Impact of Big Data Technology Analytics in Determining the Sustainable Organizational Performance: A Case of South East Asian Firms

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ABSTRACT

The term "big data technology" has become increasingly popular as technology and software have advanced. Big data technology has captured the attention of a large number of business and academic professionals, who see it as the impending significant management breakthrough.This article explains how green HR training can enhance firms' financial and environmental performance, contributing to the existing knowledge of green innovation. Moreover, whether used internally or externally within a company, green supply chain management solutions enhance profitability and environmental sustainability. Sustainable supply chain management solutions enable firms to reduce costs and mitigate their environmental impact.

Keywords: Big data technology, Green supply chain, Green HR, Organizational performance, Environmental performance

1. Introduction

The term "big data technology" has become increasingly popular as technology and software have advanced. Big data technology has captured the attention of a large number of business and academic professionals, who see it as the impending significant management breakthrough. Tiwari, Wee [1] and Wahyudi, Farhani [2] believe that "big data technology" has the potential to usher in a new era of management. Intelligent individuals and businesses are becoming increasingly interested in big data technology analytics (BDA) due to its advantages over traditional statistical methods and its ability to increase organizational profitability [3, 4]. There have been numerous articles and white papers written about the current and future applications of BDA. According to the Yang, Yu [5] all organizations want to boost their spending in analytics and business intelligence products while also improving human resource capabilities in the future years.

This makes the claim that modern data analysis techniques have displaced human labour unusual. Modern technology attempts to augment, rather than replace, people's use of technological instruments. Indeed, BDA streamlines procedures and reduces the likelihood of errors among persons. Individuals are increasingly turning to Big data technology Technology analytics rather than

depending solely on intuition and previous experiences [6]. Experts are providing important and long-term solutions for improving the utilization of Big data technology technology. However, there is still much to learn about the application of big data technology technology in academia and the advancement of BDA-based projects. Numerous studies have looked into the potential of Big data technology technology Analytics (BDA) to improve business performance [4]. Determining the capabilities required for the evolution of big data technology technology initiatives, as well as whether to prioritize technical or non-technical competencies, is a fascinating and challenging task in big data technology technology analytics [7].

A complete exploration of the internal mechanisms to develop BDA-based tactics is also lacking. There has been a lot of discussion in recent years about how big data technology technology analytics could help businesses make better decisions [8]. Many companies are moving quickly to execute their big data technology technology analytics projects in order to gain a competitive edge. While some scholars and practitioners regard big data technology technology as the next frontier in innovation, competition, and productivity, others see it as a revolution that will change the way we live and work. New methods and tools for processing, storing, and visualizing data have emerged in response to the explosion in data volume, velocity, and variety. Nevertheless, the field's empirical research is somewhat simplistic, and there is a general lack of comprehension about the ways in which investments in big data technology analytics lead to competitive performance [9, 10].

Furthermore, there is a lack of understanding about how businesses should use big data technology analytics in their operations and whether investments in it may improve organizational competencies [11]. The majority of the discussion about the business usefulness of big data technology has thus far come from consulting firms, the media, and isolated case studies; nevertheless, these sources have lacked theoretical grounding [12]. As a result, there is disagreement over the technique that businesses should use for big data technology initiatives, and there is little evidence to back up the claim that these investments provide significant returns for the company [13]. Despite universal recognition of big data technology analytics as a pioneering scientific achievement by academic and business groups [14, 15], there is still debate over the conditions under which these technologies might improve competitive performance. A rising body of research analyzes the obstacles organizations face when exploiting big data technology to improve their competitive performance [16], whereas [17] caution against overconfidence in big data technology projects. Power [18] assert that although there is some evidence suggesting that big data technology analytics can enhance competitive performance, further research is necessary to validate this hypothesis.

Scholars and professionals have become more interested in the use of big data technology analytics BDA during the last decade [19]. A recent study found that the application of big data analytics (ABDA) influences the performance of businesses across multiple industries [20]. Executives are becoming aware of the potential benefits of the ABDA [12, 21, 22]. Worldwide, annual spending on big data technology analytics applications has reached billions of dollars [23]. The ABDA has the ability to improve business efficiency and performance due to its strong strategic and operational capabilities [24]. High-performing companies see the ABDA as a key differentiator

and growth driver [19]. Experts in big data technology analytics provided in-depth, data-driven insights into how businesses gained competitive advantages. Big data technology analytics is the "fourth paradigm of science," according to a particular group of academics and businesspeople [6, 25]. Similarly, Ahmadov and Helo [26] expect big data technology analytics to be the next great improvement in innovation, competitiveness, and productivity, as it represents a "novel paradigm of knowledge assets".

The term "big data technology analytics" describes the collection of enormous volumes of data and analytical procedures from many sources that give a company a competitive advantage by enhancing business performance. When it comes to decision-making, big data technology is defined by Goes [27] as diverse observational data sets with large volumes. Information technology (IT) data, data in real-time, data from social media, data in enormous quantities, and data in unconventional formats are all parts of what [28] call "big data technology" (BD). Although "variety" and "volume in big data technology" have received a lot of attention [29, 30], many studies emphasize the relevance of veracity and velocity [31]. Both appropriate tools and analytical skills are critical components of big data technology analytics [32]. Popovič, Hackney [33] define big data technology analytics as the process of collecting, integrating, evaluating, and exploiting large amounts of data from various independent sources in order to identify trends and other important information for better managerial decisions. Furthermore, Saetang, Tangwannawit [30] define big data technology analytics as the identification and implementation of significant measurements from large data sets to support decision-making.

Understanding if and how the fundamental artifacts associated with big data technology analytics contribute to improved competitive performance is critical for drawing theoretical and practical conclusions and identifying key areas for future research [34]. As a result, integrating green HRM, green supply chain management, and big data technology analytics sustainably can increase enterprises' big data technology performance across various dimensions organizational, environmental, and social ([35]. The academic literature on sustainability and enterprises' sustainable capacities is scarce. Certain studies have urged for greater research in this subject, using a variety of theoretical and conceptual frameworks as well as mixed approaches that combine quantitative and qualitative methods [1]. Also, there isn't a lot of research on sustainability that looks at the problems companies have when they try to do well in the long term through green HRM, SCM, and corporate commitment, as well as how dynamic capability theory can help with these problems.

We believe that in order to integrate the firm's resources, create sustainable skills, and achieve sustainable performance through big data technology projects, both the strategic and operational tiers of the corporation must adhere to sustainable practices. To ensure that investments in big data technology efforts deliver benefits, decision-makers must develop a comprehensive and successful strategy [36-38]have divided this methodology into three phases: routinization, assimilation, and big data technology adoption. When stakeholders recognize the value of these technologies, their determination propels them into the adoption stage. A company's governance system links to the routinization stage, where the integration of technologies into processes occurs. The assimilation

stage refers to the level of technology integration into the company's activities and its application in accomplishing organizational goals [39].

This study extends prior scholarly research on the relationships among big data technology technologies, green supply chain management (SCM), and organizational operational and environmental performance. The subsequent issues are the focal point of our investigation. In what ways may sustainable supply chain management, human resource management, and big data technology technology enhance enterprises' operational and environmental performance? What impact does the integration of big data technology technology in organizational processes have on the interaction between internal and external green supply chain management strategies, and how does this influence sustainable performance?

2. Literature Review

Businesses are increasingly turning to big data technology analytics a set of technologies for examining massive amounts of data (both internal and external) to identify relevant trends to generate new ideas [40]. Big data technology analytics encompasses modern systematic techniques to address organizational challenges that were previously considered unsolvable due to a lack of data or analytical knowledge. The most significant barrier is organizational restrictions, particularly in the strategic application of big data technology analytics [8]. Investigating big data technology analytics abilities allows this study to fill important gaps in the literature. This demonstrates how successfully an organization collects, saves, and analyzes data using both human and technical resources to produce meaningful results. Referring to the growing body of research on big data technology analytics competencies, the analysis concludes that, while big data technology is vital, it cannot considerably boost competitive performance on its own [41].

Companies seeking to leverage big data technology for competitive advantage must cultivate and procure a unique blend of financial, human, technological, and intangible resources that rivals cannot replicate. While some studies take a holistic approach to big data technology, it is still unclear how a Big data technology Analytics Capability (BDAC) leads to competitive performance benefits. Recent research indicates that changes in organizational capacity have a greater impact on competitive performance than the direct effects of BDACs [42-45]. Günther, Mehrizi [4] propose six major objectives for future studies on the relationship between big data technology and organizational success, based on a review of the current literature. The authors conclude that additional empirical research is necessary to comprehend the impact of big data technology analytics distribution on competitive performance benefits. Although there have been few empirical studies looking at the competitive performance benefits of building a BDAC, current research has found a strong overall link. According to a growing consensus in the broad field of information technology (IT-business value research, as well as a shifting perspective on IT-enabled organizational capabilities, information technology (IT) provides organizations with a competitive edge by boosting intermediate organizational capacities [11]. Managers are increasingly using big data technology analytics to drive future strategic efforts and decision-making. According to Hao, Zhang [46], investing in BDACs

undoubtedly has advantages. The primary benefit of big data technology investments for businesses is the acquisition of specialist knowledge necessary to derive smart insights [2]. Wamba, Gunasekaran [9] demonstrate that a socio materialistic approach to BDACs promotes organizational performance. Still, the key claim of all of the preceding research is that boosting competitive performance necessitates more than just knowledge; it necessitates a significant shift in organizational capacity. It is critical to examine the factors that influence the relationship of a company's BDAC and other organizational skills, as well as how these competencies affect competitive success [47, 48].

A company's competitive advantage stems from the skill it has gained through environmental responsiveness projects. Organizational capabilities refer to how a corporation makes the best use of its tangible and intangible resources to achieve its objectives [49]. From this perspective, capabilities serve as the foundation for a company's competitive advantage since they demonstrate its ability to attain certain goals through strategic planning [50]. Investing in a company's long-term competitive strategy entails taking deliberate activities that promote positive organizational characteristics [51]. Organizational skills, with their strategic application and intricate relationships, rely on the optimum resource allocation and use [52]. According to [53] capacity is a complex set of behaviors that are trained on purpose, highly ordered, repeated, or almost repetitive behaviors that depend on implicit information. Strategic management research has recently made significant progress, enhancing and sharpening a variety of organizational skills. Talents fluctuate according to their internal and external environments, affecting a company's overall performance and competitiveness [49]. Dynamic capacity and operational capacities differ significantly [54]. The assumption is that businesses must be strong enough to consistently give unique value and adaptable enough to adjust their value proposition as needed. In imperfect markets, a wide set of business abilities is required to distinguish rent differentials and generate competitive advantages [9]. Significant market volatility, environmental unpredictability, and ongoing change have created concerns about deteriorating operational capabilities and a loss of competitive advantage [45]. These circumstances make it prudent to concentrate on enhancing change capacity and boosting operational capabilities. According to Colombo and Grilli [55] managers in their organizations encounter issues based on their previous knowledge and experiences, particularly in a nonlinear market environment. This necessitates real-time data-driven reorganization of concepts by corporate executives, the promotion of cross-functional collaboration, and the utilization of many communication channels.

Examining the resource configurations that connect critical business activities like product development, resource distribution, and knowledge generation processes aids the dynamic capabilities framework in determining a company's skills [49]. Leveraging these competencies gives the organization a competitive advantage in the market since it encourages new ideas and the integration of data, technology, and human talent. During the routinization phase, the company's organizational structure is critical since it enables the incorporation of technology into its operations [56]. Effective data assimilation is dependent on established methodologies supported by infrastructure, such as data interchange and connections, as well as extensive support. Strong devotion, according Ekambaram, Sørensen [57], enhances supply chain operations and overall

corporate success. To stay up with the expanding technological breakthroughs, the organization must consider outside influences and guarantee that decision-makers are prepared to deal with the difficulties that these developments bring [58]. The rapid changes in the market and the faster depletion of natural resources necessitate sustainable approaches to resource management and use for enterprises [59]. This creates significant barriers to firms' financial development, forcing them to adopt environmentally friendly practices and participate in energy-efficient initiatives with high commercial value, social issue resolution capability, and long-term advantages [60].

Through strong corporate commitment, decision-makers should prioritize and support environmental actions such as the deployment of green technology and the acceptance of green supply chain management (both internal and external) [61]. This will help accelerate green innovation. Green technologies are essential if we are to advance sustainability [62]. They will leverage cutting-edge technologies as they evolve to reduce their environmental effect, boost recycling efforts, and reduce energy use [63]. As a result, for green innovation initiatives incorporating internal supply chain management to be effective, all supply chain participants must work together [64]. A sustainable supply chain system is one in which suppliers meet the environmental standards established by businesses and consumers. Pintuma and Aunyawong [64] demonstrate in their study that organizations that use ecologically friendly strategies increase their competitiveness and help people become more aware of their surroundings.

Various industries employ green supply chain management (GSCM) as an important environmental strategy to enhance the ecological performance of supply chains and individual enterprises [65]. As Fawcett and Waller [66] point out, the massive amounts of data generated and gathered by businesses may impede decision-making processes. Nonetheless, this data has tremendous potential and untapped value, making significant gains feasible. Big data technology has boosted efficiency and revenue growth in a variety of industries [67]. This highlights big data technology as a potential technological and industry advantage that could enhance economic competitiveness. Big data technology involves a variety of challenges, including data collection, storage, processing, and display. Cloud computing is just one of the practical solutions to the difficulties that big data technology presents [16]. Analyzing vast, diverse, and dynamic datasets presents significant challenges; these technologies and methodologies strive to improve and maximize existing approaches to this goal. Mishra, Gunasekaran [68] investigated the relationship between big data technology, predictive analytics, and supply chain management in data science. They carefully considered the knowledge and skills required of future supply chain managers.

Human resource policies emphasizing sustainability, a focus on a sustainable supply chain, and a firm's aim to enhance operational and environmental performance all contribute to modern technology [10]. Furthermore, big data technology projects demonstrate how organizations leverage their data through resource reallocation, transcending individual efforts (Braganza et al., 2017). Many studies concentrate on big data technology analytics. Big data technology technologies are critical tools for businesses that operate in dynamic environments and must adapt to changing market conditions. Emphasizing this fact Jobs, Aukers [69] demonstrates the application of the dynamic

capabilities' method. Creative ideas must include environmentally friendly goods and activities that reduce environmental impact, such as reduced energy consumption and pollution, garbage recycling promotion, and the use of renewable resources [70]. Previous research indicates that the successful implementation of green innovation in the workplace is crucially dependent on environmental ethics and company commitment [71]. According to Wu [72], more and more businesses are embracing green supply chain management solutions to reduce their environmental impact and increase operational efficiency.

Albqowr, Alsharairi [73] developed a paradigm that clarifies the application of big data technology analytics in supply chain management, emphasizing a major challenge for businesses today as a result of data-driven strategies and operations. This adjustment helps firms achieve operational excellence and gain a competitive advantage. Effective end-to-end supply chain coordination is significantly dependent on the integration of data sets from multiple systems utilized throughout the chain. In supply chains, a data-centric method is the use of radio frequency identification tags to monitor in-transit and on-hand inventory in relation to current stock levels [68]. This enhances the efficiency of filling inventory orders. Combining data with the relevant organizational tools improves supply chain management procedures and increases corporate value ([47] Adopting and implementing green supply chain management techniques that promote procedural openness can help businesses improve their financial and environmental performance [74]. To remain competitive in ever-changing markets, organizations must implement green process innovations and develop long-term relationships with their suppliers [75].

Big data technology integration aids internal green supply chain management by promoting and standardizing practices. The rush of fresh data exposes inadequacies in old environmental theories and methodologies in terms of consistency and accuracy [12, 24]. Several social and environmental factors influence performance and creativity; big data technology's unique characteristics reflect these aspects [76, 77]. Jiang [78] found that combining big data technology and predictive analytics improves the social and environmental performance of Indian industrial firms. Researchers have extensively researched big data technology analytics for its ability to assist businesses in lowering carbon emissions and their associated negative repercussions [79, 80] Furthermore, their research demonstrates progress in social sustainability [81], economic performance [78], and overall success in all three areas [82]. Big data technology analytics stresses sustainable practices and environmental performance, revolutionizing corporate operations, according to Zhu and Du [47] review of the benefits and cons of climate change for business. Companies can accomplish sustainable growth by utilizing green technology to recycle trash, conserve energy, and reduce pollution as needed [73]

Businesses that practice sustainability both internally and with their supply chain partners must address an expanding number of technological difficulties requiring big data technology integration. Sustainable HR policies and corporate commitment seek to improve organizational and environmental performance, addressing these issues [32] explored the relationship between corporate commitment and successful implementation of green standards, with a focus on the impact of internal motivations on companies' adoption of green supply chain management. Russom [29]. investigated

the factors and consequences of green technology adoption by firms, discovering that "going green" initiatives increased environmental performance. Thus, sustainable human resource practices are critical in encouraging the adoption of environmentally sustainable management practices, effective operations management that emphasizes sustainability, and green technologies. Studies have shown that environmentally conscious human resource policies boost firm performance and sustainability [83].

Emphasizing the importance of evidence-based decision-making, numerous research studies in the current literature have studied the positive relationship between BDA competencies and corporate success. investigated the significant and positive correlation between business performance and IT competency. Mohammadpoor and Torabi [84] discovered that business process and decision-making performance moderated the positive relationship between information management competencies and organizational success. Jha, Agi [80] used big data technology analytics methods to study how organizational performance varied in terms of business strategy alignment. Wang and Hajli [85] recommend five strategies for implementing Big data technology Analytics (BDA) in healthcare organizations: (1) establishing governance for big data technology; (2) cultivating an information-sharing culture; (3) training key personnel in BDA use; (4) incorporating cloud computing into the organization's BDA framework; and (5) using BDA to generate creative business concepts.

Karimi, Haghi Kashani [86] investigated the positive association between company performance, large data-driven projects, and data-proficient teams. They also discovered the talents and methods employed by teams with strong big data technology capabilities. Given the minimal possibility that any single person possesses significant expertise in this sector, the authors emphasize the importance of diverse knowledge in big-data stream capabilities. BDA skills include human, intangible, and tangible talents, which Li and Jiang [87] discovered to be positively associated with innovation. Contextual factors such as instability, variety, and hostility also influence the relationship between BDA capacities and creativity. Companies that make judgments based on genuine data and use resources to optimize synergy typically perform well in the market. Sivarajah, Irani [88] adopted a different approach, focusing on the impact of Big data technology Analytics (BDA) on company success. They created a four-domain framework to demonstrate the potential challenges with various approaches to deploying Big data technology Analytics (BDA). Companies with rudimentary data as well as massive data analytics capabilities are more likely to fail.

Based upon the review of existing literature following research model is presented in figure 1.

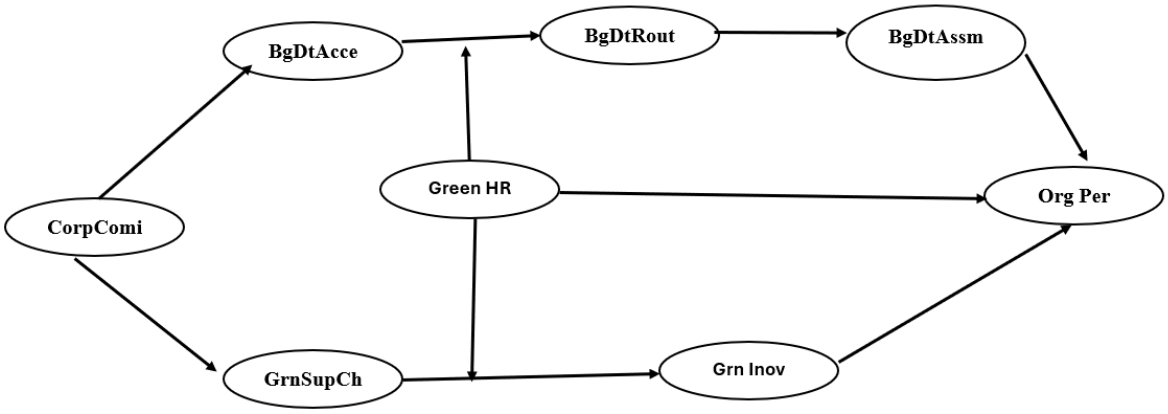

Figure 1. Research Model

Where CorpComl stands for the organization's commitment towards the implementation of Big data technology, BGDtAcce stands for acceptance of Big data technology by the organization as a whole, and the GrnSupCh depicts the Green Supply Chain practices adopted by the organization. Green HR symbolizes the organization's adoption and acceptance of environmentally friendly human resource practices, while Grn Inov stands for environmentally sustainable innovation practices, also referred to as Green Innovation. The BgDtRout signifies the organization's routine use of Big data technology, the BgDtAssm signifies the organization's integration of Big data technology practices and procedures, and the OrgPer signifies the overall performance of the organization following the adoption of these Big data technology procedures and practices.

Based upon the research model following research hypothesis are formulated.

- (H1) Corporate commitment has a positive effect on the acceptance, routinization, and assimilation of big data technology
- (H2) there is an internal and external positive effect of corporate commitment on Green Supply Chain practices.
- (H3) Internal Green Supply Chain practices are positively impacted by the positive assimilation of big data technology routinization and acceptance.
- (H4) Organizational and environmental performance are shown to benefit from the positive effects of big data technology assimilation through acceptance and routinization.
- (H5) The internal and external practices of a Green Supply Chain positively affect the performance of both the firm and the environment.

3. Research Design

3.1 Data and Sample

The purpose of this study is to analyze how significant data-driven efforts affect long-term performance by looking at the internal processes that lead to sustainable capabilities. The study investigates the impact of decision makers' dedication, the relationship between organizational and

environmental sustainability, green supply chain management practices (internal and external), and big data technology integration. Along with the previously identified relationships, our study investigates the impact of environmentally friendly HR management, which includes sustainable HR practices and training, on these variables. To assess the study's conceptual framework, we ran a survey that looked at the construct and hypotheses. First, we constructed a preliminary questionnaire and then assessed the content validity of the scale. We designed the survey items to gauge respondents' attitudes and feelings towards the various constructs. We provide detailed explanations of the items used to assess these constructs below.

Individuals in diverse roles within organizations implementing big data technology strategies and sustainable supply chain management methodologies were the intended audience. Participants demonstrated a comprehensive awareness of sophisticated data technology, supply chain tactics, and their organizations' overall success. We used convenience sampling and reached out to potential study participants through our personal networks. We contacted six hundred potential volunteers via email and encouraged them to participate in the study. We examined the study participants and validated the model using data from 233 employees.The study looks at personnel from Vietnam, Malayasia, Cambodia and Thailand. A cover letter accompanying the questionnaire stated the study's purpose. Respondents returned 136 valid questionnaires, giving a 58.36% response rate in this study. Furthermore, we used the demographic data to run a chi-square test, comparing early respondents (those who completed the survey within two weeks of receipt) to late respondents (those who submitted the whole questionnaire after 20 to 25 days and many reminders). The data show little difference between those who reacted early and those who responded late. As a result, it provided further assurance that our study is free of errors.

4. Results and Discussion

To investigate each component of the conceptual paradigm, we used objects of varying size. We examined 59 aspects, including corporate demographics and a conceptual study model. We evaluated environmental product improvements using the four criteria suggested by [89]. Recycling, biodegradable, non-toxic, and clean materials open up several alternatives for green product enhancements that encourage environmental sustainability. To measure green process innovation, we used four questions developed by Chiou, Chan [89]. These examples show how industrial operations and production can meet environmental criteria. Among other things, we created sample products to track resource consumption (e.g., oil, gasoline), improve environmental efficiency, and promote the use of renewable technology. We examined green supply chain collaboration using the five variables proposed by [89]. Examples include "selecting suppliers based on environmental issues" and "conducting training and seminars on environmental awareness for suppliers." Pavlou, Liang [90] developed a loyalty index to measure employee loyalty to their organizations. Executives express their commitment to the company's goal by implementing sustainable practices, exchanging expertise, working together to improve the environment, using metrics to analyze the efficacy of supply chain links, and detailing future collaboration initiatives. According to Hazen, Boone [24]), the

methodologies for evaluating big data technology adoption and standardization include three and five questions, respectively.

4.1 Data Analysis

We tested our hypothesis in this study using PLS-SEM and Smart PLS 3. Hair, Hult [91] reports that PLS-SEM requires a smaller sample size than classic covariance-based SEM. Previous research in big data technology and business analytics has supported the use of PLS-SEM for evaluating complicated models [92]. PLS-SEM is an effective method for estimating a complicated hierarchical model that accurately reflects soft modelling concepts. The PLS-SEM method analyzes the route coefficients for the precision of the inner and outer models in two steps Çolak and Kağnıcıoğlu [93] advocate looking at the outer model to check the constructs' reliability coefficients, convergent validity, and discriminant validity. After validating the outer model, we fitted the inner model to get the route coefficients. We also examined the bootstrapped significance of the findings. We used a multi-group study to investigate the connection between training and green HRM practices. We used cluster analysis to characterize the respondent organizations based on their HR practices. According to Sarstedt, Ringle [94] the efficacy of this technique stems from its function in classifying these firms.

4.2 Analyzing the outer model

For all latent variables, we utilized a reflective approach and evaluated the model on the entire, unstandardized dataset. We assessed latent idea discriminant and convergent validity using SmartPLS3 software and the PLS-SEM technique. Every construct in the study demonstrated convergent validity, as evidenced by factor loadings of at least 70%. According to [95], basic structures can explain a wide range of variables. The bootstrapping procedure revealed that at the 0.01% level, all loadings were statistically significant. Table 1 reveals that each building had an average variance extracted (AVE) value greater than 0.5. We think that the scale in Table 1 is more reliable as suggested by [95]. This is based on our most recent estimates. This allows us to conclude that the research constructs are reflective, consistent, and unidimensional. According to Fornell and Larcker [96], all research designs demonstrated discriminant validity, which means that the average variance extracted (AVE) exceeded the variance shared by other structures. Table 1 indicates that the diagonal values outnumber all other numbers in their respective rows and columns.

Table 1. Analyzing the Outer Model

	CRONBACH'S ALPHA	COMPOSITE RELIABILITY	AVERAGE VARIANCE EXTRACTED
BGDTACCEPT	0.596	0.789	0.61
BGDTASSEM	0.791	0.799	0.596
BGDTROUTN	0.801	0.776	0.661
CORPCOMIT	0.856	0.805	0.712
GRN INOV			
ENVPERF	0.891	0.891	0.846
GRNSUPCHCOLAB	0.792	0.896	0.596
ORG PER	0.781	0.914	0.691

Source: Present Reaserch

4.3 Inner Model Analysis

Before we began studying the inner model, we examined the model's R2 values. According to the observed results, the model explains an appropriate degree of idea variation and meets the established criterion for adequate nomological validity [97]. One then calculated the coefficients for the inner model path. We evaluated the structural model by calculating the route coefficients between the components. Benitez, Henseler [98] used the bootstrap technique to approximate the inner model route coefficients and outer loadings, as shown in Table 3. T-statistics obtained from bootstrapping above 1 demonstrate the relevance of each path coefficient. Our present data can support theories H1-H5. Our primary purpose in conducting this research was to discover how corporate dedication can help establish lasting skills.

Table 1. Inner Model Analysis

	BgDtAccept	BgDtAssem	BgDtRoutn	CorpComit	EnvPerf	Grn Enviro	GrnSupChColab	Org Per
BgDtAccept	**0.712**							
BgDtAssem	0.401	**0.801**						
BgDtRoutn	0.596	0.492	**0.822**					
CorpComit	0.312	0.396	0.312	**0.893**				
EnvPerf	0.221	0.61	0.296	0.651	**0.897**			
Grn Inov	0.254	0.496	0.203	0.596	0.699	**0.901**		
GrnSupChColab	0.321	0.496	0.401	0.61	0.596	0.661	**0.801**	
Org Per	0.396	0.489	0.345	698	0.496	0.701	0.71	**0.782**

Source: Present Reaserch

Table 3. Descriptive Statistics

Direct Effects	*Original Sample*	*Sample Mean*	*S. D*	*T-Statistics*
BgDtAccept > BgDtRoutn	0.824	0.828	0.048	16.050
BgDtAssem > EnvPerf	0.373	0.373	0.084	3.109
BgDtAssem > GrnInvo	0.461	0.461	0.066	5.766
BgDtAssem > Org Per	0.326	0.325	0.098	2.022
BgDtRoutn > BgDtAssem	0.664	0.665	0.071	8.099
CorpComit > BgDtAccept	0.371	0.374	0.077	3.512
CorpComit > GrnSupChColab	0.883	0.886	0.053	15.528
GrnInvo > EnvPerf	0.576	0.581	0.081	5.842
GrnInvo > Org Per	0.554	0.557	0.086	5.083
GrnSupChColab > EnvPerf	0.557	0.559	0.062	7.721
Direct Effects				
BgDtAssem > EnvPerf	0.206	0.209	0.043	3.498
BgDtAssem > Org Per	0.199	0.200	0.041	3.490
BgDtRoutn > EnvPerf	0.299	0.300	0.048	4.893
BgDtRoutn > Grn Enviro	0.238	0.237	0.039	4.751
BgDtRoutn > Org Per	0.271	0.271	0.055	3.618
CorpComit > BgDtAssem	0.122	0.125	0.036	2.072
CorpComit > EnvPerf	0.226	0.231	0.039	4.570
CorpComit > Grn Enviro	0.425	0.429	0.052	6.931
CorpComit > Org Per	0.214	0.219	0.039	4.131
GrnSupChColab > EnvPerf	0.249	0.253	0.049	3.793
GrnSupChColab > Org Per	0.240	0.244	0.053	3.255

Source: Present Reaserch

5. Conclusions

Our research may enhance both the theory of big data technology analytics and corporate sustainability in the future. Companies achieve superior long-term performance when they make a firm commitment to the adoption and regular utilization of big data technology. Our research shows that a company's internal and external implementation of green supply chain management strategies influences both financial and environmental performance. Our research indicates that the influence of green innovation on the financial and environmental performance of enterprises is contingent upon the extent of green HR training provided to their employees. Projects centered on green innovation exhibited a stronger correlation with environmental and financial success for organizations that provided their employees with modern green HR training. To optimize the benefits of green innovation, it is essential to invest in training for green human resources to enhance employee competence. This article explains how green HR training can enhance firms' financial and environmental performance, contributing to the existing knowledge of green innovation.

Moreover, whether used internally or externally within a company, green supply chain management solutions enhance profitability and environmental sustainability. Sustainable supply chain management solutions enable firms to reduce costs and mitigate their environmental impact. Our research indicates that these efforts cannot progress without the support of senior management. Thirdly, we contend that our research demonstrates that the application of big data technology presents significantly greater technological obstacles for companies that adopt sustainable practices in their operations and external activities, including green supply chain management. Any successful

organization must prioritize sustainable human resource management practices and environmental accountability. Employees will pursue more training in these methods if they believe it would enhance their financial and environmental performance. Organizational development and sustainability result from new technologies, ecologically responsible management, efficient operations, and sustainable human resource practices.

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