considers the relationships between core business model elements. Business model innovation can be created by connecting activities in a novel way that adds value. Therefore, we propose the following hypotheses:

H6. Green innovative work behavior partially mediates the relationship between green human resources management and business model innovation

GHRM perceives as supportive HR practices that enhance the culture of shared knowledge to improve employee's performance [24]. GHRM enables employees to build a well-organized and effective environment to acquire, assimilate, and share their knowledge that leads to employee green behavior [22]. Scholars have mentioned about the role of knowledge sharing in affecting business model innovation to be more effective and feasible [4]. Based on this, a hypothesis is formulated as follows:

H7. Knowledge sharing partially mediates the relationship between green human resources management and business model innovation

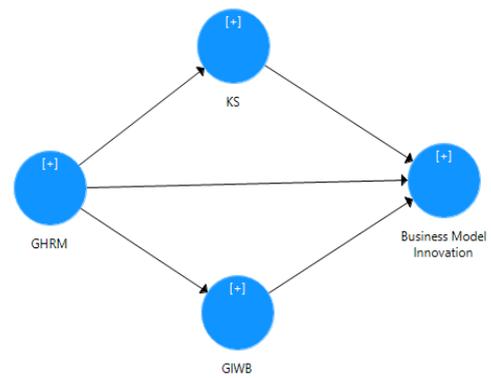


Fig. Conceptual Framework

III. METHODOLOGY

F. Data collection and Research Sample

This survey study was conducted at pro-environment-oriented SMEs in Bali province, Indonesia, as they were carrying out active contributions in implementing green human resources management which results in a unique point of business model innovation. The sample included 300 pro-environment-oriented SMEs divided into 8 provinces in Bali. The research used online questionnaires that were sent via google form and the participants were reminded once to fill the questionnaire. The number of participants who fill the survey are 300 respondents.

G. Instrument Measurement

Green human resources management used 4 dimensions using a 5-point Likert scale, namely employee life cycle, rewards, education and training, and employee empowerment. Questions such as: my company sets green goals for its employees, my company considers allocating in rewards and compensation for green management, my company provides employees with green training to develop the knowledge and skills required for green management, and my company support employees' contribution to green management.

Knowledge sharing is measured by 4 dimensions using a 5-point Likert scale, namely socialization, externalization, combination, and internalization [28, 29]. Questions items such as: members of SMEs team view skill sharing as essential for the team's efficiency, culture of knowledge sharing exists among the members of SMEs team, best practices in training are shared among members of SMEs team, and my colleagues in the team accept that it is very important that everyone feels responsible for sharing knowledge internally

Green innovative work behavior is used in 4 dimensions using a 5-point Likert scale, namely idea exploration, idea generation, idea championing, and idea implementation [30]. Questions items such as: I look for ways to improve current products, services or processes or trying to think about them in alternative ways, I do improvements in current work processes

to create solutions for problems, I find support and building coalitions by expressing enthusiasm and confidence about the success of the innovation, being persistent, and getting the right people involved, and I make innovations as part of regular work processes, developing new products or work processes, and testing or modifying them.

Business model innovation is measured by 4 dimensions using a 5-point Likert scale, namely value proposition, assets and capabilities, revenue and cost architecture, and actors in business networks [4]. Questions items such as: my company has differentiated itself from its competitors and prioritizing consumers preferences, my company prioritize environment, people, skills, technology, logistics or existing product lines that contribute to consumers, my company apply the profit streams of the organization, as well as the pricing strategies of the firm, and my company partnering with others to enhance the business value proportion.

H. Data Analysis and Findings

The data were analyzed using PLS-3.0 software, starting from evaluation of the measurement model, which was aimed at determining the validity and reliability of the dimensions' indicators used and subsequently testing the inner model through the resampling bootstrapping process.

IV. RESULTS

A. Outer Model Measurement

The methods used consist of three measurements, namely, composite reliability, convergent validity, and discriminant validity. Loading Factor (LF) shows the correlation between each item and its construct. The higher the correlation indicates that the measurement item is valid measuring the construct measurement. The estimation results of the model show that all LF of each item and its construct are above 0.70 which indicates that each measurement item is valid in measuring the construct it measures. The measurement model for each construct is acceptable where each measurement item has an LF 0.70 with a high level of reliability (CR 0.70) and a good convergent validity indicated by AVE 0.50. Based on table 1 each measurement item is valid and reliable reflecting construct measurement. Discriminant validity evaluation is accepted by HTMT methods ($HTMT < 0.90$). Each focus measurement item measures its own construct and has low correlation with other constructs.

The convergent validity method is used to measure the validity of indicators. The values that are considered sufficient for loading factor are 0.50 – 0.60 [31]. The value of each indicator in this research was between. Thus, the outer loading meets the convergent validity. The discriminant validity model is measured with HTMT. The recommended HTMT ratio should be less than 0.90 [32]. In this research, the outer loading of each indicator was between, which means meet the HTMT criteria.

The second step is to test the discriminant validity of indicators by comparing the square root coefficient of variance

extracted (\sqrt{AVE}) from each latent factor with the correlation coefficient between others in the model. The recommended value of AVE was above 0.50. The AVE value for GHRM was 0,731, The AVE value for GIWB was 0.559. The AVE value for KS was 0.717. Lastly, The AVE value for BMI was 0.741. This showed that the indicators representing the dimensions of variables in this study had good discriminant validity. The third step used composite reliability to measure the value between indicators of the variable. Based on the table 2 the results were reliable when the value of the composite reliability and Cronbach's alpha was > 0.70 [31].

Table 1. Heterotrait-monotrait ratio (HTMT)

	BMI	GHRM	GIWB	KS
BMI				
GHRM	0,750			
GIWB	0,773	0,808		
KS	0,743	0,807	0,852	

Table 2. Construct reliability and validity

	Cronbach's Alpha	rho_A	Composite Reliability	AVE
BMI	0,884	0,893	0,920	0,741
GHRM	0,875	0,883	0,915	0,731
GIWB	0,736	0,736	0,835	0,559
KS	0,867	0,870	0,910	0,717

B. Inner Model Measurement

The next step was to examine the inner model using three approaches, first, by evaluating the feasibility of the model by observing the results of the R2 analysis; second, by testing the model holistically using the predict relevance method [32]; and, finally, by calculating the goodness of fit (GoF). Q² and GoF calculations used the R-square coefficient (R²). R² showed the strength of relationships/information between exogenous and endogenous variables. The R² value of 0.67 was classified as a robust, 0.33 as a moderate and 0.19 as a weak model [31].

As shown in table 3, the R² value of BMI was 0.540, GIWB was 0.423, and KS was 0.495. Meanwhile, the R² value showed that the model was moderate because it was greater than 0.33 [32]. The relationship between constructs was explained by 48%, while the remaining 52% was expressed by other external factors.

Table 3. R² and R² adjusted

	R Square	R Square Adjusted
BMI	0,540	0,536
GIWB	0,423	0,421
KS	0,495	0,493

C. Testing Research Hypotheses

After the outer and inner model tests were completed, the next important step was examining the hypothesis which was carried out through two stages, namely, testing the direct and indirect effects of the exogenous and endogenous variable. In the output path coefficient, as shown in table 4, the direct relationship between variables was presented in the original sample

The path coefficient of the direct relationship between GHRM and BMI was $4.369 > 1.96$ which means that it was significant. Green training and coaching practices allow employees to gain the knowledge and skills required to strengthen their innovative practices. Furthermore, green performance assessment and incentive strategies will motivate employee behaviors with the organization's environmental goals [23], therefore hypothesis 1 was accepted. The coefficient of the relationship of GHRM with GIWB was $15.343 > 1.96$, which means that it was significant. GHRM enable employees to build a well-organized and effective environment to acquire, assimilate, and share their knowledge that leads to employee green behavior. GHRM perceives as supportive HR practices that enhance the culture of shared knowledge to improve employee's performance therefore, hypothesis 2 was accepted. The coefficient of the relationship of GHRM with KS was $17.810 > 1.96$, which means that it was significant. GHRM improves knowledge sharing among employees, leading to better business model innovation outcomes as such employees will be more critical and creative, and they will be more successful in creating new knowledge [4]. Therefore, hypothesis 3 was accepted. The coefficient of the relationship of GIWB with BMI was $4.053 > 1.96$, which means that it was significant. GIWB elaborates three components that promote innovation. The three components are idea creation, idea promotion, and idea implementation [12]. Idea creation is the first step to generating an idea that is valuable and impactful in any have an impactful effect of creating business model innovation. Therefore, hypothesis 4 was accepted. The coefficient of the relationship of KS with BMI was $4.185 > 1.96$, which means that it was significant. For a successful business model, organizations must recognize the importance of knowledge transfer at every level of management. Many have argued that in the new, rapidly expanding business models, traditional mechanisms of knowledge sharing are still effective and feasible [4]. Therefore, hypothesis 5 was accepted.

After obtaining the results of a direct relationship between variables, the next step was to determine the position of the mediating factors indirectly. In this research model, there were two paths of mediation that were tested, namely, GIWB and KS. Following [32], the method used was by examining the value of $VAF < 0.20$, which means that there was no mediation, while $0.20-0.80$ indicated partial and $VAF > 0.80$ means full. Two mediations were tested in this study, it was concluded that, green innovative work behavior partially mediates the relationship between green human resources management and business model innovation where the VAF value was equal to 32 %. A set of GHRM is based on green

awareness, competencies, knowledge, and standards to measure employee green sustainability performance and meet green targets [14]. Implementation of GHRM through knowledge sharing, such as, job sharing, teleconferencing, virtual interviews, recycling, online training, and the creation of energy-efficient office spaces have contributed impactfully to business model innovation indicating that hypothesis 6 was accepted. At the same time, knowledge sharing partially mediates the relationship between green human resources management and business model innovation, with a VAF value of 38 %, which means hypothesis 7 was accepted.

Table 4. Path coefficients

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
GHRM -> BMI	0,319	0,310	0,073	4,369	0,000
GHRM -> GIWB	0,651	0,651	0,042	15,343	0,000
GHRM -> KS	0,704	0,703	0,040	17,810	0,000
GIWB -> BMI	0,231	0,232	0,057	4,053	0,000
KS -> BMI	0,278	0,284	0,067	4,185	0,000

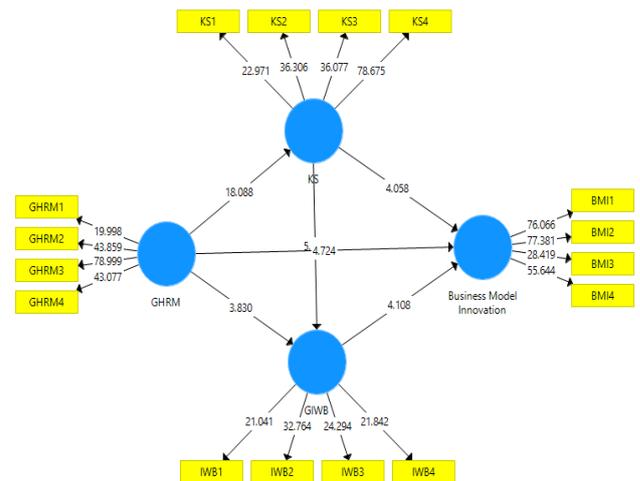


Figure 2. Inner and outer model

V. CONCLUSIONS

Firm need some factor that make the implementation of business model innovation becomes successful. The role of green human resources management could be one of factors that contribute to succeeding in possessing business model innovation. Other antecedents that affect business model innovation such as knowledge sharing and green innovation work behavior. Those 3 factors result in significant business model innovation in 3 different ways. First, green human

resources management supports firm's processing in business model innovation through a set of human resources bundles based on green awareness, competencies, knowledge, and standards to measure employee green sustainability performance and meet green targets [14]. While the green human resources management has applied, employees will be eager to perform green innovative work behavior [1].

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