

Original article

Exploring broad value creation in mining - Corporate social responsibility and stakeholder management in practice

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ARTICLE INFO

Keywords:

Corporate social responsibility
Sustainability reporting
Stakeholder management
Sustainable business models
Corporate sustainability

ABSTRACT

In today's business landscape, corporate social responsibility is important as companies are expected to integrate social and environmental considerations into their operations and interactions with stakeholders. This involves adhering to codes of conduct, producing sustainability reports, and actively engaging with local communities. As a result, sustainable business models have gained prominence, focusing on societal concerns, environmental consciousness, and financial viability. While stakeholder management is recognized as vital in sustainable business models, there remains a gap in understanding how to implement stakeholder management within this business model effectively. This study uses sustainability reports from major mining and mineral firms to explore how stakeholder management practices might be used to benefit a wider variety of stakeholders. It provides information about stakeholder prioritisation, engagement, and sustainability communication strategies. While these companies attempt to address stakeholders' environmental and social concerns, the study recommends a proactive approach that widens stakeholder engagement, includes secondary stakeholders, leverages shared interests, and enhances stakeholder management reporting to maximize the impact of broad stakeholder value creation in sustainable business models to foster sustainable development.

1. Introduction

Businesses today are required to contribute to sustainable development by incorporating social and environmental concerns into their operations and voluntary interactions with stakeholders, a concept known as corporate social responsibility (CSR) (Dahlsrud, 2008). CSR practice is often shown as codes of conduct, sustainability reports and community involvement (Ranängen and Zobel, 2014) and the literature on how CSR is systematically integrated is limited (Ranängen and Lindman, 2017). This has encouraged the expansion of research on sustainable business models (SBM), which factor in societal interest, environmental consciousness, and financial implications (Comin et al., 2020; Preghenella and Battistella, 2021; Schneider and Clauss, 2020).

Scholars emphasise the importance of stakeholder management (SM) in SBM, however, there is a gap in knowledge on how to incorporate SM in SBM (Attanasio et al., 2022; Bocken et al., 2019; Fiore et al.; Freudenreich et al., 2019; Fiore et al., 2020; Tapaninaho and Heikkinen,

2022). SM involves identifying, prioritising and engaging with stakeholders material to the success of the business, to minimise the risk associated with their dissatisfaction (Freeman et al., 2007). The body of literature regarding both SM and engagement is arguable still in infancy (Kujala et al., 2022; Pedrini and Ferri, 2019). Similarly, the research on SBM is also considered to be in its early stages (Preghenella and Battistella, 2021). Due to this, much is still to be learned about effectively operationalising SM within the context of SBMs.

The growing interest in sustainable business practices has stimulated greater demands for accountability and transparency across industries. In particular, the mining, metals, and minerals industry has drawn much interest because of the long-term social and environmental effects it has in numerous parts of the world (Dikgwatlhe and Mulenga, 2023; Stocker et al., 2020) and due to the increased stakeholder pressure over the last decades (Bezzola et al., 2022; Lindman et al., 2020). Stakeholder concerns have increased due to issues such as environmental harm, community displacement, and worker safety, necessitating businesses to

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Received 4 October 2023; Received in revised form 12 January 2024; Accepted 15 January 2024

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address these matters in order to retain their social license to operate (SLO) (Drusche and Krause, 2021; Dunbar et al., 2020).

Based on an industry survey, over the last two years, environmental and social aspects have consistently ranked as the primary risk for the mining sector, with SLO maintaining its top 5 position (EY, 2021; P. Mitchell, 2022). To mitigate this risk, companies are expected to improve their corporate strategies regarding ESG (Environmental, Social, and Governance) requirements (Mitchell, 2022) and reevaluate their existing business models to align with the fluctuating interests of stakeholders (EY, 2021), thereby showcasing their dedication to creating broader value. Reevaluating mining business models becomes increasingly important during the green and digital transition. This transition involves moving away from carbon-based economies, promoting innovation and efficiency to address challenges like climate change and environmental degradation, and ensuring a sustainable future for the planet (European Commission, 2019).

The stakeholders' interests and expectations pertaining to various sustainability aspects, are ideally considered, and communicated by mining companies through sustainability reports and upheld through CSR practices (Jenkins, 2004). Stakeholder engagement is based on the fundamental principles of stakeholder theory and has evolved from research on SM. Stakeholder engagement is viewed as a way to operationalise SM in a way that goes beyond "managing" stakeholders to reduce risk in the business, but rather to uphold the moral justification of the practice (Kujala et al., 2022). Its objective is to assist businesses in decision-making by considering the viewpoints, cultural and geographical contexts (Rodolaki et al., 2023; Rodolaki and Barakos, 2023) and diverse goals of different stakeholder groups in the process of value creation (Freeman et al., 2007; Kujala et al., 2017; Pedrini and Ferri, 2019).

The extraction of critical raw materials is essential for the green and digital transition, emphasising the role of corporate communication and transparent engagement with stakeholders and managing stakeholder-related risk (Ragonnaud, 2023). SM is complex, businesses face the challenge of harmonising instrumental and normative perspectives, identifying material stakeholders and addressing differing stakeholder interests in decision-making processes (Velter et al., 2020). Pertinent literature recommends the exploration of relations between the business and its external stakeholders in SBMs (Boons and Lüdeke-Freund, 2013; Stubbs and Cocklin, 2008). While current literature emphasises the significance of stakeholder engagement in the mining industry as they transition to sustainable business practices (Matikainen, 2022), they do not address how mining companies manage relationships and balance differing stakeholder interests in their quest to secure a social license to operate.

Hence, the purpose of this paper is to extend SBM literature by exploring how SM is employed in practice by focusing on the strategies and practices adopted by mining companies to manage stakeholder relationships to deliver value to a broader range of stakeholders. We aim to answer the following research questions:

RQ1: Which sustainability aspects does the mining industry regard as important?

RQ2: Which stakeholders have been prioritised in the communication?

RQ3: How do the studied companies describe their SM practice?

By answering these questions, we will explore how the mining industry is managing CSR and how it communicates its CSR practices to stakeholders by analysing the stakeholder engagement statements in mining companies' sustainability reports. The findings can be drawn on as a basis for further research regarding how SM can be incorporated in SBM. The next chapter presents a brief theoretical framework, followed by the case and the research methods used in this paper. This is followed by the findings, discussion, conclusions and suggestions for future research.

2. Theoretical framework

CSR has several definitions based on what Dahlsrud (2008) refers to as dimensions which are; stakeholders, social, economic, voluntariness and environmental dimensions. Ranängen & Zobel (2014) and Lindman et al. (2020) concur with Dahlsrud (2008) that numerous definitions of CSR exist, nonetheless, they assert that the core of CSR can be described as the business's efforts to achieve economic, social, and environmental sustainability while taking into account the concerns of both internal and external stakeholders. CSR proponents consider it a method for enhancing business's reputation, boosting financial performance, ensuring employee satisfaction and supporting external stakeholders (Idowu, 2021). McWilliams et al. (2019) further categorises the numerous CSR definitions into general and altruistic categories. The former centres on more strategic aspects like SM, while the latter concentrates on areas such as surpassing environmental compliance.

The foundation of SM can be drawn back to the stakeholder theory, which posits that the fundamental structure of business's relies on stakeholder involvement. This involvement can manifest in various ways, such as including stakeholders in the value proposition, interacting with customers and presenting solutions to their issues or needs through an offering, or in the value creation process, which involves nurturing relationships with suppliers and financiers to facilitate the delivery of value (Freeman et al., 2007; Pedrini and Ferri, 2019).

The justification for SM can be viewed through two distinct lenses: the instrumental and the normative perspectives. From an instrumental standpoint, SM is seen as an end for businesses, primarily focused on establishing transactional relationships to enhance potential financial performance (Donaldson and Preston, 1995). On the other hand, normative justification views SM as an ethical obligation, driven by the belief that it is simply the "right thing to do", thereby carrying moral justification (Donaldson and Preston, 1995). This duality raises questions about how businesses strike a balance between these two perspectives in practice and whether their decisions genuinely align with their ethical values.

Incorporating stakeholder perspectives into decision-making necessitates identifying material stakeholders. Scholars have attempted to address this challenge for example through the stakeholder salience model (Mitchell et al., 1997), which asserts that stakeholders' interests are given priority based on attributes such as power, urgency and legitimacy and distinguishes between latent, definitive, and expectant stakeholders based on the combination of attributes they possess. The two-tier stakeholder map (Freeman et al., 2007) categorises stakeholders into primary and secondary stakeholders, those who have a direct impact on the success of the company and those who may affect or be affected by the company's existence. Freeman et al. (2007) mention guiding principles for stakeholder identification and categorisation, aiming to create value, involving, and satisfying diverse groups, avoiding trade-offs, full commitment, and continuous dialogue.

Contemporary research emphasises the criticality of incorporating stakeholder engagement into business operations, especially for SBMs (Guo et al., 2022; Jonas et al., 2016; Matos and Silvestre, 2013; Stubbs, 2017). SBMs are business models that are strategically designed to increase revenue while simultaneously delivering social value and environmental value (Comin et al., 2020). These business models focus on reducing pollution, waste, and resource use, incorporating the full cost of company production, including external costs in their comprehensive approach to resource management (Bocken et al., 2014; Dunbar et al., 2020). Studies have shown that businesses can benefit from engaging with a diverse set of stakeholders, including those initially considered latent or secondary, as their perspectives may have cascading effects on more definitional stakeholders (Kujala et al., 2012; Marconatto et al., 2016). Engaging many stakeholders, boosts value, decreases environmental impact, aids social welfare, and affords businesses an SLO (Guo et al., 2022; Marconatto et al., 2016; Matos and Silvestre, 2013).

According to Hitch & Barakos (2021), SLO refers to the degree of

acceptance or support of an organisation and its operations by local communities and stakeholders. Dikgwatlhe & Mulenga (2023) further asserts that a SLO represents a societal agreement aimed at fostering sustainability and the socio-economic progress of the community. The term SLO was first coined in 1997 and further developed in the mining industry due to its inherent impact and associated stakeholder dissatisfaction with the industry (Hitch and Barakos, 2021; Prno and Scott Slocombe, 2012). Businesses need to implement strategies and mechanisms for sustaining relationships with stakeholders to foster trust and secure a SLO. Failure to secure SLO can result in community opposition, operational blockages, and reputational damage, which can ultimately lead to negative financial implications for the business (Marconatto et al., 2016; Matos and Silvestre, 2013; Poelzer and Yu, 2021).

Understanding stakeholder interests can be viewed as central for a business's ethical and strategic decision-making. Recognising and prioritising the interests of stakeholders can ensure that conflicts are navigated more effectively between the business and its stakeholders (Campra et al., 2020; Minoja, 2012). According to Minoja (2012) businesses may choose to apply more static solutions such as managing trade-offs or apply dynamic solution such as adopting SBMs. The adoption of more dynamic solutions aligns business objectives with ethical considerations and leans toward the normative justification of SM.

Stakeholder interests are in themselves dynamic. The changing interests of stakeholders are influenced by various factors, such as new scientific knowledge in fields like biophysical science, which highlights planetary boundaries that should not be exceeded (Steffen et al., 2015). Other factors that influence a change in stakeholder interest are cultural aspects such as environmental stewardship, community identity and traditional or historical experiences (Hitch and Barakos, 2021; Rodolaki and Barakos, 2023). Moreover, ongoing discussions, like those presently taking place in the European Union, play a role in shaping the current social interests of local and indigenous communities in areas where mining is anticipated. This is especially significant due to the expected rise in extracting raw materials to support the green and digital transition (European Commission, 2019; Ragonnaud, 2023).

Considering the contemporary stakeholder interests, it is essential for all industries, including mining, to contribute to sustainable development. This development emphasises the importance of not surpassing planetary boundaries, efficient resource use, minimized pollution, prioritised social welfare, and responsible consumption and production. The goal is to ensure that future generations can also benefit from the Earth as we currently know it (Baker, 2015). Therefore, it is crucial to interact with stakeholders, comprehend their interests, and incorporate them appropriately into the sustainability goals of businesses.

To start, this study analyses sustainability reports from major global mining companies. The aim is to explore how the industry communicates and engages with stakeholders to promote sustainable business practices, aligning with the demand for greater raw material extraction to achieve a sustainable future. The next section outlines the methodology.

3. Methodology

RQ1–3 will be answered by using secondary data in the form of sustainability reports published by the global mining industry in order to explore which sustainability aspects the mining industry regards as important, which stakeholders they prioritise and how the mining companies describe their SM practice. Sustainability reports are comprehensive documents published by companies that outline their ESG performance, initiatives, and commitments (Stocker et al., 2020). Typically, these reports are created on a voluntary basis or in response to legislative mandates and stakeholder requests. They provide useful details about the sustainability strategy, development, difficulties faced by a company and other CSR practices (Campra et al., 2020; Stocker et al., 2020). The selection of secondary documentation in the form of

sustainability reports was motivated by its accessible and unobtrusive nature (Yin, 2018).

To analyse the reports, a combination of content analysis methods were used. Leximancer content analysis software and manual content analysis was utilised to extract relevant data pertaining to the sustainability aspects addressed, identification of stakeholder groups by individual companies, and the SM practice. Content analysis is widely employed to study stakeholder engagement practices in sustainability reports (Campra et al., 2020; Moratis and Brandt, 2017; Stocker et al., 2020). Researchers use this method to extract valuable insights regarding how companies interact with various stakeholders and address sustainability concerns. Next, we present the data collection and content analysis steps.

3.1. Collection of sustainability reports

Companies with large revenues often have a considerable influence on the environmental, social, and economic aspects of sustainability in the mining industry, and an analysis of their stakeholder engagement strategies may reveal areas for improvement and opportunity to enhance their sustainability performance (Ansu-Mensah et al., 2021). Statista is a statistics aggregator providing access to a wide range of data from various sources (Statista, 2024). On the Statista list, dated May 2021 (Statista, 2021), the top 100 mining companies are listed based on revenue. In this study the sustainability reports from these top 100 mining companies were selected. However, only 62 mining companies had published sustainability reports in English. These 62 reports are selected as secondary data in this study. The secondary data is further described in Table 1. The reports were downloaded from company websites by June 10, 2022.

To better understand stakeholder engagement trends in various geographical regions, we categorised sustainability reports based on countries and continents. This approach considers contextual factors like culture and engagement styles, which have proven to be significant in related discussions (Ansu-Mensah et al., 2021; Rodolaki and Barakos, 2023). As depicted in Table 1, companies have been classified into continents based on either their operational location or headquarters. In some cases, a company has been assigned to multiple continents due to the presence of subsidiary companies, as exemplified by Anglo American.

3.2. Content analysis

Sustainability reports were processed through Leximancer, a tool employing natural language processing to detect patterns in extensive text data. The software uses statistical algorithms to identify concepts and themes, which are visually presented in a network map. This map enables the identification of trends and relationships, aiding decision-making (Kim and Kim, 2017; Lemon and Hayes, 2022; Leximancer, 2021; Liesch et al., 2011).

The software extracted themes from interconnected concepts. Data was cleaned by merging concept seeds (Appendix A). Concepts were then categorised using a sustainability aspects matrix developed for the mining industry (Ranängen and Lindman, 2018), considering relevance percentage to identify key aspects. Relevance reflects word frequency compared to the most common concept. See Fig. 1 for more information regarding corresponding relevance percentage and importance rank.

To address high-relevance concepts in low-importance themes (e.g., emissions in the 'use' category with 79 % relevance), a further analysis linked these concepts to high-importance themes. For example, emissions were linked to crucial environmental concepts like climate and environment, leading to their inclusion in the environmental category of the sustainability criteria in the matrix. Concept categorisation in sustainability criteria was achieved using a continuum from high importance to none, guided by relevance percentage and heat map.

Table 1
Sustainability reports by continent, country, report title and reporting guideline.

Continent	Country	Company report title (years)	Reporting guidelines
Africa	South Africa	Anglo American Platinum Integrated Report (2021)	GRI, CDP ¹ , CDSB ²
		Anglo Gold Ashanti Sustainability Report (2021)	IIRF, KingIV, SDG, UNGC ³ , TCFD, ICMM
		Goldfields Integrated Annual Report (2021)	GRI, IIRC, KingIV
		Impala Platinum Holdings ESG Report (2021)	GRI, ICMM
		Kumba Integrated Annual Report (2021)	GRI, KingIV, ICMM
Asia	China	Anhui Conch Cement Annual Report (2021)	IFRS
		China coal Annual Report (2021)	IFRS
		China Daye ESG Report (2021)	HKEX ⁴ ESG guide
		China Molybdenum ESG Report (2021)	GRI
		China Resources Cement Holdings Social Responsibility Report (2020)	GRI, SDG, HKEX ESG guide
		Huaxin ESG Report (2021)	HKEX ESG guide, GRI
		Inner Mongolia Yitai Coal Annual report (2021)	HKEX Corporate Governance code
		Zijin Mining Group ESG Report (2021)	GRI, TCFD, SASB
	India	Ambuja Sustainable Development Report (2019)	GRI
		Coal India Sustainability Report (2020/21)	GRI
		Grasim Integrated Report (2020)	GRI
		Hindustan Integrated Annual Report (2020)	IIRC
		Ultratech Cement Sustainability Report (2020)	GRI
	Indonesia	PT Adaro Sustainability Report (2021)	GRI
	Israel	Israel Corp Annual Report (2021)	TCFD
	Japan	AGC Sustainability Report (2021)	GRI
		Taiheiyo Integrated Report (2021)	IIRC, GRI
	Saudi Arabia	Maaden Annual Report (2020)	GRI, ICMM, SDG
	Taiwan	Asia Cement Corporate Social Responsibility Report (2020)	GRI, SASB
		Taiwan Cement Sustainability Report (2021)	GRI, SASB
	Thailand	Berli Jucker Public co Sustainability report (2021)	GRI
		Siam Cement Sustainability Report (2021)	GRI, TCFD, SDGs
		BHP Annual report (2021)	GRI, ICMM, TCFD, UNGC
	Australia	Rio Tinto Sustainability factbook (2021)	GRI, ICMM
		FLSmidth sustainability report (2021)	GRI ⁵

Table 1 (continued)

Continent	Country	Company report title (years)	Reporting guidelines
Europe	France	Rockwool sustainability report (2021)	GRI
		Eramet Integrated report (2021)	IIRC ⁶
		Vicat SA social and environmental report (2018)	Vicat reporting protocol for social, environmental, and societal information
	Germany	Heidelberg cement sustainability report (2021)	GRI
	Ireland	CRH Sustainability report (2021)	GRI
	Italy	Buzzi Unicern Sustainability report (2021)	GRI
	Luxembourg	Ardagh Group Sustainability report (2021)	GRI
		KGHM Integrated Report (2021)	GRI
	Sweden	Boliden Annual & Sustainability Report (2021)	GRI, ICMM ⁷ , SASB ⁸ , TCFD, UNGC
	Switzerland	Glencore Sustainability Report (2021)	GRI, ICMM, SASB
		Holcim Climate report (2022)	GRI, SASB
	United Kingdom	Anglo American PLC Sustainability Report (2021)	GRI, ICMM, EU non-financial disclosure directive, UNGC
		Antofagasta Mineras Sustainability Report (2021)	GRI
	North America	BHP Sustainability & ESG Navigator workbook (2021)	GRI
		EN Group Sustainability Report (2021)	GRI, SASB, TCFD ⁹ , EU taxonomy for sustainable finance metrics
		Rio Tinto Sustainability Factbook (2021)	GRI
		Barrick Sustainability Report (2021)	GRI, SASB, ICMM
		First Quantum ESG Report (2021)	GRI, SASB
	Mexico	Kinross Sustainability Report (2021)	GRI, UNGC, TCFD
		Teck Sustainability Report (2021)	GRI, SASB, ICMM
		Cemex Integrated Report (2021)	GRI
		Grupo Mexico Sustainable Development report (2020)	GRI
		Industrias Penoles Annual Report (2021)	ICMM
	United States	Corning Incorporated Sustainability Report (2021)	GRI, TCFD, SDGs
		Owens Corning Sustainability Report (2021)	GRI, UNGC, TCFD, SASB
		Freeport Annual Report (2021)	GRI, ICMM
		Martinmarrieta Sustainability Report (2021)	TCFD, SASB
		Newmont Sustainability Report (2021)	GRI
		O-I Glass Sustainability Report (2021)	GRI, SASB, TCFD
		Peabody ESG (2021)	GRI, SASB

(continued on next page)

Table 1 (continued)

Continent	Country	Company report title (years)	Reporting guidelines
South America	Brazil	CSN Group Integrated Report (2020)	GRI, SASB, ICMM
		Vale Integrated Report (2021)	GRI, ICMM, TCFD, SDGs
	Peru	Southern Peru Copper Company presentation (2022)	GRI

¹ Climate Disclosure Project.² Climate Disclosure Standards Board.³ UN Global Compact.⁴ Hong Kong Stock Exchange.⁵ Global Reporting Initiative.⁶ International Integrated Reporting Council.⁷ International Council on Mining and Metals.⁸ Sustainability Accounting Standards Board.⁹ Task Force on Climate-Related Financial Disclosures.

3.3. Identification of stakeholders

The concepts list identified stakeholder groups using Freeman et al. (2007) two-tier map and further guided by Ranängen & Lindman (2020) findings on stakeholders identified in the Swedish mining industry. This assessment mentioned potentially prioritised stakeholders in sustainability reports. A manual report analysis (Appendix B) ensured no stakeholder groups were omitted from Leximancer's list. Stakeholder groups and key engagement areas were extracted from the reports' engagement and materiality sections. The final condensed analysis of stakeholder groups' key engagement areas per continent is given in Appendix B.

To ensure the methods' reliability, all three authors were involved in concept coding and categorising the results of analysis into the appropriate sustainability aspect categories. This ensured the possibility to confirm and cross-validate the findings (Yin, 2018).

3.4. Stakeholder management practice

A manual analysis was conducted to evaluate how each company describes its SM practice. This involved examining the section of their sustainability reports where they discuss stakeholder engagement. Guided by the standard engagement disclosure (GRI, 2015), the analysis focused on four main aspects: identifying stakeholders, outlining stakeholder interests, stating the method or channels of communication, and outlining the principles or steps used in their SM practice. A grade of

high to low was given to the SM practice of the company. Companies whose reports addressed all four aspects were graded high, those who reported on three to two of the aspects were graded medium and a low grading was given to companies who only mentioned one or none of the aspects.

4. Findings

This chapter presents the findings relating to sustainability aspects communicated by the companies, the stakeholder groups prioritised in the communication and information about how the companies describe their SM practice.

4.1. Sustainability aspects

The analysis of the secondary data was focused on categorising the concepts generated by Leximancer into the appropriate sustainability aspect themes (Appendix C). The categories included corporate governance, fair operating practices, economic aspects, human rights, labour practices, society, and the environment. Each category consists of several sub-points such as 'occupational health and safety' in the category for labour practices and 'emissions' under the environment category. The sustainability aspects disclosed by companies in each continent are presented below. A summary of the sustainability aspects results based on the sustainability categories can be found in Appendix C.

4.1.1. Africa

African-based companies in this study have prioritised self-regulatory practices and management systems (61 % relevance) and improving operations and risk management (55 % relevance). However, economic impacts and procurement practices receive limited attention. Despite this, companies indirectly address economic concerns through mentions of financial viability and closure requirements, which impact societal well-being. Notably, societal aspects, particularly the relationship with local communities, hold significant importance (81 % relevance), with a focus on aligning with the United Nations Sustainable Development Goals to contribute positively to society. Human rights aspects are not widely discussed, but some companies emphasise training to ensure employee and local community rights are upheld.

For employee welfare, firms emphasise employment terms (68 % relevance), benefits, salaries, and work environment. Health and safety (30 % relevance), with tech-driven safety enhancements, are mentioned. Environment gets less focus (12–23 % relevance). Energy, water, emissions, and waste are briefly discussed but rank lower. While initiatives

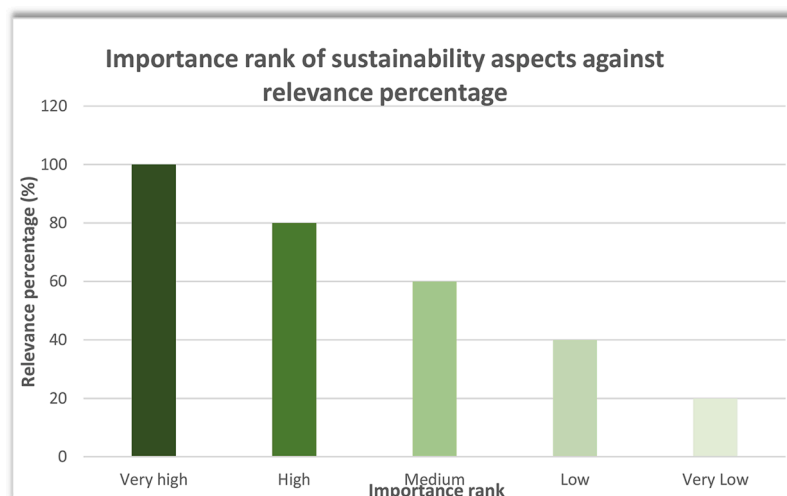


Fig. 1. Ranking for sustainability aspects based on relevance percentage.

like renewable energy, water risk mitigation, and recycling are noted, environmental aspects aren't as highlighted as other sustainability factors.

4.1.2. Asia

In Asia, corporate governance is highly regarded, particularly for its strong emphasis on self-regulatory practices (81 % relevance). Companies prioritize corporate excellence through effective management systems, waste management, grievance procedures, and risk management (47 % relevance). Economic aspects also receive significant attention, with a strong focus on financial performance and safeguarding against potential threats like climate-related expenses and natural disasters. However, human rights rank very low, with minimal mention of non-discrimination, collective bargaining, and indigenous rights. Some companies do highlight rights related to mining operations, such as licensing and permitting.

Furthermore, labour practices have medium ratings, focusing on employment contracts (53 % relevance), training (18 %), and health/safety (30 %). Society ranks very low, lacking data on social investment, local community engagement (20 %), and wealth creation. Environmental concerns rank lower: energy (32 %), water (27 %), emissions (25 %), and waste (24 %). Firms highlight energy strategies (renewables, waste heat recovery), emphasizing technology for emissions, and water scarcity. Asia's strong governance/economics noted, but rights, stakeholder engagement, and environment need focus.

4.1.3. Australia

Australia's corporate governance is assessed as medium, with a focus on engaging indigenous stakeholders, managing cultural heritage, and implementing risk management measures (52 % relevance). Companies also give moderate attention to economic aspects, reporting on financial activities like expenditure, income, and compensation to affected individuals. However, human rights are ranked very low in relevance in the analysis, although some companies, such as BHP, express commitment to upholding human rights and evaluating their impacts on social, cultural, and environmental aspects. Environmental considerations also receive a low rating, primarily centred around emissions reduction and water management. BHP, for example, collaborates with stakeholders to address water-related challenges and forms partnerships targeting emissions reduction in steel production. Overall, the analysis reveals Australia's moderate approach to corporate governance and economic matters, limited focus on human rights, and relatively lower attention to environmental issues in the practices of the evaluated companies.

4.1.4. Europe

In Europe, corporate governance is highly regarded, particularly concerning self-regulatory practices, management systems (98 % relevance), and risk management (75 % relevance) that encompass preparedness for natural disasters and sustainability or climate-related risk management. Some companies also emphasize monitoring, control, and compliance with regulations. Boliden, a Swedish company, exemplifies this commitment, attributing importance to the board's role in setting financial targets, strategies, and executive appointments, and ensuring efficient systems for monitoring, control, compliance, and transparent information disclosure. Economic aspects receive high attention, with a focus on financial performance, profitability, and financial structures. Human rights are rated as medium, with companies establishing grievance mechanisms and respecting the rights of complainants. Labour practices are given a high priority, emphasizing employee satisfaction, inclusion, health and safety, and whistleblowing protection, aiming to foster a conducive workplace environment.

However, societal aspects rank low in importance, while environmental considerations receive significant attention. European companies concentrate on energy efficiency (58 % relevance), water management (48 % relevance), emissions reduction (79 % relevance), waste treatment (37 % relevance), and climate change mitigation (64 %

relevance). Addressing environmental challenges and fostering sustainable technologies are central commitments for these companies, reflecting their dedication to sustainable practices and ecological responsibility.

4.1.5. North America

North America's corporate governance is ranked as very high, with a focus on self-regulatory practices (91 % relevance), risk management (100 %), and responsible environmental stewardship. Companies in North America implement management systems and continuous improvement strategies to minimize adverse environmental impacts and promote sustainable practices. Economic aspects are ranked as medium, with companies emphasizing financial education, transparent financial reporting, and alignment of financial success with climate and diversity commitments. Human rights are ranked high, with companies emphasizing the implementation of human rights policies, eradicating violence against women, and respecting the rights of indigenous communities.

Labour practices are also ranked high, with companies focusing on employee career progression (77 % relevance), training and education initiatives (36 % relevance), and health and safety measures (64 % relevance), including Covid-19 prevention. Society is ranked very high, with companies valuing local communities (90 % relevance) as important stakeholders and engaging in outreach programs and long-term partnerships. Environmental aspects are ranked medium, with companies focusing on energy reduction (53 % relevance), renewable energy sourcing, water conservation (59 % relevance), greenhouse gas emissions reduction (72 % relevance), and biodiversity conservation (19 % relevance). They aim to decarbonize operations and implement water efficiency strategies while creating and maintaining habitats for wildlife.

4.1.6. South America

In South America, corporate governance is ranked as medium, indicating that companies have reported on management practices such as waste and water management to ensure responsible operations. CSN Group, for example, highlights the implementation of a transparent and consistent performance management process through a management committee. They also emphasize the application of structured risk management processes (32 % relevance) in compliance with national and international requirements. Economic aspects are ranked very low, with only brief mentions of financial performance and investment strategies. Labour practices are ranked low, with a focus on incentivizing employee performance, ensuring employee well-being through health and safety measures (18 % relevance), and providing benefits as per local legislation.

Society is ranked low, with mentions of local communities as stakeholders (25 % relevance), but limited details on engagement activities. The environment is ranked low, with brief mentions of water conservation (16 % relevance), air emissions monitoring (22 % relevance), and tailings waste management efforts (11 % relevance). For example, Vale highlights the removal of tailings as a crucial step in achieving environmental reparation, but further details are lacking. Overall, the reports indicate a focus on responsible environmental practices, but specific measures and outcomes are not extensively discussed.

4.2. Stakeholder identification and stakeholders' sustainability interests

4.2.1. Stakeholder identification

To explore sustainability aspects concerning various stakeholders, the initial stage involved identifying the stakeholder groups referenced by each company in adherence to the G4 GRI (2015) standard disclosure on stakeholder engagement [Section 4.1](#). The most mentioned stakeholder groups across all continents included employees, communities, NGOs/special interest groups, financiers/investors/shareholders, and customers. Additionally, suppliers and governments were identified as

important stakeholder groups, although their explicit mention varied amongst continents.

Media was recognised as a stakeholder group on five continents, indicating its significance in sustainability discussions. Other stakeholder groups mentioned by companies included trade unions, industry partners, academia, and international organizations. Interestingly, African, Australian, Asian, and South American companies diverged from Freeman's 2-tier stakeholder map by identifying the environment as a material stakeholder.

4.2.2. Stakeholders' sustainability interests

A concise overview of the findings indicates that while there are some overlapping themes of interest across different stakeholder groups and continents, there are also unique focal points specific to each region. For instance, when examining the employee stakeholder group across all continents (see Appendix B), Africa's employees prioritise issues such as gender-based violence and the future of work, Australia highlights well-being and work-life balance, Europe emphasises inclusion and diversity, and North America places importance on community development and total rewards. South America, on the other hand, focuses on people management and risk management. Meanwhile, Asia's employees attach great importance to employee rights, equal employment opportunities, and environmental sustainability. These variations in priorities underscore the diverse social, cultural, and economic contexts in which these companies operate, as well as the specific challenges faced by stakeholders in each unique region.

Using GRI's guidance (G4–27, 2015), analysing engagement areas across continents revealed insightful trends (see Appendix D). For example, community priorities differed: Europe highlighted investment, sustainability, and socio-economic development; North America focused on development, heritage, opportunities, and transparency. South America centred on local impacts, water access, and dam safety; Africa covered socio-economic issues, representation, resettlement, and water. Australia emphasised indigenous ties, environmental impact, and local procurement. Asia highlighted resource management, climate, economy, and sustainability.

Financiers/investors/shareholders' concerns globally involve climate, finance, operations, ESG performance, with slight variations. Specific priorities vary by continent, underscoring the need to address unique concerns for sustainability. See Appendix B for stakeholder interests within each continent.

4.3. Stakeholder management practice

The results of the SM practices show that only approximately 19 % of the companies did not report on their SM practices or mentioned only one of the aspects of SM such as stakeholder identification. 50 % of the companies were rated medium, meaning they reported two to three of the SM aspects. Most companies rated medium addressed stakeholder identification, stakeholder interests and methods of communication. Most companies did not explicitly describe their SM practices or their guiding principles. Approximately 31 % of the companies were best in class based on describing their SM practices in relation to the four criteria used.

Prevalently, the companies who describe their SM practices emphasise stakeholder identification, communication, timely information sharing, and continuous improvement. Impala Platinum Holdings stands out with an 8-step engagement process. This includes stakeholder identification, defining concerns and solutions, aligning desires with business goals, internal alignment, and risk management. Similar transparency is seen in EN Group, Holcim, Anglo American Platinum, and Zijin Mining.

Another noteworthy finding was that a significant number of companies that adopted the GRI guidelines or other guiding frameworks like the ICMM sustainable development frameworks achieved either high or medium ratings. Conversely, half of the companies receiving low ratings

did not employ the GRI guidelines in the preparation of their reports. Amongst the companies following GRI guidelines, only around 12 % were given a low rating. This outcome can largely be attributed to instances where stakeholder identification was the only aspect addressed, and comprehensive SM details were addressed in a separate document from the sustainability report. This was exemplified by Rio Tinto, where such information was contained within their annual report rather than the sustainability report.

5. Discussion and conclusions

This explorative study's results provide valuable insights into what companies communicate on and which stakeholders' interests they prioritise and how they describe their SM practice to their stakeholders. The results underscore a prevailing emphasis on corporate governance frameworks, evident across all continents with ratings ranging from very high to medium. This approach involves the adoption of self-regulatory measures, effective management systems, and the establishment of risk management frameworks. This is indicative of the current trend in industry with the prevailing need to respond to stakeholder demands on environmental issues such as water management, social aspects such as diversity and inclusion (Mitchell, 2022). Risk management frameworks are also essential to respond to eminent geopolitical tensions, supply chain disruptions and stakeholders growing demand for climate action (Lindman et al., 2020; Stocker et al., 2020).

The consideration of societal aspects, such as engagement with local communities, varied significantly across different continents. Notably, North America and the African continent displayed a particular emphasis on this aspect. In the context of Africa, mining operations have had detrimental effects on local communities, manifested through health challenges because of abandoned mine tailings, and water contamination, and exacerbated by other social issues such as lack of employment opportunities and relevant skills (Dikgwatlhe and Mulenga, 2023). In response to rectifying these adverse effects and enhancing their corporate image, companies have implemented systems and mechanisms to identify critical concerns for both their business and the local stakeholders (Jenkins, 2004). For example, Gold Field Limited has a stakeholder engagement process that includes extensive surveys aimed at stakeholders to understand the views and feelings of stakeholders about the business operations, named the baseline stakeholder perception survey.

While the different aspects communicated by the companies contribute to value creation, of particular significance in this study is the alignment of the communicated aspects with stakeholders' interests as this determines if and how broad the value creation spreads (Tapani-naho and Heikkinen, 2022). While the reports represent the organisations' chosen sustainability aspects discussed and the level of detail (Campra et al., 2020), it is interesting to observe the connection between the discussed aspects and the interests of the stakeholder groups.

According to the results of this study, sustainability reports have primarily served to cater to the demands of primary stakeholders, particularly investors (see Appendix D). These reports have been crafted with a predominant focus on meeting ESG rating criteria (Campra et al., 2020), often relegating secondary stakeholders, such as local communities, to the periphery of reporting strategies (Moratis and Brandt, 2017). It is becoming apparent that this strategy falls short of encouraging real accountability and engagement. The narratives within sustainability reports in this study are typically broad when addressing the localised implications of corporate operations in the globalised landscape of multinational firms. Local communities may feel cut off from the greater sustainability discourse because of this lack of detail.

It is necessary to understand, nonetheless, that sustainability reporting does not serve as a comprehensive summary of a company's sustainability initiatives (Jenkins, 2004). These reports ought to be seen as a component of a larger communication strategy as information targeting other stakeholders and addressing and prioritising other

sustainability aspects may be found in other communication platforms. Notwithstanding, the diverse aspects addressed by the reports in this study underscore the need for tailored approaches and strategies to address region-specific concerns and foster meaningful relationships with local communities to contribute to sustainable development in each area. By undertaking these measures, companies aim to not only address the negative legacies (Stocker et al., 2020), achieve their CSR objectives (Ranängen and Zobel, 2014) but also to obtain or maintain a SLO (Lindman et al., 2020; Ranängen and Lindman, 2020).

Based on the results of this study the following recommendations can be employed by companies working to create value for broad stakeholder groups through their SM practices, summarised in Fig. 2.

- Increase the scope of identified stakeholders.

To improve the identification of secondary stakeholders, businesses should move away from utilising broad, generic stakeholder categories, such as "communities". This prevailing practice, which was found in this study and has also been identified in prior research by Jenkins (2004), remains largely unchanged. Instead, they should adopt a more intricate categorisation (e.g., community landowners, unemployed youth, aboriginal groups) that outlines the specific nature of these stakeholders, see Freemans et al. (2007) specific stakeholder map (p.62). Furthermore, the level of engagement with these identified stakeholders should be specified (Ranängen and Lindman, 2020). This differentiation is essential since the various stakeholders, although falling within the overarching category of the local community stakeholders, possess distinct and diverse interests and as such businesses should be aware of these differences and factor them in accordingly during decision-making and value-creation processes.

- Employ genuine bilateral communication using appropriate communication channels.

As shown in the results of this study, there may be areas of converging interests or potential for such convergence. As such, companies who intend to create broad value creation should employ processes that promote genuine bi-lateral engagement and communication with secondary stakeholders, considering justification of interests (Kujala et al., 2012) geographical context, level of education (Jenkins, 2004), and cultural context to build trust (Rodolaki et al., 2023) create mutual value (R. Freeman et al., 2007; Matos and Silvestre, 2013) and reduce the likelihood of conflict escalation (Campra et al., 2020) and

obtain social acceptance (Lindman et al., 2020; Ranängen and Lindman, 2020).

- Leverage similar interests for joint value creation.

This study indicates that stakeholders often have varying interests and may prioritise them differently. This can create challenges for companies trying to effectively manage the diverse concerns of their stakeholders (Velter et al., 2020). To address these challenges, it is crucial for companies to understand what their stakeholders are interested in (Freeman et al., 2007; Jenkins, 2004). This helps identify where there are connections or similarities in stakeholder interests.

This study reveals the necessity of addressing diverse and occasionally conflicting stakeholder interests through strategic means. Favouring certain stakeholders over others contradicts stakeholder theory's moral basis that advocates considering varied perspectives for value creation. To address this, firms can focus on shared interests amongst stakeholder groups, fostering value beneficial to all. For instance, in Africa, customers and investors have common interests in climate change and ESG suggests aligning sustainability goals to satisfy many stakeholders. Harmonizing relationships by nurturing shared interests has proven valuable for a broad stakeholder group (Matos and Silvestre, 2013).

- Formulate and report transparently on SM practice.

Findings show limited comprehensive stakeholder engagement information outlined in the reports. While reporting based on existing reporting standards bring structure and comparability to assess performance and practices in the industry, firms should strive to exceed minimal reporting requirements. This illustrates commitment to inclusive decision-making and transparency, aligning with rising stakeholder demands on prevention of misleading environmental and social claims. According to Mitchell (2022), this will have a bearing on the mining companies ability to secure funding, but also to obtain a SLO. Despite communication channels and materiality analysis, overarching methodologies for SM should be made clearer in reporting. This view to have complete information dissemination to stakeholders is identified as one of the activities that lead to stakeholder satisfaction (Moratis and Brandt, 2017).

In conclusion, this study sheds light on sustainability communication and stakeholder prioritisation, offering insights into sustainable development processes as it pertains to CSR practices. Continental emphasis on governance and risk management is evident. Mining companies worldwide are responding to current environmental factors like geopolitics and stakeholder concerns regarding ESG. Although this response can bring value to a somewhat broad range of stakeholders over time, it is essential for mining companies to proactively take steps beyond these reactions. This may involve changes in their business models and the adoption of stakeholder engagement practices that are tailored for sustainable development based on location, culture, education and living conditions to genuinely create and maintain broad value for all stakeholders.

This study points out that alignment of communicated aspects with stakeholder interests is vital for broad value creation. Primary stakeholders' resonance with reported aspects is common. To broaden value, companies should widen stakeholders identified, genuinely involve secondary stakeholders, leverage shared interests, and enhance SM reporting. This underscores aligning communication with stakeholder interests for sustainable value creation.

Despite limitations such as data variability resulting from varying reporting standards and inherent biases within sustainability reports, the utilisation of content analysis software aided in extracting objective data from these reports, establishing a structured foundation for analysis. Furthermore, the sustainability reports offered valuable insights into prevailing industry trends, best practices, and areas requiring improvement.

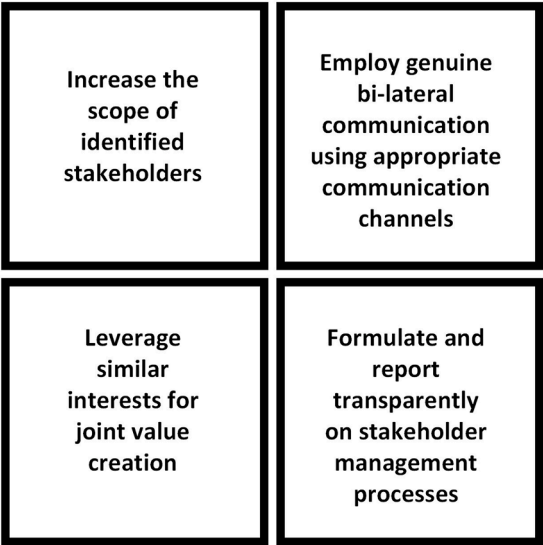


Fig. 2. Factors for SM improvement to enhance broad value creation.

6. Future research

To achieve the main goal of this research project, which aims to add to the literature on SBM by investigating how companies can provide value to a wider group of stakeholders, future research will address the following question: What steps can businesses take to effectively involve various stakeholders in their SBM? We will answer this question by creating a framework based on previous research. This framework will then be tested to see if it can be used to assess and develop how companies engage with stakeholders in their SBM, with the goal of creating value for a larger range of stakeholders.

Based on the insights from this study, it appears that mining companies, while they are striving to create value for a broader range of stakeholders may be falling short. This then necessitates the need for mining businesses to go beyond reacting to stakeholder interests but to instead implement proactive measures in anticipation of social and environmental concerns surrounding their operations. Thus, companies looking to create value for a broader group of stakeholders, as well as researchers aiming to expand understanding in SM, can explore how businesses can transition from a reactive approach to stakeholder concerns to a more proactive one to effectively address social and environmental aspects. Further research can also explore how to handle different stakeholder interests to lower the chances of conflicts arising.

CRedit contribution statement

Kabelo Esther Rathobei: Formal analysis, Methodology, Writing – original draft, Writing – review & editing. **Helena Ranängen:** Conceptualization, Methodology, Supervision, Writing – review & editing. **Åsa Lindman:** Conceptualization, Methodology, Supervision, Writing – review & editing.

Declaration of competing interest

The authors have no conflict of interest.

Funding

This project was made possible with partial support from SUN Research School.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at [doi:10.1016/j.exis.2024.101412](https://doi.org/10.1016/j.exis.2024.101412).

References

- Ansu-Mensah, P., Marfo, E.O., Awuah, L.S., Amoako, K.O., 2021. Corporate social responsibility and stakeholder engagement in Ghana's mining sector: a case study of Newmont Ahafo mines. *Int. J. Corp. Soc. Responsib.* 6 (1), 1. <https://doi.org/10.1186/s40991-020-00054-2>.
- Attanasio, G., Preghenella, N., Toni, A.F.D., Battistella, C., 2022. Stakeholder engagement in business models for sustainability: the stakeholder value flow model for sustainable development. *Bus. Strategy. Environ.* 31 (3), 860–874. <https://doi.org/10.1002/bse.2922>.
- Baker, S., 2015. Sustainable Development, 2nd ed. Taylor and Francis <https://www.perlego.com/book/1618769/sustainable-development-pdf>. (Original work published 2015).
- Bezzola, S., Günther, I., Brugger, F., Lefoll, E., 2022. CSR and local conflicts in African mining communities. *World Dev.* 158, 105968 <https://doi.org/10.1016/j.worlddev.2022.105968>.
- Bocken, Boons, F., Baldassarre, B., 2019. Sustainable business model experimentation by understanding ecologies of business models. *J. Clean. Prod.* 208, 1498–1512. <https://doi.org/10.1016/j.jclepro.2018.10.159> (Journal Article).
- Bocken, Short, S.W., Rana, P., Evans, S., 2014. A literature and practice review to develop sustainable business model archetypes. *J. Clean. Prod.* 65, 42–56. <https://doi.org/10.1016/j.jclepro.2013.11.039> (Journal Article).
- Boons, F., Lüdeke-Freund, F., 2013. Business models for sustainable innovation: state of the art and steps towards a research agenda. *J. Clean. Prod.* 45, 9–19. <https://doi.org/10.1016/j.jclepro.2012.07.007>.
- Campra, M., Esposito, P., Lombardi, R., 2020. The engagement of stakeholders in nonfinancial reporting: new information-pressure, stimuli, inertia, under short-termism in the banking industry. *Corp. Soc. Responsib. Environ. Manage.* 27 (3), 1436–1444. <https://doi.org/10.1002/csr.1896>.
- Comin, L.C., Aguiar, C.C., Sehnem, S., Yusliza, M.-Y., Cazella, C.F., Julkovski, D.J., 2020. Sustainable business models: a literature review. *Benchmarking* 27 (7), 2028–2047. <https://doi.org/10.1108/BJ-12-2018-0384>.
- Dahlsrud, A., 2008. How corporate social responsibility is defined: an analysis of 37 definitions. *Corp. Soc. Responsib. Environ. Manage.* 15 (1), 1–13. <https://doi.org/10.1002/csr.132>.
- Dikgwathhe, P., Mulenga, F., 2023. Perceptions of local communities regarding the impacts of mining on employment and economic activities in South Africa. *Resour. Policy* 80, 103138 <https://doi.org/10.1016/j.resourpol.2022.103138>.
- Donaldson, T., Preston, L.E., 1995. The stakeholder theory of the corporation: concepts, evidence, and implications. *Acad. Manag. Rev.* 20 (1), 65–91. <https://doi.org/10.2307/258887>. JSTOR.
- Drusche, O., Krause, S., 2021. Potentials of business model innovation and values-based management approaches in the mining sector. *E3S Web Conf.* 266 <https://doi.org/10.1051/e3sconf/202126606004> (Journal Article).
- Dunbar, W.S., Fraser, J., Reynolds, A., Kunz, N.C., 2020. Mining needs new business models. *Extr. Ind. Soc.* 7 (2), 263–266. <https://doi.org/10.1016/j.exis.2019.07.007>.
- European Commission, 2019. Communication From The Commission To The European Parliament, The European Council, The Council, The European Economic And Social Committee And The Committee Of The Regions The European Green Deal. European Commission. <https://eur-lex.europa.eu/resource.html?uri=cellar:b828d165-1c22-11ea-8c1f-01aa75ed71a1.0002.02>.
- EY, 2021. Top 10 Business Risks and Opportunities For Mining and Metals in 2022. EY. https://www.ey.com/en_au/mining-metals/top-10-business-risks-and-opportunities-for-mining-and-metals-in-2022.
- Fiore, M., Galati, A., Golebiewski, J., Drejerska, N., 2020. Stakeholders' involvement in establishing sustainable business models The case of Polish dairy cooperatives. *Br. Food J.* 122 (5), 1671–1691. <https://doi.org/10.1108/BFJ-04-2019-0263>.
- Freeman, R., Harrison, J., Wicks, A., 2007. *Managing For Stakeholders. Survival, Reputation, and Success*. Yale University Press.
- Freudenreich, B., Lüdeke-Freund, F., Schaltegger, S., 2019. A stakeholder theory perspective on business models: value creation for sustainability. *J. Bus. Ethics* 166 (1), 3–18. <https://doi.org/10.1007/s10551-019-04112-z>.
- GRI, 2015. G4-Sustainability-Reporting-Guidelines-Implementation-Manual-GRI-. Global reporting initiative. <https://respect.international/wp-content/uploads/2017/10/G4-Sustainability-Reporting-Guidelines-Implementation-Manual-GRI-2013.pdf>.
- Guo, L., Cao, Y., Qu, Y., Tseng, M.-L., 2022. Developing sustainable business model innovation through stakeholder management and dynamic capability: a longitudinal case study. *J. Clean. Prod.* 372 <https://doi.org/10.1016/j.jclepro.2022.133626>.
- Hitch, M., Barakos, G., 2021. Virtuous natural resource development: the evolution and adaptation of social licence in the mining sector. *Extr. Ind. Soc.* 8 (2), 100902 <https://doi.org/10.1016/j.exis.2021.100902>.
- Idowu, S.O., 2021. *Current Global Practices of Corporate Social Responsibility: In the Era of Sustainable Development Goals*. Springer International Publishing. <https://doi.org/10.1007/978-3-030-68386-3>.
- Jenkins, H., 2004. Corporate social responsibility and the mining industry: conflicts and constructs. *Corp. Soc. Responsib. Environ. Manage.* 11 (1), 23–34. <https://doi.org/10.1002/csr.50>.
- Jonas, J.M., Roth, A., Möslin, K.M., 2016. Stakeholder integration for service innovation in german medium-sized enterprises. *Serv. Sci.* 8 (3), 320–332. <https://doi.org/10.1287/serv.2016.0152>.
- Kim, D., Kim, S., 2017. Sustainable supply chain based on news articles and sustainability reports: text mining with Leximancer and DICTION. *Sustainability* 9 (6), 1008. <https://doi.org/10.3390/su9061008>.
- Kujala, J., Heikkinen, A., Lehtimäki, H., 2012. Understanding the nature of stakeholder relationships: an empirical examination of a conflict situation. *J. Bus. Ethics* 109 (1), 53–65. <https://doi.org/10.1007/s10551-012-1379-2>.
- Kujala, J., Lehtimäki, H., Myllykangas, P., 2017. Value co-creation in stakeholder relationships: a case study. In: Freeman, R.E., Kujala, J., Sachs, S. (Eds.), *Stakeholder Engagement: Clinical Research Cases*. Springer International Publishing, pp. 15–30. https://doi.org/10.1007/978-3-319-62785-4_2.
- Kujala, J., Sachs, S., Leinonen, H., Heikkinen, A., Laude, D., 2022. Stakeholder engagement: past, present, and future. *Bus. Soc.* 61 (5), 1136–1196. <https://doi.org/10.1177/00076503211066595>.
- Lemon, L.L., & Hayes, J. (2022). Enhancing trustworthiness of qualitative findings: using Leximancer for qualitative data analysis triangulation.
- Leximancer. (2021). Leximancer User guide. <https://www.leximancer.com/resources>.
- Liesch, P.W., Häkansson, L., McGaughey, S.L., Middleton, S., Cretchley, J., 2011. The evolution of the international business field: a scientometric investigation of articles published in its premier journal. *Scientometrics* 88 (1), 17–42. <https://doi.org/10.1007/s11192-011-0372-3>.
- Lindman, Å., Ranängen, H., Kauppila, O., 2020. Guiding corporate social responsibility practice for social license to operate: a Nordic mining perspective. *Extr. Ind. Soc.* 7 (3), 892–907. <https://doi.org/10.1016/j.exis.2020.07.013>.
- Marconatto, D.A.B., Barin-Cruz, L., Pozzebon, M., Poitras, J.-E., 2016. Developing sustainable business models within BOP contexts: mobilizing native capability to cope with government programs. *J. Clean. Prod.* 129, 735–748. <https://doi.org/10.1016/j.jclepro.2016.03.038>.
- Matikainen, L.S., 2022. Addressing sustainability in the mining industry through stakeholder engagement. *South Asian J. Bus. Manag. Cases* 11 (1), 35–48. <https://doi.org/10.1177/22779779221078673>.

- Matos, S., Silvestre, B.S., 2013. Managing stakeholder relations when developing sustainable business models: the case of the Brazilian energy sector. *J. Clean. Prod.* 45, 61–73. <https://doi.org/10.1016/j.jclepro.2012.04.023>.
- McWilliams, A., Rupp, D., Siegel, D., Stahl, G., Waldman, D., 2019. *The Oxford handbook of Corporate Social responsibility: Psychological and Organizational Perspectives*, 1st edition. Oxford university press.
- Minoja, M., 2012. Stakeholder management theory, firm strategy, and ambidexterity. *J. Bus. Ethics* 109 (1), 67–82. <https://doi.org/10.1007/s10551-012-1380-9>.
- Mitchell, P. (2022). Top 10 business risks and opportunities for mining and metals in 2023. https://www.ey.com/en_gl/mining-metals/risks-opportunities.
- Mitchell, R.K., Agle, B.R., Wood, D.J., 1997. Toward a theory of stakeholder identification and salience: defining the principle of who and what really counts. *Acad. Manag. Rev.* 22, 853–886. <https://doi.org/10.2307/259247>.
- Moratis, L., Brandt, S., 2017. Corporate stakeholder responsiveness? Exploring the state and quality of GRI-based stakeholder engagement disclosures of European firms. *Corp. Soc. Responsib. Environ. Manage* 24 (4), 312–325. <https://doi.org/10.1002/csr.1408>.
- Pedriani, M., Ferri, L.M., 2019. Stakeholder management: a systematic literature review. *Corp. Gov.* 19 (1), 44–59. <https://doi.org/10.1108/CG-08-2017-0172>.
- Poelzer, G., Yu, S., 2021. All trust is local: sustainable development, trust in government and legitimacy in northern mining projects. *Resour. Policy* 70, 101888 <https://doi.org/10.1016/j.resourpol.2020.101888> (Journal Article).
- Preghenella, N., Battistella, C., 2021. Exploring business models for sustainability: a bibliographic investigation of the literature and future research directions. *Bus. Strategy. Environ.* 30 (5), 2505–2522. <https://doi.org/10.1002/bse.2760>.
- Prno, J., Scott Slocombe, D., 2012. Exploring the origins of ‘social license to operate’ in the mining sector: perspectives from governance and sustainability theories. *Resour. Policy* 37 (3), 346–357. <https://doi.org/10.1016/j.resourpol.2012.04.002>.
- Ragonnaud, G., 2023. *Critical Raw Materials Act* (BRIEFING EU Legislation in Progress PE 747.898 –). European parliament. [https://www.europarl.europa.eu/RegData/etudes/BRIE/2023/747898/EPRS_BRI\(2023\)747898_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2023/747898/EPRS_BRI(2023)747898_EN.pdf).
- Ranängen, H., Lindman, Å., 2017. A path towards sustainability for the Nordic mining industry. *J. Clean. Prod.* 151, 43–52. <https://doi.org/10.1016/j.jclepro.2017.03.047>.
- Ranängen, H., Lindman, Å., 2018. Exploring corporate social responsibility practice versus stakeholder interests in Nordic mining. *J. Clean. Prod.* 197 (1), 668–677. <https://doi.org/10.1016/j.jclepro.2018.06.159>.
- Ranängen, H., Lindman, Å., 2020. Walk the talk—a sustainability management system for social acceptance in nordic mining. *Sustainability* 12 (9), 3508. <https://doi.org/10.3390/su12093508>.
- Ranängen, H., Zobel, T., 2014. Revisiting the ‘how’ of corporate social responsibility in extractive industries and forestry. *Spec. Vol.* 84, 299–312. <https://doi.org/10.1016/j.jclepro.2014.02.020>.
- Rodolaki, C., Barakos, G., 2023. Understanding the social license to operate from a cultural perspective: the case studies of Australia, Greece, and India. *RawMat* 2023, 3. <https://doi.org/10.3390/materproc2023015003>.
- Rodolaki, C., Barakos, G., Hitch, M., 2023. The role of intercultural differences and challenges faced in negotiating active mine sites’ rehabilitation objectives from Africa to Europe. *Extr. Ind. Soc.* 16, 101362 <https://doi.org/10.1016/j.exis.2023.101362>.
- Schneider, S., Clauss, T., 2020. Business models for sustainability: choices and consequences. *Organ. Environ.* 33 (3), 384–407. <https://doi.org/10.1177/1086026619854217>.
- Statista, 2021. Top 100 Companies worldwide: Mining, Metals & Minerals, 28. Statista. <https://www.statista.com/studies-and-reports/companies-and-products>.
- Statista, 2024. Publishing Statista Content. Statista. <https://www.statista.com/getting-started/publishing-statista-content-citation-and-integration>.
- Steffen, W., Richardson, K., Rockström, J., Cornell, S.E., Fetzer, I., Bennett, E.M., Biggs, R., Carpenter, S.R., de Vries, W., de Wit, C.A., Folke, C., Gerten, D., Heinke, J., Mace, G.M., Persson, L.M., Ramanathan, V., Reyers, B., Sörlin, S., 2015. Planetary boundaries: guiding human development on a changing planet. *Science* 347 (6223), 1259855. <https://doi.org/10.1126/science.1259855>.
- Stocker, F., de Arruda, M.P., de Mascena, K.M.C., Boaventura, J.M.G., 2020. Stakeholder engagement in sustainability reporting: a classification model. *Corp. Soc. Responsib. Environ. Manage* 27 (5), 2071–2080. <https://doi.org/10.1002/csr.1947>.
- Stubbs, W., 2017. Characterising B Corps as a sustainable business model: an exploratory study of B Corps in Australia. *J. Clean. Prod.* 144, 299–312. <https://doi.org/10.1016/j.jclepro.2016.12.093>.
- Stubbs, W., Cocklin, C., 2008. Conceptualizing a “sustainability business model. *Organ. Environ.* 21 (2), 103–127. <https://doi.org/10.1177/1086026608318042>.
- Tapaninaho, R., Heikkinen, A., 2022. Value creation in circular economy business for sustainability: a stakeholder relationship perspective. *Bus. Strategy. Environ.* 31 (6), 2728–2740. <https://doi.org/10.1002/bse.3002>.
- Velter, M.G.E., Bitzer, V., Bocken, N.M.P., Kemp, R., 2020. Sustainable business model innovation: the role of boundary work for multi-stakeholder alignment. *J. Clean. Prod.* 247, 119497 <https://doi.org/10.1016/j.jclepro.2019.119497>.
- Yin, R. (2018). *Case study research and applications design and methods* (6th ed.).