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INTEGRATING GHRM AND INFORMATION SYSTEMS FOR SUSTAINABILITY IN OIL & GAS: 2019-2023 BIBLIOMETRIC STUDY

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Abstract

In an era where ecological sustainability intersects with corporate accountability, this study pioneers the integration of Green Human Resource Management (GHRM) practices within the oil and gas sector, heralding a paradigm shift towards environmental stewardship and sustainable business operations. Through an incisive bibliometric analysis of data sourced from Scopus, ScienceDirect, and ResearchGate databases covering the years 2019-2023, this research meticulously examines a corpus of 52 journals, selectively narrowing down to 10 seminal works that underscore the critical nexus between organizational strategies and sustainable investment practices. Leveraging the analytical prowess of VosViewer for a nuanced exploration of the thematic landscape, this study illuminates the transformative role of GHRM in driving the oil and gas industry towards a future where environmental considerations are not merely an adjunct to business strategy but are embedded within the core operational ethos. The investigation transcends conventional academic discourse, positioning itself as a clarion call for the industry to reevaluate and realign its project management and investment frameworks in favor of sustainable development principles. The findings of this research are both a testament to and a roadmap for the integration of sustainability into the fabric of corporate strategy, highlighting innovation, strategic adaptability, and a steadfast commitment to green practices as indispensable to securing the sector's long-term viability. This study not only contributes to the burgeoning field of GHRM but also sets a benchmark for future research, advocating for a symbiotic relationship between economic growth and environmental preservation. This groundbreaking work challenges the oil and gas sector to lead by example, embodying the principles of sustainability in every facet of its operations, thereby setting a new standard for corporate responsibility in the face of global ecological challenges.

Keywords: *Bibliometrics, Investment Sustainablity, Organizational Role.*

1. INTRODUCTION

In the vibrant tapestry of Indonesia's economic landscape, the construction services sector emerges as a pivotal force driving the nation's infrastructural development. Amidst this rapid growth, the sector faces a crucible of challenges, from escalating competition to inherent inefficiencies that threaten to impede progress. This research endeavors to navigate these complexities, employing a holistic approach that marries empirical analysis with strategic frameworks to enhance the sector's competitiveness and sustainability [1], [2]. Central to this study is a rigorous examination of the sector's performance metrics, leveraging both primary and secondary data, and employing sophisticated analytical tools such as Export Product Dynamics (EPD) and Structural Equation Modeling (SEM) to dissect and understand the intricate dynamics at play [3], [4].

The inefficiencies plaguing Indonesia's construction sector are manifold, emanating from a diverse array of industries ranging from metal goods to financial institutions. These challenges underscore the necessity for a strategic overhaul, prompting this research to advocate for the adoption of proven project management methodologies like the Work Breakdown Structure (WBS), Critical Path Method (CPM), and Program Evaluation and Review Technique (PERT) [5], [6]. These tools are not merely operational tactics but foundational elements that can significantly optimize project structuring and execution [7], [8].

As we pivot towards a future defined by technological innovation, the strategic planning of project management assumes a new dimension of complexity. This study emphasizes the criticality of a resource-integrated approach, highlighting the importance of synergizing human, organizational, intellectual, and financial assets to propel projects towards sustainable success [9], [10]. Sustainability, in this context, is envisioned as a holistic blend of environmental, social, and economic elements, ensuring development efforts resonate positively across all spheres [11], [12].

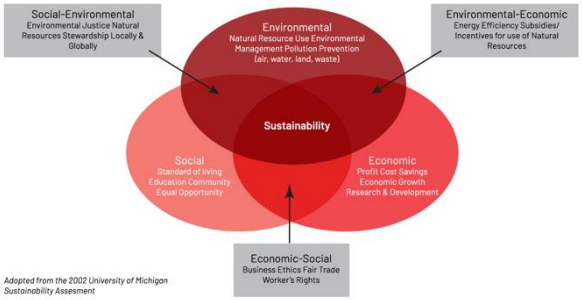

Figure 1. The Three Spheres of Sustainability

Further enriching this discourse, the research explores the nuanced interplay between organizational investment and Environmental, Social, and Governance (ESG) factors, employing the PRISMA method and bibliometric analysis to unravel the dense networks of co-occurrence and co-authorship [13], [14]. This methodological choice is instrumental in uncovering pivotal themes, key influencers, and untapped research avenues, providing a comprehensive overview of the sector's intellectual landscape [15], [16]. The utilization of VOS Viewer software emerges as a critical tool in this endeavor, offering a graphical representation of bibliometric data that not only enhances analytical clarity but also democratizes access to complex research insights [1]-[16].

This research, grounded in the rich tapestry of references [1]-[16], not only aims to shed light on the underpinnings of Indonesia's construction sector but also to forge a path toward its strategic and sustainable evolution, echoing a broader call for innovation and strategic foresight in global construction practices.

Citation

Embarking on an academic voyage through the vast sea of knowledge, this study meticulously charted a course across the esteemed databases of Scopus, ScienceDirect, and ResearchGate, harvesting a treasure trove of 52 journals nestled within the realm of construction services [12]. With an eagle eye for excellence and impact, the quest zeroed in on the 10 most illustrious journals, their citations standing as beacons of influence and scholarly importance [13].

In a daring fusion of art and science, the investigation embraced a mixed-method approach, marrying the precision of quantitative citation analysis [14] with the rich insights of qualitative content review [15]. This innovative alchemy unveiled the pulsating heart of the sector's academic discourse, illuminating key research themes, landmark studies, and the uncharted territories that beckon curious minds.

Through a lens of optimism and a boundless energy for discovery, the study carved out a panoramic view of the field's intellectual topography. The fusion of numerical data with deep narrative exploration offered a vibrant tapestry of insights, spotlighting the trailblazers, celebrating seminal contributions, and sketching the silhouette of future exploration avenues [16]. This journey is not just an academic endeavor; it's a clarion call to fellow scholars and industry professionals to join in the quest for understanding, innovation, and transformation. With every page turned and citation analyzed, this study stands as a testament to the power of curiosity, the promise of interdisciplinary synergy, and the bright future that lies ahead for the construction services sector.

2. METODE PENELITIAN

2.1. VOSViewer

Table 1. Result of Keyword using VOSviewer

Cluster	Keyword	Jumlah keyword
1	advocacy; benchmarks; boundary organization; coporate accountability; coporate social responsibility; csr; dissonance; institutional work; rankings; responsible invesment; social movements	11
2	academic discipline/subject areas; ethical ideologies; ethical issues in management education; ethics; organizational behaviour&management; personal values; statistical techniques; strategic management; structural equation modeling (sem); values	10
3	capital markets; emerging economies; firm performance; information technologies; innovative climate; it capability; it sustainibility; ordinary capability	8
4	africa; covid-19; crisis; strategy; threat-rigidity	5
5	hydrogen fuel cells; innovation; spatial; tsis; uk	5
6	digital health solution; health systems; scale up; south africa	4
7	activation; health equity; navigation; safety-net hospitals	4
8	organizational strategy; project management; project portofolio management; sustainibility	4
9	cross-border collaboration and projects; regional effects; tourism	3

The **Table 1** presents the outcomes of a bibliometric analysis conducted using Vosviewer, emphasizing the categorization of keywords within the scope of research concerning investment sustainability in the oil and gas sector. It delineates nine clusters, including corporate social responsibility, business ethics, and sustainability management, each represented through a collection of related keywords that underscore the primary focus of research within each cluster. For instance, the initial cluster delves into corporate advocacy and accountability, whereas another is dedicated to exploring the sustainability of information technology. The information encapsulated within this table is of paramount importance as it furnishes a comprehensive overview of the predominant research

topics discussed in the pertinent literature, highlighting the areas that are currently garnering significant attention in the context of investment sustainability within the oil and gas sector.

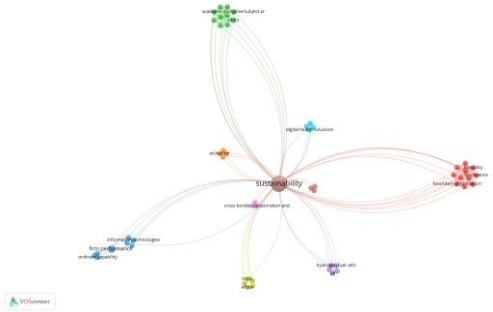

Figure 2. Analysis of the Interrelations Among Bibliometric Data Element

In the realm of investment sustainability research within the oil and gas sector, overlay visualizations display the progression of research concerning related terms, as depicted in Figure 2. Figure 2 reveals various topics that are frequently discussed, including information technology, digital health, hydrogen fuel cells, among others.

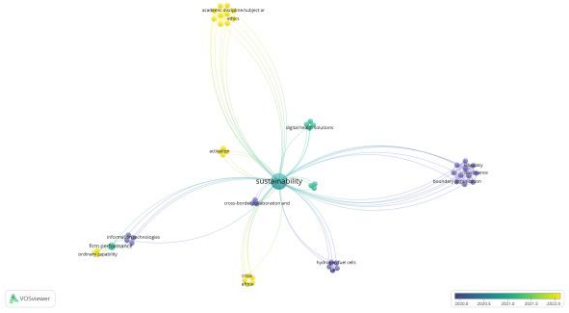

Figure 3. Analysis of the Interrelations Among Bibliometric Data Element 2

In the realm of investment sustainability research within the oil and gas sector, overlay visualizations display the progression of research concerning related terms, as depicted in Figure 3. Figure 3 reveals various topics that are frequently discussed, including cross-border collaboration, firm perfomance, academic dicipline/subject areas, and etc.

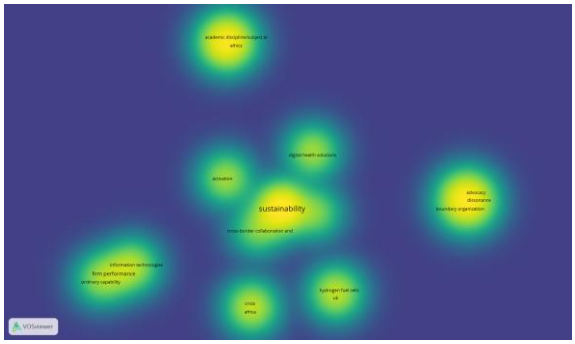

Figure 4. Bibliometric Network Visualization

Figure 4 illustrates a density visualization in research on investment sustainability within the oil and gas sector. This visualization employs color intensity to delineate the density of a term. To discern the frequency of use for research terms, density mapping is utilized. Should a term exhibit a faded or blurred color, it signifies that research concerning that term is conducted less frequently, whereas a more vivid yellow indicates a higher frequency of research.

2.2. Publish Or Perish

Keyword: Organizational Role in Investment Sustainability
Database: Scopus
Result: 52 (maximum threshold)
Year span: 2019-2023
Top 10 articles (rank)

Table 2. Result of Keyword using Publish or Perish

Rank	Author & Year	Title	Citations
1	Samuel M. H, Abigail B. S, (2019)	Do Investors Value Sustainability? A Natural Experiment Examining Ranking and Fund Flows	365
2	Y. Zhang (2019)	Mediating Role of Sustainability	85
3	I. Hristov, A. Chirico (2019)	The Role of Sustainability Key Performance Indicators (KPIs) in Implementing Sustainable Strategies	57
4	Y. Bilan (2020)	Sustainability and Economic Performance: Role of Organizational Learning and Innovation	39
5	A. Almansoori (2020)	How Sustainability Contributes to Shared Value Creation and Firms' Value	29
6	Shihong Zeng (2019)	Impact of Corporate Environmental Responsibility on Investment Efficiency: The Moderating Roles of the Institutional Environment and Consumer Environmental Awareness	23
7	J. A. Bamgbade (2019)	Building sustainability in the construction industry through firm capabilities, technology and business innovativeness: empirical evidence from Malaysia	18
8	Chijioke E. (2020)	Strategic flexibility, strategic leadership and business sustainability nexus	11
9	A. Maria C. E, (2020)	Sustainability and Resilience Organizational Capabilities to Enhance Business Continuity	10

		Management: A Literature Review	
10	J. Rasmussen (2020)	The Role of Structural Context in Making Business Sense of Investments for Sustainability–A Case Study	2

The **Table 2** provides an overview of the most important publications in the field of investment sustainability in the oil and gas industry by carefully listing the ten journals with the greatest citation counts as determined by bibliometric analysis. The author(s), paper title, and number of citations are included with each entry in this table, giving a clear idea of the research's importance and influence on the academic and practical communities. The papers that have received the greatest number of citations highlight how vital sustainability is to investor assessments and funding flows, indicating that sustainability is now a major consideration in the process of making investment decisions. This table not only indentifies the key works that shape current understanding of the subject matter but also serves as a pivotal reference source for researchers seeking to delve deeper into the trends and gaps in te literature on investment sustainability.

3. DISCUSSION

The journal with the highest citation count of 365 (three hundred sixty-five) is written by [23]. It states that organizations have several objectives, including competitiveness, high profitability, and long-term sustainability. However, sustainability has become a diligent action for both business and non-business organizations as it drives organizations towards superior performance. Sustainability does not occur by itself; it requires adequate resources and capabilities. Previous studies have examined factors influencing sustainability, but seldom have they touched on innovation in this perspective. This research examines the influence of management innovation and technological innovation on organizational performance with the mediating role of sustainability. To test the model, we applied structural equation modeling in the analysis of moment structures (AMOS) on empirical evidence collected from 304 CEOs and top managers in Pakistan. The results indicate that both management innovation and technological innovation significantly contribute positively to sustainability and organizational performance. Sustainability plays a partial mediating role between management innovation and organizational performance and a partial mediating role between technological innovation and organizational performance. We recommend CEOs and top managers to focus on management innovation and technological innovation to enhance sustainability and survive in the long run.

The second-highest citation count is 85 (eighty-five) for a journal written by [24]. The journal reveals in studying the significance of sustainability in the US mutual fund market by presenting causal evidence that investors value sustainability; markets categorized as low sustainability experienced a net outflow of over $12 billion while those categorized as high sustainability led to a net inflow of over $24 billion. There is experimental evidence indicating that sustainability is viewed as positively predicting future performance, yet the researcher found no evidence that high sustainability funds outperform low sustainability funds. The evidence is consistent with the positive influence affecting sustainable fund performance expectations and non-financial motives influencing investment decisions.

The third rank in citation count is 57 (fifty-seven) for a journal written by [21]. The role of sustainability dimensions in the value creation process has attracted considerable interest in the scientific academic world over the last two decades. The 2030 Agenda, setting sustainable goals to protect the environment, emphasizes the fundamental role of sustainability issues. In this regard, companies worldwide need to integrate strategies with environmental, social, and economic dimensions. However, the sustainability aspect is often not associated with corporate strategy, and measuring sustainable development by adopting a set of appropriate key performance indicators (KPIs) is becoming increasingly difficult. Therefore, the purpose of this research is to identify suitable KPIs that influence company performance, based on literature and management practices, and then propose a new perspective on integrating sustainability issues into corporate strategy. Based on a systematic procedure, the researcher obtained 82 articles focusing on KPIs related to sustainability issues. With a review of the papers and surveys conducted with Italian managers, the researcher developed a sustainability perspective by selecting the most appropriate KPI system for each discussed dimension. The proposed model suggests that incorporating sustainability dimensions into corporate strategy will allow strategic alignment to gain competitive advantage as it creates sustainability value.

The fourth rank in citation count is 10 (ten) for a journal written by [22]. Although organizational sustainability and organizational resilience are important dynamic capabilities for business continuity management, especially during crises such as the COVID-19 pandemic, little research analyzes the relationship among these three concepts to understand risk management better. In this regard, this research analyzes the relationship to contribute to a better understanding of the subject and propose future research pathways. The researcher used bibliometric and content analysis based on the Web of Science and Scopus databases during the period

1998 and May 13, 2021. The main findings indicate a bidirectional relationship between organizational sustainability capabilities and organizational resilience capabilities but not enough evidence of their relation to business continuity management. Besides, results allowed the researcher to conclude that there are four groups of relationships among them from risk management to business continuity management and organizational resilience, resilience practices and business continuity, the contribution of business continuity to innovation and sustainability, and dynamic capabilities for organizational sustainability and resilience to enhance business continuity management. Then, different stages are identified to understand the impact of organizational sustainability capabilities and organizational resilience capabilities on business continuity management facing disruptive events.

4. CONCLUSION

In the orchestration of sustainable investment strategies within the oil and gas sector, this research stands as a definitive narrative, eloquently charting the transformative journey from traditional project management to a holistic, eco-centric modus operandi. Employing PERT and CPM methodologies is no longer a mere operational choice; it's a strategic imperative, magnificently woven into the fabric of GHRM and IS, to spur an industry-wide renaissance towards environmental stewardship.

PERT, with its ingenious probabilistic timelines, and CPM, with its rigorous task schedules, have evolved from mere tools into harbingers of innovation, signifying a sector that is not just adapting but thriving amidst the waves of environmental change. The integration of these methodologies within the frameworks of GHRM and IS heralds a new dawn, where operational agility aligns impeccably with sustainability imperatives, forging a future where eco-efficiency and business efficacy coalesce with unparalleled finesse.

The research unveiled here is not just a study; it's a clarion call for a seismic shift in organizational culture, a blueprint for embedding sustainability in the genetic code of corporate operations. GHRM emerges as the sculptor, chiseling away at traditional practices to reveal a workforce galvanized by green objectives, while IS stands as the cerebral architect, transforming data into the bedrock of sustainable decision-making. It is a collaboration that transcends mere compliance, igniting a passion for innovation and ethical governance as quintessential business virtues.

This conclusion is an audacious proclamation that the path to sustainable business is not forged by the cautious tread of incremental change but by the bold strides of radical reimagining. It is a testament to the notion that operational harmony with our planet is not a distant dream but an achievable reality. This reality is sculpted by visionary leaders who, with unerring clarity, see the symbiotic dance between corporate success and environmental reverence.

Leadership in this realm is not for the faint-hearted. It is for the dauntless, those with the acuity to recognize that PERT and CPM are more than methodologies—they are the pulse of a green revolution. These leaders are the alchemists at the helm, transforming oil and gas companies into citadels of sustainability, where every action is measured not just by profit margins but by its harmony with nature.

In conclusion, this research encapsulates a truth that resonates with irrefutable clarity: the future of the oil and gas sector is unequivocally green. It calls for an enlightened approach where GHRM and IS are not auxiliary supports but foundational pillars. This conclusion is not an end but a beginning—a call to action for businesses to realign with the tenets of sustainability, and in doing so, redefine the essence of industry excellence. The evidence presented is a compelling narrative that champions a future where eco-efficiency, innovation, and ethical stewardship are not just integrated into business practices but are the very cornerstones upon which the oil and gas sector will build its lasting legacy.

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In sculpting this academic endeavor, the echelons of support and insight have been foundational. A resonant note of appreciation is extended to the maestros of mentorship, whose sagacious guidance within the realms of PERT and CPM crafted the backbone of this study. Their acumen provided a compass through the labyrinth of complexities, ensuring a trajectory that was steadfast and true to the zenith of scholarly rigor.

The fraternity of peers, whose incisive critiques and vibrant discourse polished the raw edges of this research, are deserving of heartfelt accolades. Their intellectual camaraderie, particularly in the weaving of GHRM and IS into the narrative of organizational sustainability, has been a lighthouse in the fog of academic exploration.

Acknowledgment blossoms for the study participants, whose candid narratives infused this work with authenticity and relevance. Their experiential wisdom was the crucible in which the theoretical was alloyed with the practical, engendering a study that pulsates with the vitality of lived realities.

To the familial sphere, whose unyielding bastion of support has been nothing short of legendary, I owe a tapestry of thanks. Their belief and emotional investment created a crucible for intellectual metamorphosis, which has been both sanctuary and catalyst.

This acknowledgment is a tribute not just to individual effort but to the symphony of collaborative intellect. It is a testament to the robust alchemy of mentorship, fellowship, and familial support,

harmoniously blended to forge a work that I hope stands as a beacon of knowledge, innovation, and progress within the ever-evolving landscape of the oil and gas sector.

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