

The Influence of Ethical Information Technology Use and Green Computing Awareness on Green Digital Behavior: Evidence from the Government of West Sulawesi Province, Indonesia

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Abstract. The rapid digital transformation of public administration has improved organizational efficiency while simultaneously increasing concerns regarding the environmental sustainability of information technology utilization. Although governments continue to expand digital governance initiatives, limited attention has been devoted to understanding the behavioral factors that encourage environmentally responsible digital practices among public employees. This study investigates the influence of Ethical Information Technology Use and Green Computing Awareness on Green Digital Behavior among employees of the Government of West Sulawesi Province, Indonesia. This research employed a quantitative explanatory approach using a structured questionnaire distributed to 120 State Civil Apparatus (ASN) selected through purposive sampling. Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) to evaluate both the measurement model and the structural relationships among the proposed constructs. The findings reveal that both Ethical Information Technology Use and Green Computing Awareness have positive and significant effects on Green Digital Behavior. Green Computing Awareness demonstrates the strongest influence, indicating that employees' understanding of environmentally sustainable computing practices is a key determinant of responsible digital behavior. The structural model explains 58.8% of the variance in Green Digital Behavior, suggesting satisfactory predictive capability. The study contributes to the Green Information Systems literature by extending existing research beyond technological adoption toward individual behavioral determinants within public organizations. The findings also provide empirical support for the Theory of Planned Behavior by demonstrating that employees' ethical responsibility and environmental awareness encourage environmentally sustainable digital practices. From a practical perspective, the study recommends integrating Green IT education, environmental awareness programs, and ethical technology policies into digital government initiatives to support sustainable digital governance.

Keywords: Green Digital Behavior, Ethical Information Technology Use, Green Computing Awareness, Green Information Systems, Sustainable Digital Governance, Public Sector.

1. Introduction

Digital transformation has become one of the primary strategies for improving public sector governance worldwide. Governments increasingly rely on digital technologies to enhance administrative efficiency, improve public service delivery, increase transparency, and strengthen organizational performance. The acceleration of digital government initiatives has been particularly evident following the COVID-19 pandemic, during which public organizations rapidly adopted cloud computing, electronic document management, virtual collaboration platforms, and integrated information systems to maintain service continuity. Although digitalization has generated substantial organizational benefits, recent studies argue that its environmental consequences have received considerably less attention than its operational advantages [1], [2], [3].

The rapid expansion of digital infrastructure has significantly increased global energy consumption. Information and communication technology (ICT) systems, including data centers, cloud services, networking equipment, and end-user devices, require substantial electricity to operate continuously. Recent evidence indicates that the ICT sector contributes a growing proportion of global greenhouse gas emissions due to

increasing computational demands and digital service utilization [4]. Within public organizations, the transition from conventional administrative processes to fully digital operations may unintentionally increase energy consumption when digital resources are managed inefficiently. Examples include excessive storage of redundant digital files, prolonged operation of computers outside working hours, unnecessary printing of electronic documents, and inefficient utilization of organizational servers. Consequently, digital transformation should no longer be viewed solely as a technological modernization initiative but also as an environmental sustainability challenge that requires responsible management practices [5].

Growing concerns regarding climate change have encouraged organizations to integrate environmental sustainability into information technology management through Green Information Technology (Green IT) and Green Computing practices. Green IT emphasizes the environmentally responsible design, utilization, and disposal of information technology resources while minimizing energy consumption and electronic waste [6]. Previous studies have demonstrated that Green IT implementation can simultaneously improve organizational efficiency and environmental performance [3], [7]. However, the success of Green IT initiatives depends not only on technological infrastructure but also on employees' willingness to adopt environmentally responsible digital practices in their daily work activities.

At the individual level, employees' green digital behavior has emerged as a critical determinant of sustainable digital transformation. Green digital behavior refers to environmentally responsible actions performed while using digital technologies, including conserving electricity, reducing unnecessary printing, managing digital data efficiently, and utilizing digital resources responsibly. Research suggests that environmentally sustainable technology use is strongly influenced by behavioral and psychological factors rather than technological availability alone [8]. Employees who possess stronger environmental awareness are more likely to engage in pro-environmental behaviors, while organizational ethical values can encourage responsible technology utilization that aligns with sustainability objectives [9].

Among the factors that potentially influence green digital behavior, ethical information technology use and green computing awareness remain relatively underexplored within public sector organizations. Ethical information technology use reflects employees' commitment to utilizing digital resources responsibly, securely, and in accordance with organizational regulations while considering broader social and environmental consequences. Meanwhile, green computing awareness represents employees' understanding of the environmental impacts of ICT utilization and their knowledge regarding energy-efficient digital practices. Previous research has generally examined Green IT adoption from technological, organizational, or managerial perspectives [10], [11], whereas empirical investigations focusing on individual ethical values and environmental awareness as antecedents of green digital behavior remain limited, particularly within local government institutions in developing countries.

This research gap becomes increasingly important in Indonesia, where regional governments are accelerating the implementation of the Electronic-Based Government System (SPBE) as part of broader bureaucratic reform. Although SPBE has significantly improved administrative efficiency, its implementation has primarily emphasized digital service effectiveness and organizational integration, with relatively limited attention devoted to the environmental sustainability of digital operations. Consequently, understanding the behavioral factors that support environmentally responsible digital practices among civil servants becomes essential for ensuring that digital transformation contributes not only to governance effectiveness but also to sustainable development.

The Government of West Sulawesi Province provides an appropriate context for examining these issues. As one of Indonesia's developing provincial governments, West Sulawesi continues to strengthen its digital governance through expanding electronic administration, cloud-based information systems, and integrated digital public services. Simultaneously, the province faces challenges associated with infrastructure limitations, varying levels of digital literacy among employees, and the need to foster environmentally sustainable work practices within government institutions. These conditions make the province an appropriate setting for investigating the behavioral determinants supporting sustainable digital governance.

Based on these considerations, this study aims to examine the influence of ethical information technology use and green computing awareness on employees' green digital behavior within the Government of West Sulawesi Province. This study contributes to the Green Information Systems literature by extending existing research beyond technological adoption toward individual behavioral determinants in the public sector. Practically, the findings are expected to provide evidence-based recommendations for policymakers in designing environmentally sustainable digital governance policies, strengthening Green IT literacy among civil servants, and supporting the implementation of sustainable electronic government aligned with broader environmental objectives.

1.1. Green Digital Behavior

The increasing adoption of digital technologies has expanded the concept of pro-environmental behavior beyond traditional environmental practices to include environmentally responsible digital activities. Green digital behavior refers to employees' voluntary actions that minimize the environmental impact of information technology usage while performing organizational tasks. Such behaviors include reducing unnecessary printing, switching off electronic devices when not in use, optimizing digital storage, minimizing redundant data, utilizing energy-saving system settings, and responsibly managing digital resources [12], [13]. Within the Green Information Systems (Green IS) literature, green digital behavior is recognized as a critical human factor supporting sustainable digital transformation. Although organizations increasingly invest in energy-efficient hardware, cloud computing, and environmentally friendly digital infrastructure, these technological investments cannot fully achieve sustainability objectives without corresponding behavioral changes among technology users [3], [14]. Consequently, employee behavior becomes an important mechanism linking organizational digitalization initiatives with environmental performance. From a behavioral perspective, green digital behavior can be explained using the Theory of Planned Behavior (TPB) [15]. TPB argues that individual behavior is influenced by behavioral intention, which is formed through attitudes, subjective norms, and perceived behavioral control. Employees who possess positive attitudes toward environmental sustainability and perceive organizational support for environmentally responsible practices are more likely to engage in sustainable digital behaviors. Therefore, understanding the antecedents of green digital behavior is essential for promoting sustainable digital governance in public organizations.

1.2. Ethical Information Technology Use

Ethical Information Technology (IT) use refers to the application of moral principles and professional responsibility in utilizing information systems and digital technologies. Traditionally, IT ethics focused on issues such as privacy protection, information security, intellectual property rights, and responsible data management [16]. However, recent developments in sustainable information systems have expanded the concept to include environmental responsibility associated with digital technology utilization [17]. Ethical technology users recognize that digital resources are organizational assets whose utilization should generate social, economic, and environmental value. Environmentally responsible technology use therefore includes avoiding unnecessary energy consumption, minimizing excessive data storage, reducing electronic waste, and supporting organizational sustainability initiatives. Ethical values encourage employees to voluntarily comply with environmentally responsible digital practices even when formal supervision is limited. Previous studies indicate that ethical values significantly influence environmentally responsible workplace behavior because employees who possess stronger ethical orientations tend to consider the broader consequences of their technological decisions [18], [19]. In public organizations, where accountability and public trust represent fundamental governance principles, ethical IT use becomes increasingly important in supporting sustainable digital transformation.

1.3. Green Computing Awareness

Green computing awareness refers to employees' knowledge and understanding regarding the environmental consequences of information technology utilization. The concept originates from Green Computing, which emphasizes designing, using, and disposing of computing resources in ways that minimize environmental impacts while maximizing energy efficiency [20]. Employees with higher green computing awareness understand that routine computing activities contribute to electricity consumption, carbon emissions, and electronic waste generation. Consequently, they are more likely to adopt environmentally responsible computing practices, including efficient device utilization, digital document management, responsible cloud storage, and proper electronic waste disposal. Environmental awareness has consistently been identified as an important predictor of pro-environmental behavior across various organizational contexts [21], [22]. From the perspective of the Theory of Planned Behavior [15], awareness contributes to favorable attitudes toward environmentally responsible actions, thereby increasing employees' intentions to engage in green digital behavior. Accordingly, organizations that invest in Green IT education and environmental literacy programs are expected to strengthen employees' sustainable computing practices.

1.4. Research Gap

Research on Green Information Technology has expanded considerably during the past decade. Most previous studies have focused on organizational Green IT capabilities, technological infrastructure, and environmental performance [3], [6]. Although these studies demonstrate that Green IT improves organizational sustainability, they provide limited understanding of the behavioral mechanisms through which employees

contribute to environmentally responsible digital practices. Studies investigating pro-environmental workplace behavior have generally emphasized organizational factors such as green leadership, organizational climate, and environmental management systems [8], [9]. Comparatively fewer studies have simultaneously examined ethical information technology use and green computing awareness as individual antecedents of green digital behavior, particularly within public sector organizations in developing countries. Furthermore, empirical evidence concerning Green Information Systems in Indonesian local government remains scarce despite the rapid implementation of the Electronic-Based Government System (SPBE). Existing studies predominantly emphasize technological implementation and digital service quality, while behavioral dimensions of environmentally sustainable digital transformation receive relatively limited attention. Therefore, this study addresses an important research gap by integrating ethical information technology use and green computing awareness into a behavioral model explaining green digital behavior among civil servants in the Government of West Sulawesi Province.

1.4. Hypothesis Development

Ethical Information Technology use encourages employees to consider the environmental consequences of their digital activities. Individuals who demonstrate stronger ethical responsibility are more likely to engage in environmentally responsible computing practices, including reducing unnecessary energy consumption, minimizing excessive printing, and managing digital resources efficiently. Previous studies have shown that ethical values positively influence pro-environmental workplace behavior [23], [24]. Green computing awareness increases employees' understanding of how digital activities affect environmental sustainability. Individuals possessing higher environmental knowledge are expected to exhibit stronger environmentally responsible digital practices because awareness enhances favorable attitudes toward sustainable behavior [15], [20], [25], [26]. Ethical technology use and environmental awareness represent complementary psychological determinants influencing employees' digital behavior. While ethical values encourage responsible decision-making, green computing awareness provides the knowledge necessary to implement environmentally sustainable computing practices effectively. Together, both factors are expected to strengthen employees' green digital behavior. Accordingly, the following hypothesis is proposed:

H1: Ethical Information Technology Use has a positive and significant effect on Green Digital Behavior.

H2: Green Computing Awareness has a positive and significant effect on Green Digital Behavior.

Based on the theoretical review and hypothesis development, this study proposes a conceptual model in which Ethical Information Technology Use (X_1) and Green Computing Awareness (X_2) are hypothesized to positively influence Green Digital Behavior (Y) among civil servants in the Government of West Sulawesi Province (see Figure 1).

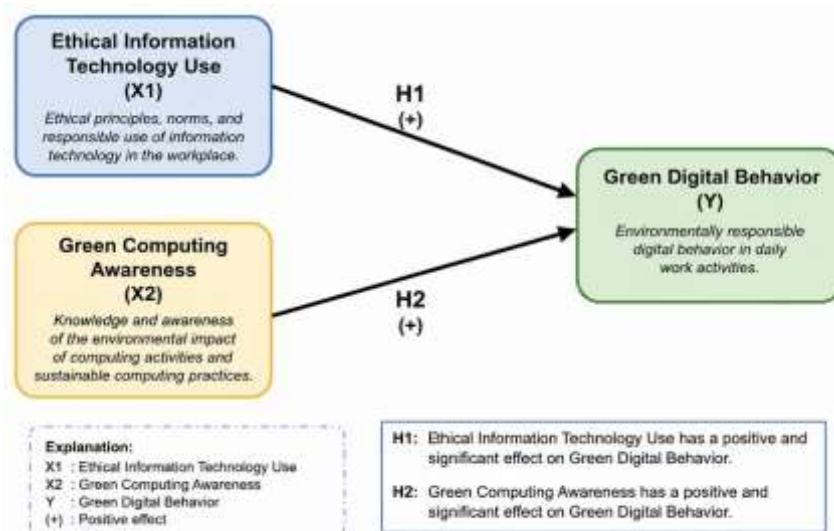


Figure 1. Conceptual Framework

2. Method

This study employed a quantitative research approach with a causal explanatory design to examine the relationships between Ethical Information Technology Use, Green Computing Awareness, and Green Digital Behavior among employees of the Government of West Sulawesi Province. A quantitative approach was considered appropriate because the study sought to empirically test the proposed hypotheses and quantify the magnitude of relationships among the research variables.

The population consisted of all State Civil Apparatus (ASN), including both civil servants and government employees under work contracts, working in regional government agencies of the West Sulawesi Provincial Government. Because not all employees routinely utilize digital technologies in their daily duties, respondents were selected using a purposive sampling technique. The sampling criteria included employees who (1) regularly use computers, laptops, or smartphones to perform official duties, (2) access government information systems and internet services, and (3) actively utilize applications supporting the Electronic-Based Government System (SPBE). These criteria ensured that respondents possessed sufficient experience with organizational digital technologies to evaluate the constructs investigated in this study.

Primary data were collected using a structured questionnaire distributed electronically. The questionnaire items were developed based on established constructs from previous studies and adapted to the context of digital governance in the public sector. Ethical Information Technology Use was measured using indicators reflecting responsible and ethical utilization of digital technologies, Green Computing Awareness was measured through employees' knowledge and awareness regarding environmentally sustainable computing practices, and Green Digital Behavior was measured through environmentally responsible digital activities performed in the workplace. All measurement items employed a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

The minimum sample size was determined by following the recommendation of [27] for Partial Least Squares Structural Equation Modeling (PLS-SEM), which suggests that the sample should be adequate to estimate the proposed structural relationships and achieve acceptable statistical power. Prior to hypothesis testing, the measurement model was evaluated by assessing indicator reliability, internal consistency reliability, and convergent validity. Indicator reliability was assessed using outer loading values, while internal consistency was evaluated through Cronbach's Alpha and Composite Reliability (CR), with recommended values greater than 0.70. Convergent validity was assessed using the Average Variance Extracted (AVE), with a minimum acceptable value of 0.50 [27].

The research hypotheses were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) implemented through SmartPLS software. PLS-SEM was selected because it is appropriate for predictive research models that examine relationships among latent variables measured by multiple indicators while accommodating complex structural relationships [27]. The structural model evaluation included the assessment of path coefficients (β), coefficient of determination (R^2), effect size (f^2), predictive relevance (Q^2), and bootstrapping significance tests. Hypotheses were considered supported when the p-value was less than 0.05 and the corresponding t-statistic exceeded 1.96 at the 95% confidence level.

3. Result and Discussion

3.1. Respondent Characteristics

Data collection was conducted among employees of the Government of West Sulawesi Province who met the predetermined sampling criteria. A total of 120 valid questionnaires were returned and included in the final analysis. All respondents routinely utilized computers, laptops, smartphones, internet services, and the Electronic-Based Government System (SPBE) in performing their daily responsibilities. Therefore, the respondents were considered appropriate representatives for examining green digital behavior within the context of public sector digital transformation.

3.2. Measurement Model Evaluation (Outer Model)

Prior to testing the structural relationships among the research variables, the measurement model was evaluated to assess indicator reliability, internal consistency reliability, and convergent validity following the guidelines proposed by [27].

Indicator Reliability

Indicator reliability was evaluated using outer loading values. An indicator is considered reliable when its loading exceeds 0.70, although values above 0.60 remain acceptable for exploratory studies.

Table 1. Outer Loading Results

Research Variables	Item Code	r Calculated	r Table	Description
Ethics of IT Use (X1)	X1.1	0,742	0,179	Valid
	X1.2	0,685		Valid
	X1.3	0,711		Valid
	X1.4	0,698		Valid
Awareness of <i>Green Computing</i> (X2)	X2.1	0,812	0,179	Valid
	X2.2	0,765		Valid
	X2.3	0,734		Valid
	X2.4	0,789		Valid
<i>Green Behaviour</i> (Y)	Y1.1	0,776	0,179	Valid
	Y1.2	0,834		Valid
	Y1.3	0,791		Valid
	Y1.4	0,752		Valid

The results indicate that all measurement indicators exhibit outer loading values above the recommended threshold, confirming that each indicator adequately represents its corresponding latent construct.

Internal Consistency Reliability

Internal consistency reliability was evaluated using Cronbach's Alpha and Composite Reliability (CR).

Table 2. Reliability Test Results

Construct	Cronbach's Alpha	Composite Reliability	Result
Ethical Information Technology Use	0.784	0.851	Reliable
Green Computing Awareness	0.844	0.897	Reliable
Green Digital Behavior	0.862	0.904	Reliable

All constructs demonstrate Cronbach's Alpha and Composite Reliability values exceeding the recommended threshold of 0.70, indicating satisfactory internal consistency and measurement reliability.

Convergent Validity

Convergent validity was assessed using the Average Variance Extracted (AVE).

Table 3. Convergent Validity

No	Construct	AVE
1	Ethical Information Technology Use	>0.50
2	Green Computing Awareness	>0.50
3	Green Digital Behavior	>0.50

The AVE values for all constructs exceeded 0.50, indicating that each construct explains more than half of the variance of its indicators and therefore possesses satisfactory convergent validity.

3.3. Structural Model Evaluation (Inner Model)

Following the satisfactory evaluation of the measurement model, the structural model was assessed to examine the proposed hypotheses.

Coefficient of Determination (R^2)

The predictive capability of the model was evaluated using the coefficient of determination (R^2).

Table 4. Coefficient of Determination

No	Endogenous Variable	R^2
1	Green Digital Behavior	0.588

The R^2 value of 0.588 indicates that Ethical Information Technology Use and Green Computing Awareness jointly explain 58.8% of the variance in Green Digital Behavior among employees of the Government of West Sulawesi Province. According to [27], this value indicates moderate predictive accuracy, suggesting that the proposed model adequately explains employees' environmentally responsible digital behavior. The remaining 41.2% of the variance may be explained by other variables not included in the present model, such as green organizational culture, environmental leadership, organizational support, or Green IT infrastructure.

3.4. Hypothesis Testing

Hypothesis testing was conducted using the bootstrapping procedure with 5,000 resamples in SmartPLS.

Table 5. Structural Path Coefficients

Hypothesis	Relationship	β	t-value	p-value	Decision
H1	Ethical Information Technology Use $\rightarrow$ Green Digital Behavior	0.345	4.128	<0.001	Supported
H2	Green Computing Awareness $\rightarrow$ Green Digital Behavior	0.512	6.435	<0.001	Supported

The results indicate that Ethical Information Technology Use positively and significantly influences Green Digital Behavior ($\beta = 0.345$, $t = 4.128$, $p < 0.001$). Therefore, H1 is supported. Employees demonstrating stronger ethical responsibility in utilizing information technology tend to exhibit higher levels of environmentally responsible digital behavior. Similarly, Green Computing Awareness has a positive and significant effect on Green Digital Behavior ($\beta = 0.512$, $t = 6.435$, $p < 0.001$). Thus, H2 is supported. This finding indicates that employees possessing greater awareness of environmentally sustainable computing practices are more likely to engage in green digital behavior during their daily work activities. Among the two predictor variables, Green Computing Awareness exhibits the stronger standardized path coefficient ($\beta = 0.512$), suggesting that environmental awareness represents the most influential determinant of employees' green digital behavior within the proposed model.

3.5. Simultaneous Effect

The coefficient of determination ($R^2 = 0.588$) demonstrates that Ethical Information Technology Use and Green Computing Awareness collectively provide substantial explanatory power for Green Digital Behavior. The findings indicate that improvements in employees' ethical utilization of information technology combined with greater awareness of green computing practices contribute significantly to the development of environmentally responsible digital behavior within the Government of West Sulawesi Province. These results support the proposed conceptual model and confirm that both variables jointly play an important role in promoting sustainable digital governance.

3.6. Discussion

The findings of this study demonstrate that both Ethical Information Technology Use and Green Computing Awareness positively and significantly influence employees' Green Digital Behavior within the Government of West Sulawesi Province. These results indicate that environmentally responsible digital behavior is shaped not only by employees' ethical commitment in using information technology but also by their awareness of the environmental consequences associated with daily computing activities. The structural model further reveals that Green Computing Awareness exerts a stronger influence than Ethical Information Technology Use, suggesting that cognitive understanding of sustainable computing practices plays a more substantial role in encouraging environmentally responsible digital behavior among public sector employees.

These findings support the Theory of Planned Behavior [15], which proposes that individual behavior is influenced by attitudes and beliefs toward a particular action. Employees who possess greater awareness of the environmental impacts of information technology are more likely to develop favorable attitudes toward sustainable digital practices, ultimately leading to environmentally responsible behavior. In contrast, employees with limited understanding of the environmental consequences of digital technology may not recognize the importance of reducing energy consumption, optimizing digital storage, or minimizing unnecessary printing despite organizational regulations encouraging such practices.

The significant effect of Ethical Information Technology Use also confirms that ethical responsibility extends beyond issues of privacy, information security, and legal compliance. Within the context of sustainable digital transformation, ethical technology use includes responsible utilization of organizational digital resources while considering their environmental consequences. Employees who demonstrate stronger ethical

responsibility are more likely to use information technology efficiently, avoid unnecessary consumption of digital resources, and support organizational sustainability initiatives. This finding is consistent with the argument of [1], who emphasized that environmentally responsible information systems require both technological capabilities and ethical user behavior.

The stronger influence of Green Computing Awareness compared with Ethical Information Technology Use indicates that increasing employees' environmental knowledge may produce greater improvements in green digital behavior than relying solely on organizational rules or ethical guidelines. This finding is consistent with previous studies suggesting that environmental awareness is one of the strongest predictors of pro-environmental workplace behavior [8], [9]. Employees who understand how digital activities contribute to energy consumption and carbon emissions are more likely to voluntarily adopt environmentally sustainable computing practices.

From a practical perspective, these findings suggest that the successful implementation of environmentally sustainable digital governance requires balancing technological development with human resource development. Investments in digital infrastructure alone are insufficient if employees lack the knowledge and awareness necessary to utilize digital technologies responsibly. Therefore, regional governments should complement SPBE implementation with continuous Green IT education, environmental literacy programs, and organizational policies that encourage environmentally responsible digital practices. Such initiatives may include regular training on energy-efficient computing, digital document management, responsible cloud storage utilization, and organizational campaigns promoting sustainable digital workplaces.

This study also contributes to the Green Information Systems literature by demonstrating that individual behavioral factors remain essential determinants of sustainable digital transformation in the public sector. While previous studies have primarily emphasized technological capabilities and organizational readiness [3], [6], the present findings highlight that ethical responsibility and environmental awareness among employees represent equally important drivers of Green Digital Behavior. Accordingly, successful implementation of Green Information Systems should integrate technological innovation with behavioral and organizational development.

4. Conclusion

This study concludes that Ethical Information Technology Use and Green Computing Awareness both have positive and significant effects on Green Digital Behavior among employees of the Government of West Sulawesi Province. Among the two predictors, Green Computing Awareness demonstrates the strongest influence, indicating that employees' understanding of environmentally sustainable computing practices is a key determinant of responsible digital behavior. These findings suggest that sustainable digital transformation within the public sector depends not only on technological infrastructure but also on employees' ethical responsibility and environmental awareness. From a theoretical perspective, this study extends the Green Information Systems literature by integrating ethical information technology use and green computing awareness into a behavioral model explaining environmentally responsible digital practices in public organizations. The findings also provide empirical support for the Theory of Planned Behavior, demonstrating that employees' cognitive and ethical characteristics contribute to the formation of sustainable digital behavior. Practically, the findings imply that regional governments should complement digital transformation initiatives with Green IT training, environmental awareness programs, and organizational policies that encourage responsible utilization of digital technologies. Such efforts can strengthen sustainable digital governance while supporting broader environmental sustainability objectives.

Several limitations should be acknowledged. First, the study was conducted exclusively among employees of the Government of West Sulawesi Province; therefore, the findings may not be fully generalizable to other regional governments with different organizational cultures, technological readiness, and digital governance practices. Second, the proposed model explains 58.8% of the variance in Green Digital Behavior, indicating that other influential factors remain outside the scope of this study. Variables such as Green Organizational Culture, Green Leadership, organizational support, environmental policies, and Green IT infrastructure may further explain employees' environmentally responsible digital behavior. Finally, this study employed a cross-sectional survey design, limiting the ability to examine behavioral changes over time.

Future studies are encouraged to expand the research context by involving local governments from different provinces or administrative levels to improve the generalizability of the findings. Researchers may also incorporate additional organizational variables, such as Green Leadership, Green Organizational Culture, organizational environmental support, or Green IT capability, as mediating or moderating variables to develop a more comprehensive understanding of Green Digital Behavior. Furthermore, longitudinal research designs could

provide deeper insights into how employees' ethical responsibility and environmental awareness evolve during the implementation of sustainable digital transformation initiatives.

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