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A Legal Analysis of Mandatory ESG Reporting in Saudi Arabia

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Abstract: The rise of ESG investing, projected to exceed $50 trillion by 2025, highlights the growing demand for corporate sustainability. However, Saudi Arabia's reliance on voluntary ESG reporting undermines accountability and progress toward Vision 2030. This paper argues that blockchain technology can bridge these gaps by ensuring transparency, accountability, and stakeholder trust in ESG data. Vision 2030's success depends on aligning corporate practices with sustainability and governance principles. Mandatory, blockchain-enabled ESG reporting is essential to achieving these goals, enhancing corporate accountability, and positioning Saudi Arabia as a regional leader in sustainability. This study examines Saudi Arabia's legal framework for ESG disclosures, identifies the shortcomings of voluntary reporting, and proposes a blockchain-based mandatory ESG reporting system. It explores legal, regulatory, and practical implications while addressing challenges like costs and technical barriers. Ultimately, it advocates for a transparent, accountable, and sustainable business environment, reinforcing blockchain's transformative role in Vision 2030.

Keywords: ESG, Mandatory Reporting 2030, Corporate Governance, Companies, Sustainable, Disclosures, Greenwashing, Sustainability Goal, CMA, Company Law

1. Introduction

The global finance landscape is transforming, with ESG (Environmental, Social, and Governance) considerations rapidly moving from the periphery to the core of investment decisions. By 2025, global ESG assets are projected to surpass a staggering $50 trillion, a testament to the growing recognition that sustainability and profitability are not mutually exclusive but intrinsically linked (Bloomberg, 2021). This surge reflects a fundamental change in how businesses are evaluated, driven by increasing regulatory pressures, discerning investor demands, and a rising tide of societal expectations for responsible corporate behavior (World Economic Forum, 2023 2024). This global trend, however, presents a unique challenge and opportunity for Saudi Arabia.[1]

While the Kingdom's ambitious Vision 2030 articulates a powerful commitment to sustainability, economic diversification, and global competitiveness, including specific targets for carbon emission reduction, renewable energy expansion, and enhanced corporate governance (Saudi Vision 2030, 2023), the current reliance on voluntary and often inconsistent ESG reporting poses a significant obstacle. This gap between aspiration and implementation hinders effective corporate accountability and limits the Kingdom's ability to realize its transformative vision fully. Simply put, measuring progress, enforcing standards, and building stakeholder trust without robust and reliable data becomes exceedingly difficult.

Blockchain technology, with its decentralized, immutable, and transparent architecture, offers a transformative solution to the challenges of Environmental, Social, and Governance (ESG) reporting. By enabling real-time data verification and creating tamper-proof records, blockchain mitigates risks such as "greenwashing" and ensures compliance with evolving regulatory standards (Tapscott & Tapscott, 2016). In the context of Saudi Arabia's Vision 2030, this technology can play a pivotal role in advancing sustainability goals. Programs like the Saudi Green Initiative rely on accurate tracking of environmental metrics such as carbon emissions and renewable energy usage. Blockchain's ability to provide auditable and transparent records makes it a foundational tool for achieving these objectives, while also positioning Saudi Arabia as a global leader in sustainable innovation.[2]

Moreover, blockchain-enabled ESG reporting enhances transparency, making Saudi Arabia more attractive to global investors who prioritize sustainability in their decision-making. Transparent and verifiable disclosures can attract responsible investment, fostering economic diversification and long-term growth. This aligns with Vision 2030's goal of reducing reliance on oil revenues and transitioning to a knowledge-based economy (Vision 2030, 2016). By integrating blockchain into ESG frameworks, Saudi Arabia not only strengthens corporate accountability but also catalyzes sustainable development, driving progress toward its ambitious national objectives.[3]

This research argues that the strategic integration of blockchain technology into a mandatory ESG reporting framework is not just beneficial, but *essential* for achieving Vision 2030's sustainability objectives. It is a crucial step toward enhancing corporate accountability, solidifying stakeholder trust, and ultimately positioning Saudi Arabia as a recognized leader in sustainable development within the region and globally. By harnessing the unique power of blockchain—its decentralization, immutability, and real-time data tracking capabilities—Saudi Arabia can overcome the limitations of its current ESG reporting system and establish a robust, transparent, compliant, and innovation-driven model.

This study uses a pragmatic, mixed-methods approach to examine how blockchain technology can improve corporate accountability through mandatory ESG reporting in Saudi Arabia. It combines qualitative legal analysis with quantitative assessments to evaluate regulatory frameworks, stakeholder perspectives, and blockchain's impact on data transparency and compliance. Primary data will be collected through stakeholder interviews with regulators, corporate executives, ESG professionals, and blockchain developers, along with surveys of corporations and non-profits. Case studies of organizations using blockchain for ESG reporting will provide real-world insights. Secondary sources include legal documents, government reports, and international sustainability frameworks like GRI, TCFD, and CSRD. Qualitative analysis will identify legal and regulatory trends, while quantitative analysis will assess blockchain's impact on reporting accuracy and compliance. Ethical considerations include informed consent, confidentiality, and bias mitigation. Though focused on Saudi Arabia, the findings offer broader insights into blockchain-enabled ESG reporting and its role in enhancing transparency and corporate accountability.

This research examines how blockchain technology can enhance corporate accountability and improve mandatory ESG reporting within Saudi Arabia's Vision 2030. By addressing transparency, legal challenges, and implementation barriers, it provides insights for policymakers, corporations, and stakeholders modernizing sustainability reporting. The first focus is corporate accountability, demonstrating how blockchain's transparency, immutability, and decentralization improve ESG data accuracy, mitigate greenwashing, and strengthen stakeholder trust. Practical applications include tracking carbon emissions, monitoring workforce diversity, and verifying governance practices. The second focus examines Saudi Arabia's legal framework, analyzing regulations from the Capital Market Authority (CMA) and the Ministry of Commerce. It identifies gaps and proposes legal reforms to align blockchain with domestic and international standards like GRI and TCFD. The third focus explores legal challenges, including data privacy, liability, and regulatory conflicts. It assesses who is responsible for blockchain inaccuracies, the impact of immutability on disputes, and conflicts between decentralization and regulatory systems. The fourth focus addresses implementation challenges, such as technological limitations, legal barriers, and ethical concerns. It evaluates Saudi corporations' blockchain readiness and proposes solutions to mitigate regulatory conflicts and confidentiality risks.

By positioning Saudi Arabia as a leader in blockchain-enabled ESG reporting, this research contributes to sustainability, regulatory modernization, and global best practices, offering broader insights for nations integrating blockchain into ESG frameworks.

Blockchain technology emerges as a transformative solution to address the existing gaps in Environmental, Social, and Governance (ESG) reporting. Characterized by its decentralized, immutable, and transparent architecture, blockchain offers a robust framework to enhance the credibility, accuracy,

and reliability of sustainability disclosures. By enabling real-time data verification and creating tamper-proof records, blockchain mitigates the pervasive risks of "greenwashing," where organizations misrepresent their environmental or social contributions (Tapscott & Tapscott, 2016).[4] Furthermore, this innovative technology facilitates seamless alignment with evolving regulatory standards, ensuring that corporations meet national and international compliance requirements.

In Saudi Arabia's Vision 2030 context, blockchain holds significant promise for advancing the nation's ambitious sustainability objectives. The Saudi Green Initiative and other environmental programs under Vision 2030 emphasize the importance of accurately tracking and reporting metrics such as carbon emissions, renewable energy usage, and biodiversity conservation. Blockchain's ability to provide an auditable and transparent trail of these metrics positions it as a foundational infrastructure for achieving these goals. By integrating blockchain into ESG reporting frameworks, Saudi Arabia can not only enhance its domestic sustainability efforts but also position itself as a global leader in responsible governance and innovation.

Moreover, in an era where global investors increasingly prioritize ESG transparency as a critical criterion for decision-making, blockchain-enabled reporting can significantly bolster Saudi Arabia's appeal as a destination for responsible investment. Transparent and verifiable ESG disclosures can attract much-needed capital from environmentally conscious investors, fostering long-term economic growth and diversification. This aligns with Vision 2030's broader objective of reducing reliance on oil revenues and transitioning toward a knowledge-based economy (Vision 2030, 2016). As such, blockchain enhances corporate accountability and catalyzes sustainable development and economic resilience.

2. Literature Review:

The importance of incorporating Environmental, Social, and Governance (ESG) factors into corporate reporting is growing rapidly worldwide.[5] This trend is driven by greater stakeholder awareness, evolving regulations, and the understanding that ESG is key to long-term business success.[6] This global trend is evident in the Middle East, where ESG integration into corporate governance and policies is increasing.[7] Investors, including those in the GCC, also prioritize ESG-compliant companies. Saudi Arabia's Vision 2030 emphasizes sustainable development, creating a policy foundation for advancing ESG practices.[8] To support this, initiatives like the Saudi Green Initiative aim to achieve sustainability targets, such as increasing renewable energy use. Blockchain technology can improve ESG reporting by enhancing data accuracy, transparency, and traceability. Its features, such as decentralization and immutability, can build trust in ESG reports.[9] ESG reporting in Saudi Arabia is mainly voluntary, with encouragement from bodies like the Saudi Exchange (Tadawul).[10] While guidelines exist, there are concerns about the quality of ESG reports compared to international standards.[11] These guidelines often suggest aligning with global frameworks such as the GRI, SASB, and TCFD.[12] Saudi Arabia's move toward mandatory ESG reporting is driven by investor demand, a global shift toward mandatory reporting, stakeholder expectations, and alignment with Vision 2030.[13] Mandatory reporting can enhance transparency, improve data quality, attract investment, and support sustainability goals. Integrating blockchain into ESG reporting involves legal and practical considerations.[14] These include the legal admissibility of blockchain data, the validity of smart contracts, data privacy by regulations like the Personal Data Protection Law (PDPL), and the need for a clear regulatory framework.

3. Existing Laws and Regulations: A Snapshot of Saudi Arabia's Evolving ESG Framework

Saudi Arabia has made significant strides in integrating Environmental, Social, and Governance (ESG) considerations into its legal and regulatory frameworks, reflecting a broader commitment to sustainability under Vision 2030. The New Companies Law (2023) marks a pivotal shift in corporate governance by embedding stakeholder-centric principles and sustainability risks into corporate

operations. For instance, Article 23 expands fiduciary duties beyond shareholders to include employees, communities, and the environment, acknowledging the interconnectedness of business success with societal well-being (Royal Decree No. M/132, 2023).[15] Similarly, Article 45 mandates robust risk management frameworks addressing sustainability risks, while Article 67 enhances transparency by requiring disclosure of material information that could impact stakeholders, including ESG factors (Ministry of Commerce, 2023).[16]

Tadawul's efforts have led to significant advancements in ESG reporting among listed companies. While full mandatory compliance is not yet enforced across all entities, the Exchange has adopted a 'comply or explain' approach to encourage adoption. The Tadawul ESG Framework emphasizes critical areas such as climate action, gender diversity, and governance transparency. Stricter eligibility criteria for inclusion in the Tadawul ESG Index now require verified carbon reduction targets and a minimum of 20% female representation on boards. Furthermore, Tadawul aims to achieve 70% compliance with its ESG reporting guidelines by 2025, underscoring its commitment to aligning the Saudi capital market with international sustainability standards (Saudi Exchange, 2024).[17]

4. Challenges in Voluntary ESG Reporting

Voluntary Environmental, Social, and Governance (ESG) reporting in Saudi Arabia faces significant challenges that undermine its effectiveness and credibility. These include inconsistent metrics, a lack of robust verification, limited stakeholder pressure, and data fragmentation (Deloitte, 2021; World Economic Forum, 2020). These issues hinder meaningful sustainability disclosures and impede progress toward Vision 2030's ambitious goals.[18]

Blockchain technology offers a potential solution. Its decentralized, transparent, and immutable nature makes it well-suited to address these shortcomings. Blockchain can facilitate standardized ESG metrics through smart contracts, ensuring consistency and comparability (Saberi et al., 2019).[19] Its immutability enhances verification and transparency, deterring greenwashing and bolstering stakeholder trust (Tapscott & Tapscott, 2016). Real-time monitoring via blockchain can increase accountability (IBM Institute for Business Value, 2020), while improved data accessibility and interoperability streamline analysis (Accenture, 2021). Finally, by enhancing data reliability and accessibility, blockchain can strengthen stakeholder engagement (PwC, 2022).[20]

Therefore, while voluntary ESG reporting in Saudi Arabia faces challenges, blockchain presents a transformative opportunity to overcome these obstacles. By ensuring data accuracy, enhancing transparency, and fostering stakeholder trust, blockchain can elevate the quality and impact of ESG disclosures, playing a crucial role in achieving Vision 2030's sustainability objectives.[21]

5. Gaps in Saudi Arabia's ESG Reporting Framework and the Potential of Blockchain

Saudi Arabia's ESG reporting framework faces significant gaps that hinder its effectiveness and the Kingdom's ability to achieve Vision 2030's sustainability objectives. These weaknesses include a lack of mandatory requirements, weak enforcement mechanisms, and a unified reporting standard.[22]

Lack of Mandatory Requirements: Unlike jurisdictions like the EU with mandatory ESG disclosures (e.g., CSRD), Saudi Arabia's voluntary approach results in fragmented reporting, primarily by large corporations, leaving out smaller firms and diminishing overall quality and coverage (Al-Mulhim & Al-Dosari, 2021; Khan et al., 2020). This also reduces the perceived importance of ESG considerations among corporate leaders (Deloitte, 2021).[23]

Weak Enforcement Mechanisms: The absence of a dedicated regulatory body and penalties for non-compliance or inaccurate reporting undermines the reliability of disclosures and creates opportunities for

greenwashing (Saberi et al., 2019; World Economic Forum, 2020). This lack of accountability erodes stakeholder confidence (PwC, 2022).[24]

Lack of Unified Reporting Standard: The use of varied methodologies and frameworks makes it difficult to compare ESG performance across entities and complicates data aggregation for policymakers (Accenture, 2021; Tapscott & Tapscott, 2016). This also increases the administrative burden on companies (IBM Institute for Business Value, 2020).[25]

Blockchain as a Solution: Blockchain technology offers a promising solution to these challenges. Its decentralized, immutable, and transparent nature can ensure data integrity by providing a tamper-proof platform (Saberi et al., 2019). Smart contracts can automate compliance (Tapscott & Tapscott, 2016),[26] while blockchain can facilitate standardization and interoperability (Accenture, 2021). Furthermore, it can promote transparency and stakeholder trust by providing real-time data access (PwC, 2022). Finally, blockchain aligns with Vision 2030's ambition to leverage technology for sustainable development (World Economic Forum, 2020).[27]

Therefore, integrating blockchain into the legal framework can bridge these gaps by enhancing data integrity, compliance, and stakeholder trust. This can contribute to a robust ESG reporting system that supports Vision 2030 and positions Saudi Arabia as a leader in sustainable development.

6. Challenges and Opportunities in Blockchain-Enabled Corporate Sustainability Reporting

Integrating blockchain with corporate sustainability reporting presents complex challenges. Existing literature lacks a structured approach to blockchain's application within the evolving regulatory landscape. Interoperability with traditional systems poses technical barriers, while data privacy concerns and the risk of greenwashing complicate trust in sustainability claims.

6.1. Technical Barriers:

Integrating blockchain faces technical barriers and infrastructure limitations. Organizations must address inadequate technological frameworks and a lack of skilled personnel. High upfront costs, especially for emerging markets, can detract from sustainability efforts. Cross-sector collaboration is crucial for establishing standardized data-sharing protocols.[28]

6.2. Regulatory and Compliance Issues:

Stringent regulations necessitate accurate and transparent reporting, creating challenges in data integrity and accessibility. Efficient IT solutions are crucial. Blockchain adoption must navigate diverse regulatory landscapes.[29]

6.3. Resistance to Change within Organizations:

Resistance to change can hinder blockchain implementation. Organizations face challenges in data sourcing and management. Overcoming this resistance is crucial for leveraging blockchain in sustainability efforts.[30]

7. Solutions and Future Directions

Blockchain's transparency, security, and immutability can enhance the credibility of ESG data. Implementation aligns with regulatory initiatives. Integrating digital tools with blockchain can optimize ESG index performance. Addressing technological complexity and lack of awareness is essential.[31]

7.1. Best Practices for Successful Implementation:

Successful implementation requires an understanding of the blockchain's capabilities. Training programs can reduce resistance to change, interdepartmental collaboration can streamline integration, and stakeholder engagement ensures alignment with expectations.[32]

7.2. Collaborative Efforts Between Stakeholders:

Collaboration between businesses, regulators, and technology providers is essential. Collaboration can improve ESG index performance. Collective involvement streamlines reporting and builds trust.[33]

7.3. The Future of Blockchain in Corporate Sustainability Reporting:

Blockchain has the potential to enhance ESG reporting credibility. However, challenges exist in implementation due to regulations and technological complexities. Further research into practical applications is needed. Blockchain's performance compared to traditional systems requires further investigation.[34]

8. A Proposed Framework for Blockchain-Enabled Mandatory ESG Reporting

The increasing emphasis on ESG factors necessitates a robust reporting framework. Blockchain offers a solution for mandatory ESG reporting. This framework leverages blockchain's characteristics to ensure accurate, real-time reporting. It will explore key elements, stakeholder roles, capacity building, and alignment with relevant principles.[35]

9. Blockchain Enhancing ESG: Empirical Evidence and Global Applications:

Empirical research in Saudi Arabia indicates a positive relationship between ESG disclosure and financial performance.[36] Studies of Tadawul-listed companies (2017-2022) found that stronger ESG practices correlated with improved financial metrics.[37] This aligns with stakeholder and signaling theories. However, ESG reporting faces reliability, transparency, and standardization challenges, especially in emerging markets like Saudi Arabia.[38] Blockchain technology offers solutions, as shown by global examples. IBM and Maersk use blockchain for transparent supply chains, supporting ethical sourcing.[39] The World Bank has explored blockchain for emissions reduction reporting and carbon offset trading, enabling more transparent carbon markets.[40] Companies like Unilever and Starbucks use blockchain for supply chain traceability, providing consumers with product origin and sustainability information.[41] Almarai, a Saudi dairy company, uses blockchain to verify ethical sourcing.[42] Blockchain also helps address greenwashing—companies like Carbon Connect AG and DoxyChain issue green certifications. Organizations like OpenSC and WWF use blockchain to certify food sustainability and track seafood supply chains. Platforms like Data Gumbo and Topl facilitate the secure sharing of ESG data.[43]

In Saudi Arabia, blockchain's ability to align ESG disclosures with *Maqasid al-Shariah* could strengthen the perceived link between ESG practices and financial performance. Projects like the BE Blockchain Demonstrator can streamline ESG reporting for regulatory compliance.

Integrating blockchain into ESG reporting can address data transparency, reliability, and standardization limitations. Global case studies illustrate blockchain's versatility in enhancing supply chain traceability, combating greenwashing, and supporting carbon markets. These applications are relevant to empirical findings on ESG disclosure in Saudi Arabia. As Saudi Arabia prioritizes sustainability under Vision

2030, blockchain offers a transformative opportunity to improve ESG practices and drive financial performance.

10. Conclusion:

Integrating blockchain technology into ESG reporting is crucial to achieving Saudi Arabia's Vision 2030. By providing an immutable, transparent, decentralized platform, blockchain enhances corporate accountability, attracts green investments, and ensures compliance with global sustainability standards. This innovation fosters stakeholder trust while supporting economic diversification, environmental sustainability, and digital transformation.

Despite its potential, blockchain adoption in ESG reporting faces legal and regulatory challenges, particularly regarding data privacy and compliance. Addressing these issues requires amendments to Saudi Company Law, stronger Capital Market Authority (CMA) regulations, and the development of dispute resolution mechanisms that leverage blockchain's transparency. These reforms would create a robust legal framework, ensuring widespread adoption and alignment with Vision 2030's objectives.

Successful implementation depends on the commitment of policymakers, regulators, and businesses. Policymakers must align domestic regulations with global standards, regulators should develop centralized ESG data repositories, and businesses must invest in blockchain integration. By taking decisive action, Saudi Arabia can lead in transparency, accountability, and sustainability, accelerating progress toward a more innovative and responsible economic future.

References

[1] McKinsey & Company. 2025. "Does ESG Really Matter—and Why?" Accessed 15, Jan, 2025. https://www.mckinsey.com/capabilities/sustainability/our-insights/does-esg-really-matter-and-why.Also World Economic Forum. 2023–2024. Annual Report 2023–2024. Accessed 15, Jan, 2025. https://www3.weforum.org/docs/WEF_Annual_Report_2023_2024.pdf.

[2] Tapscott, D., & Tapscott, A. (2016). Blockchain Revolution: How the Technology Behind Bitcoin Is Changing Money, Business, and the World. Penguin Random House. Also See, Vision 2030. (2016). Kingdom of Saudi Arabia Vision 2030. https://vision2030.gov.sa

[3] *Ibid*

[4] Tapscott, D., & Tapscott, A. (2016). Blockchain Revolution: How the Technology Behind Bitcoin Is Changing Money, Business, and the World. Penguin Random House.

[5] The developing legal and regulatory regime for ESG in the Middle East and emerging D&O exposures | United States - Norton Rose Fulbright, accessed March 17, 2025, The developing legal and regulatory regime for ESG in the Middle East and emerging D&O exposures | United States | Global law firm | Norton Rose Fulbright

[6] MIDDLE EAST: ESG Revolution - | Asian Legal Business, accessed March 17, 2025, https://www.legalbusinessonline.com/features/middle-east-esg-revolution

[7] *Ibid*

[8] ESG Reporting Requirements in 2025 Insights KSA, accessed March 17, 2025, https://insightss.co/blogs/esg-reporting-requirements-in-2025/

[9] The Influence of Fintech Innovations, ESG Reporting, and Blockchain Technology on Financial Transparency and Accountability - ResearchGate, accessed March 17, 2025, https://www.researchgate.net/publication/382414437_The_Influence_of_Fintech_Innovtions_ESG_Reporting_and_Blockchain_Technology_on_Financial_Transparency_and_Accountability

[10] ESG Guidelines - Tadawul, accessed March 17, 2025, https://www.saudiexchange.sa/wps/portal/saudiexchange/listing/issuer-guides/esg-guidelines

[11] The Effects of Mandatory ESG Disclosure Around the World - European Corporate Governance Institute (ECGI), accessed March 17, 2025, https://www.ecgi.global/sites/default/files/working_papers/documents/kreugersautnertangzhongfi nalfeb_0.pdf *Also See* Government-Mandated ESG Disclosure: It's Not Easy Being Green - Houston Law Review, accessed March 17, 2025, https://houstonlawreview.org/article/117184-government-mandated-esg-disclosure-it-s-not-easy being-green

[12] *Ibid*

[13] ESG in Saudi Vision 2030 | Sustainability Goals - Astra ESG Solutions, accessed March 17, 2025, https://astra.grandviewresearch.com/country-esg-outlook/saudi-arabia-vision Saudi Arabia's Vision 2030: A New Era for Sustainable Tourism - Seneca ESG, accessed March 17, 2025, https://senecaesg.com/insights/saudi-arabias-vision-2030-a-new-era-for-sustainable-tourism/

[14] The Influence of Fintech Innovations, ESG Reporting, and Blockchain Technology on Financial Transparency and Accountability - ResearchGate, accessed March 17, 2025,

https://www.researchgate.net/publication/382414437_The_Influence_of_Fintech_Innovations_ESG_Reporting_and_Blockchain_Technology_on_Financial_Transparency_and_Accountability
[15] Royal Decree No. M/132. (2023). New Companies Law. Kingdom of Saudi Arabia available at https://laws.boe.gov.sa/BoeLaws/Laws/LawDetails/a8376aea-1bc3-49d4-9027-aed900b555af/1
[16] Ministry of Commerce. (2023). Implementation Guidelines for Corporate Governance. https://mc.gov.sa/en/Regulations/Pages/details.aspx?lawId=ea0fc797-4127-4667-962d-aec400ee9f72
[17] Saudi Exchange, "ESG Guidelines 2025," accessed 15, Jan,2025 https://www.saudiexchange.sa/wps/portal/saudiexchange/listing/issuer-guides/esg-guidelines
[18] Deloitte, A Year of Connection, Impact and Action: The Middle East Impact Report, 2021, accessed 15, Jan,2025 https://www.deloitte.com/middle-east/en/about/governance/dme-impact-report-2021.html.
World Economic Forum. 2023–2024. Annual Report 2023–2024. Accessed 15, Jan,2025. https://www3.weforum.org/docs/WEF_Annual_Report_2023_2024.pdf.
[19] Blockchain for Good: Driving Sustainability Through Technology. Retrieved from ibm.com, Saberi, S., et al. (2019). Blockchain technology and its relationships to sustainable supply chain management. International Journal of Production Research, 57(7), 2117-2135. Accenture. (2021). Title of Accenture Report. Accenture. Accessed 15, Jan 2025 https://www.accenture.com/content/dam/accenture/final/a-com-migration/pdf/pdf-165/accenture-fiscal-2021-annual-report.pdf
[20] Tapscott, D., & Tapscott, A. (2016). Blockchain Revolution: How the Technology Behind Bitcoin Is Changing Money, Business, IBM Institute for Business Value. (2020
[21] Ibid
[22] *Ibid*
[23] Al-Mulhim, F., and A. Al-Dosari. 2021. "The Role of ESG Reporting in Enhancing Corporate Governance in Saudi Arabia." International Journal of Business and Management Studies 10, no. 2: 45–62.
[24] PwC. 2023. Family Businesses and ESG in Saudi Arabia. Accessed
, Jan, 2025. https://www.pwc.com/m1/en/publications/family-business-survey-2023.16html
[25] IBM Institute for Business Value. (2020). Blockchain for Good: Driving Sustainability Through Technology. Retrieved from ibm.com
[26] Tapscott, D., & Tapscott, A. (2016). Blockchain Revolution: How the Technology Behind Bitcoin Is Changing Money, Business, and the World. Penguin Random House.
[27] World Economic Forum. 2023–2024. Annual Report 2023–2024. Accessed 15, Jan, 2025.
[28] Chopra, Shauhrat S., Sachini Supunsala Senadheera, Pavani Dulanja Dissanayake, Piumi Amasha Withana, Rajeev Chib, Jay Hyuk Rhee, and Yong Sik Ok. 2024. "Navigating the Challenges of Environmental, Social, and Governance (ESG) Reporting: The Path to Broader Sustainable Development" *Sustainability* 16, no. 2: 606. https://doi.org/10.3390/su16020606
[29] *Ibid*
[30] *Ibid*
[31] Kabir, Md Shahriar, Ko, Ilsang. "Collaboration with Digital Capabilities enhance firm\u27s ESG Management: A Systematic Literature Review" AIS Electronic Library (AISeL), 2024, doi: https://core.ac.uk/download/616565712.pd
[32] *Ibid*
[33] *Ibid*
[34] *Ibid*
[35] *Ibid*
[36] Shalhoob, H. ESG Disclosure and Financial Performance: Survey Evidence from Accounting and Islamic Finance. Sustainability 2025, 17, 1582. https://doi.org/10.3390/su17041582
[37] The Impact of Environmental, Social, and Governance Disclosure on the Performance of Saudi Arabian Companies: Evidence from the Top 100 Non-Financial Companies Listed on Tadawul - ResearchGate, accessed March 17, 2025, https://www.researchgate.net/publication/383650216_The_Impact_of_Environmental_Social_and_Governance_Disclosure_on_the_Performance_of_Saudi_Arabian_Companies_Evidence_from_the_Top_100_Non-Financial_Companies_Listed_on_Tadawul
[38] ESG Reporting in the GCC: Trends and Challenges 2025, accessed March 17, 2025, https://www.orennow.com/blog/esg-reporting-gcc-2025 *Also see* The impact of blockchain technology on regulatory compliance ..., accessed March 17, 2025, https://community.trustcloud.ai/docs/grc-launchpad/grc-101/compliance/the-impact-of-blockchain-technology-on-regulatory-compliance-opportunities-and-challenges/
[39] Blockchain for Good: Driving Sustainability Through Technology, Op. cit
[40] Banking, Blockchain, and ESG (Chapter 11) - The Role of ..., accessed March 17, 2025, https://www.cambridge.org/core/books/role-of-distributed-ledger-technology-in-banking/banking-blockchain-and-esg/05043C13ED2914B9A0976CAE261C062B
[41] Blockchain in ESG | Real World Use Cases - Kaleido, accessed March 17, 2025, https://www.kaleido.io/industries/esg
[42] Driving ESG Transformation in the GCC: The Role of Technology, CX, and EX in Building a Sustainable Future - New Metrics, accessed March 17, 2025, https://www.newmetrics.net/insights/driving-esg-transformation-in-the-gcc-the-role-of-technology-cx-and-ex-in-building-a-sustainable-future/
[43] Blockchain in ESG | Real World Use Cases Op. cit