

Research paper

The Politics of Circular Economy Networks – How Inter-Organisational Networks Manage Succession

Tawanda Collins Muzamwese^{1*}

Handling Editor: Sigurd Sagen Vildåsen

Received: 07.05.2024/ Accepted: 28.10.2024

©The Authors 2025

Abstract

Attaining a Circular Economy is an aspired dream of the collective human race. Through collaboration and networks, it is possible to fast-track the implementation of Circular Economy. However, the function of networks is affected by political processes within the network. This paper assesses network politics and its effects on Circular Economy activities. The study was based on 9 Case Studies located in Zimbabwe, South Africa and Kenya. Through interviews, questionnaire, observation and document reviews; two succession patterns emerge - namely *electoral* and *appointment of incumbents*. The research concludes that there is jostling for positions and tendencies of voting on regional lines. Consideration of merit in appointing network leadership lags behind charisma, oratory skills and popularity of candidates. Furthermore, politics of networks present opportunities to select leaders with influence, power and Circular Economy capabilities. The unclear role of founder members may cause upheavals and recycling of leadership, whilst paradoxically presenting benefits of institutional memory.

Keywords: Circular Economy · Sustainable Business Networks · Politics, Succession · Collaboration

1. INTRODUCTION

1.1 Global Circular Economy Imperative

The quest to attain a Circular Economy has become a very relevant issue to the development of society and has attracted attention in different parts of the world (Ghisellini, Cialani, & Ulgiati, 2016). In order to overcome the linear model of survival, new models of development aligned to circularity are imperative (Ellen MacArthur Foundation, 2012). Consequently, the urgency of the transition has been fuelled by the apparent environmental, climate, waste and chemical toxicology crises affecting both developed and developing countries. Climate change is one of the challenges threatening humanity, with global temperatures on the rise (Sithole, et al., 2023). Through circular economy, emissions can be reduced through less waste, reduced resource intensity, reusing materials; thereby mitigating climate change (Ellen MacArthur Foundation, 2012). Waste generation remains a significant challenge for developing country societies (Ncube, et al., 2022). Transforming the way of production and consumption towards cleaner production is a potential pathway to the liberation of the current generation from the belly of environmental catastrophe (Nhapi & Hoko, 2004). Furthermore, adopting patterns of consumption that are less resource intensive, is essential for preserving environmental resources.

Networks of organisations have been established in different parts of the world to provide a platform for inter-organisational collaboration in the area of a circular economy (Baah, Agyabeng-Mensah, Afum, & Kumi, 2023) (Blasi, Fano, Sedita, & Toschi, 2022) (Jager & Pisciscoli, 2021) (Tura, Keranen, & Patala, 2019) (Mahuni & Bonga, 2016) (Mbohwa, Rwakatiwana, & Fore, 2010). Networks can be geographically clustered or dispersed. They provide training, awareness, technical assistance, financing and coordinating capabilities in the quest for transition towards a circular economy. The networks also face barriers such as financing and differences in priorities (Bacudio, et al., 2016) (Kierans & Chen, 2022).

¹ University of Twente, Department of Technology and Governance for Sustainability, Netherlands
Corresponding Author: tmuzamwese@gmail.com

However, in recent years it has been noted that the politics of the Sustainable Business Networks has a bearing on their eventual ability to deliver high impact circular economy activities. Politics is endemic in most organisations due to the need for consolidating power and asserting control (Atchison, 2017). Whilst there is overwhelming interest to manage and lead networks, not all individuals have the capacity to manage a network. Therefore, the processes of transfer of power in networks have been riddled with problems such as ushering ineffective leadership, competition for positions, divisions amongst network members, pre-election resentment, post-election resentment and rivalry.

The challenge of succession in sustainable business networks has the potential to affect the ability to transfer circular economy activities within the network. Succession refers to the transfer of power and leadership responsibilities (Chikerema & Nzewi, 2020). The lack of clearly defined processes of transfer of power within networks, could also be the reason why some networks develop conflicts and disagreements that have the potential to divide the network and therefore, diminish the circular economy capabilities of the association. Some of the problems associated with network politics include the lack of attainment of deliverables of the Circular Economy Networks and retardation of network programmes. Alliances amongst members and grouping towards a specific network ideology may also brew elements of bitterness and negativity towards other network members.

Within the literature, there is no independent research undertaken to understand the effects of organisational politics on Circular Economy networks. This research aims to break this ground. Understanding these issues, could provide a clue as to why networks succeed or fail. The knowledge gaps associated with the lack of information on the politics of Circular Economy networks is more glaring in Africa. This research aims to assess the politics of Circular Economy networks and understand their succession dynamics in order to identify approaches to enhance their impact.

Focusing on organisational politics and fighting for power, is not a guarantee of increasing the capabilities of the network to deliver Circular Economy results. For all levels of networks, such as sectoral, regional, national, international and supply chain networks – politics may exist in moderation or in toxic levels. Network members do not always agree on various issues (Tura, Keranen, & Patala, 2019). The level of rivalry may differ depending on the process of transfer of power within the network. Whilst within other types of networks, constitutions stipulate that leaders are nominated or appointed for succession; in other networks, the succession process is undertaken through election at the essential meetings such as Annual General Meetings (AGM). This research finds its relevance in understanding the politics of Circular Economy networks, to form a foundation of strengthening their governance processes. Understanding network politics could provide key clues to the reasons why networks succeed or fail; as well as strengthen their corporate governance dynamics. The relevance of research on political processes underpinning network development and success has the possibility to explain their prosperity or demise due to power dynamics. Furthermore, the research finds relevance in explaining the effect of network politics on delivery of Circular Economy activities and longevity of collaborative networks.

Although the politics, governance and succession decisions of networks play a leading role in the success or failure of the networks – in developing country contexts, these issues are not clearly understood. In extreme circumstances, networks have had to split and breakdown the network relationships. In this research we explore the following research questions:

- i) Do Sustainable Business Networks exhibit tenets of organisational politics?
- ii) How does the politics of the network affect or enhance its ability to deliver Circular Economy activities?
- iii) Which modes of succession are prevalent in Sustainable Business Networks in Zimbabwe, South Africa and Kenya?
- iv) How can the politics of Sustainable Business Networks be managed in order to prevent negative effects on the delivery of a circular economy services?

2. LITERATURE REVIEW

2.1 Sustainable Development and the Rise of a Circular Economy Networks

The world is faced with a barrage of challenges that are threatening the ability of the human race from survival. As early as 1987, the Brundtland Commission warned about the possibility of an environmental catastrophe, if sustainable development was not attained (Brundtland, 1987). They defined Sustainable Development as the development that meets the needs of the present without compromising future generations to meet their own needs (Brundtland, 1987). Sustainable development aims to attain positive outcomes for the people, planet and profit (Brundtland, 1987). It facilitates a model of development that enables society to develop, without environmental damage, whilst at the same time achieving economic prosperity. Sustainable development, in practice can be implemented through a range of approaches, including the emerging concept of circular economy.

A variety of concepts have been developed in pursuit of sustainable development. Circular Economy is one of the sustainable development models that is gaining serious momentum amongst different stakeholders. Circular Economy shifts from the “*Take-Make-Dispose*” philosophy to circular approaches of development (Ghisellini, Cialani, & Ulgiati, 2016). Its delivery can be achieved through idiosyncratic organisations or through the interactions attained by Sustainable Business Networks. Networks deliver novel tacit knowledge in the pathway to achieve sustainable development (Hart, 1995).

The vitality of sustainable business networks is essential in the attainment of green innovation. The literature on networks is based on empirical and theoretical findings from multiple country contexts (Aisbert, Raynal, & Steinhäuser, 2023) (Baah, Agyabeng-Mensah, Afum, & Kumi, 2023) (Blasi, Fano, Sedita, & Toschi, 2022) (Jager & Piscicelli, 2021) (Madanhire & Mupaso, 2018) (Mahuni & Bonga, 2016) (Samitthiwetcharong, Kulivanijaya, Suwanteep, & Chavaparit, 2023) (UNIDO, 2011) (Xu, Li, Wang, & Huang, 2019) (Xu, Wu, & Gu, 2023) (Berlin, Feldman, & Nuur, 2022) (Leising, Quist, & Bocken, 2018) (Mudavanhu, Dzomba, Mudavanhu, & Mazorodze, 2013) (Veleva & Bodkin, 2018) (Varrichio, Diogenes, Jorge, & Garnica, 2012) (Yin, Yan, & Zhang, 2022) (Schepman, et al., 2018) (Suchek & Franco, 2023).

Circular Economy networks undertake a variety of activities in the circular economy domains. Some of the key activities include waste management, energy efficiency, water efficiency, safe chemicals management and cleaner production approaches. They disseminate these approaches to network members through training, capacity building, technical assistance, conferences, webinars and other membership based events. In some cases, networks carry out financed projects in collaboration with development partners. They undertake these activities using different business models such as subscriptions, sponsorships, funded projects consultancy models and crowdfunding (Muzamwese, Heldeweg, & Franco-Garcia, 2024).

The sustainability concept explains why organisations come together to form networks in a manner aimed at meeting the needs of the present generation whilst minimising negative impacts on progressive generations (Brundtland, 1987). Other theories that explain the phenomenon of collaboration for a circular economy include the Institutional Isomorphism theory promulgated by (Di Maggio & Powell, 1983). The theory postulates that organisations gradually become similar in their tenets and capabilities due to coercive, mimetic and normative pressures. The same can apply to networks that promote a Circular Economy. Many case studies of Circular Economy are restricted to the Global North. However, recent work on Circular Economy application in the Global South, including in Africa, show the potential of circular economy to transform policy and technological boundaries (Schroder, Anantharaman, Anggaraeni, & Foxon, 2019). Furthermore, circular economy will address global inequalities between the Global North and the Global South. There is a link between circular economy, decarbonisation, policy strategy and attainment of the Sustainable Development Goal (SDGs) (Ghosh & Ghosh, 2023). Circular Economy efforts are evident in Africa through the emerging experiences of groupings such as the Africa Circular Economy Network (ACEN) (Koech, Munene, Kinoti, & Situma, 2023). Further cases of Circular Economy studies have been documented by (Muzamwese, Franco-Garcia, & Heldeweg, 2024) (Muzamwese, Heldeweg, & Franco-Garcia, 2024). The range of policy instruments for promoting circular economy in Global North and Global South include sermon type instruments, regulatory, incentives and information based instruments (Haswell, Edelenbosch, Piscicelli, & van Vuuren, 2024). Additional theories that explain this research include the Contextual Interaction Theory (CIT), which postulates that the success of policy goals is dependent on the information, power and cognitions of network actors (Bressers, 2007). Networks can operate in geographical proximity as innovation transfer agents (Boschma, 2005) (Fadly & Fontes, 2019). In other circumstances they can act as geographically dispersed entities. However, financing

remains a common barrier in circular economy business models and networks (Hina, Chauhan, Kaur, & Dhir, 2022)

2.2 History and Development of Networks

The development of early forms of business networks can be traced back to the formation of guilds dating back to the 12th century, up until the 18th century (Eichenberger, Rollings, & Schaufelbuehl, 2023). These represented the interests of certain professions such as merchants, weavers, judges and other professional interests. They were later abolished and new forms of collaboration emerged in the form of Chambers of Commerce (Eichenberger, Rollings, & Schaufelbuehl, 2023). More types of associations were formed in the 1900s and formation of the United Nations Environment Programme (currently known as UN Environment) helped greatly in fast tracking the urgency of the environmental agenda. Organisations such as the World Business Council for Sustainable Development, European Roundtable for Sustainable Consumption and Production; as well as the Global Resource Efficient and Cleaner Production Network, present more specific examples of networking in the context of the Circular Economy in the modern contextual setting. Evaluation of networks has become an emerging issue and frameworks such as the OECD, have been developed as evaluation frameworks (OECD DAC, 2019).

2.3 The Politics of Networks and Associations

The politics of associations has long been elaborated by (Atchison, 2017). Political organisation is therefore an aspect of the modern political system (Wang, 2022). Power is needed in order to assert human dominance and to earn validation. Power is also necessary to attain policy goals (Bressers, 2007). However, on technical domains such as Circular Economy, greater care needs to be taken amongst network members in selecting network leadership and avoid general politicking without considering the capacity of the network to deliver circular economy services to the generality of the membership.

Literature confirms that organisational politics has the potential to influence success or failure of an organisation (Gellar, 2005). Under extreme undesirable outcomes, political association can be a vehicle for individuals to attain individual power accumulation, selfish agendas and self-aggrandisement (Gellar, 2005). The little information available from the previous research relates to lobbying within Business Interest Associations (BIA) which are a form of networks and the information is scattered in isolated case studies (Eichenberger, Rollings, & Schaufelbuehl, 2023). Due to their ability to influence the flow of capital and globalisation, the BIAs are perceived to have power as actors in the developmental arena of globalisation

The typology of political issues which are prevalent in network organisations include jostling for positions, succession, leadership wrangles, nomination processes, rivalry and denigrating opponents in order to gain power. There are no documented models in literature which fully converge on what kind political regimes have prevailed in Circular Economy networks. The lack of certain knowledge on Circular Economy by incumbent leadership is a cause of concern in selected circular economy networks. Existence of politics within networks can yield both desirable or undesirable outcomes. Whilst networks are supposed to represent the interests of all members, it may be possible for them to be hijacked by the agenda of an individual or a group of individuals with different interests and professional competencies (Atchison, 2017).

The occurrence of political events within networks takes place under the framework of the institutionalised norms, constitutions and rules of the association. Some scholars term the politics that occurs within industry associations as “*micro-politics*” (Ronit, 2022). Whilst the “*rules of the game*” are defined, they may not always be followed in certain circumstances in reality.

Whilst networks pursue a collective aspiration of promoting a Circular Economy, scholars do not rule out a pursuance of the individual personal agenda in institutions (Gellar, 2005). Within the typology of African networks involved in the Circular Economy, there are knowledge gaps related to how the politics of the organisation either hinder or improve the organisation. In order to avoid divisions within the network itself, leadership should facilitate collaboration in the network. Several definitions of organisational politics are analysed by (Jafariani, Mortazavi, Nazemi, & Bull, 2012) to illustrate that political antics are ultimately aimed at consolidating an individual’s, interest rather than that of the collective. This research aims to assess the politics of Circular Economy Networks and determine effects on the delivery of Circular Economy activities within networks.

3. MATERIALS AND METHODS

The research was based on 9 case studies selected from developing African countries – Zimbabwe, South Africa and Kenya. Out of the 9 case studies 2 of them were for regional and continental networks. The Case Study research methodology was favoured due to its ability to understand depth rather than breadth of the cases. Selection of case studies was based on purposive sampling. The criteria for selection of case studies included the following:

- Geographical Location in a developing African country and in particular – Zimbabwe, South Africa and Kenya.
- Willingness to cooperate in the research.
- Thematic focus on Circular Economy related topic within the activities of the network.
- Formalisation of the network through registration or undertaking formal activities if not registered.

Interviews with network members were undertaken in 9 of the networks, and also the networks had document reviews undertaken on their network documents. Interviews were undertaken virtually and they were transcribed in order to determine common trends. The interview format was semi-structured in order to allow for further exploratory analysis. The responses were analysed using qualitative analysis. The questionnaire assessed governance practices, network activities and how leadership was selected in the network. By the time of finalising this research article a total of 71 network members had responded to the questionnaire. Follow-up questions were also asked in terms of the criteria and rationale of selecting network leadership including governance bodies such as Boards and Executive Committees. Interviews were undertaken with 20 key informants who were representatives from the network secretariats and members of the networks. Interviews were 40 minutes. In some cases, interviews took less time where respondents provided answers of multiple questions in specific responses. The interviews were undertaken with individuals in the form of Key Informant Interviews (KII). The selected respondents, were not interviewed in groups. This was done to prevent negative group dynamics of individuals who fail to express themselves in the presence of other people. Furthermore, due to the confidential nature of some of the information of each collaborative network, it was best to keep the interviewees separate. In addition, some information from the respondents was considered to be strategic to their network, and therefore, the need to interview them separately.

Document review was undertaken to assess electoral processes succession and constitutional aspects of leadership selection. As per content analysis in a formalised manner, we assessed constitutions of the networks, especially clauses that governed succession and leadership transition. We used these documents to determine the process of selection of leadership. Further document review also facilitated the determination of the degree of rivalry amongst network members and comparison was done with documented information from scholarly articles and responses from the questionnaires. Content analysis was also undertaken on meeting reports and annual reports of the networks. Content analysis was aimed at determining the processes governing succession within the networks and determining tenure periods of network leadership. Document reviews also included an analysis of network constitutions, charters, succession processes, criteria for selection of President or Chairperson, decision making platform, highest decision making body, term limits and thawing period after assuming leadership.

Observations were undertaken of Annual General Meetings of Case Study B and Case Study C, in order to assess what happens in an actual electoral process. Observations were undertaken of the electoral processes such as the Annual General Meeting. The case study selected for direct observations were chosen due to geographical proximity to the researcher, whereas others were assessed based on document review. The researcher managed to observe the General Assembly of the Case Study B and Case Study C.

Case Study research approach that was selected for the research is the hierarchic model. In this approach, individual cases were analysed and then cross case comparisons were undertaken on the case studies, focusing on their highest decision making body, succession processes, comparison of electoral or appointment processes. This allowed a deeper understanding of the political situation within the sustainable business networks. Case Study research strategy allowed for deeper understanding of depth rather than breadth of the cases (Yin R. 2., 2003). Within the hierarchic model of the case study variant, individual cases were studied individually and then compared with each other using uniform comparative criteria. (Yin R. 2., 2003) specifies that that case studies may have different levels ranging from single case studies or multiple case studies. Based on the comparative analysis, a general understanding of the deductions was attained to aid conclusive evaluations of the research.

The selection of Case Studies was anchored on a small “*domain*” of Sustainable Business Networks and an “*assertion*” of the politics. The research employed a strategic sampling strategy that was deliberate on selected organisational types involved in collaboration for a circular economy. Approaching the research from a selective sample allowed study of the specific research units involved in disseminating Circular Economy through networks. Data generated in the case study analysis was more qualitative and practice oriented in nature.

Triangulation of methods and triangulation of sources was attained through interviews, questionnaire response by network key information and content analysis of network activities. This triangulation of methodology was also coupled with the triangulation of sources. Triangulation facilitated effective appreciation of the true picture of activities within the networks. It was also used to guarantee data validity and reliability. Triangulation ensures that data collected is valid and reliable (Veschuren & Dooreward, 2010) The limitations of the research included the fact that the findings of the study may be restricted to organisations that were in the research and the outcomes may vary in different country contexts as they were context specific.

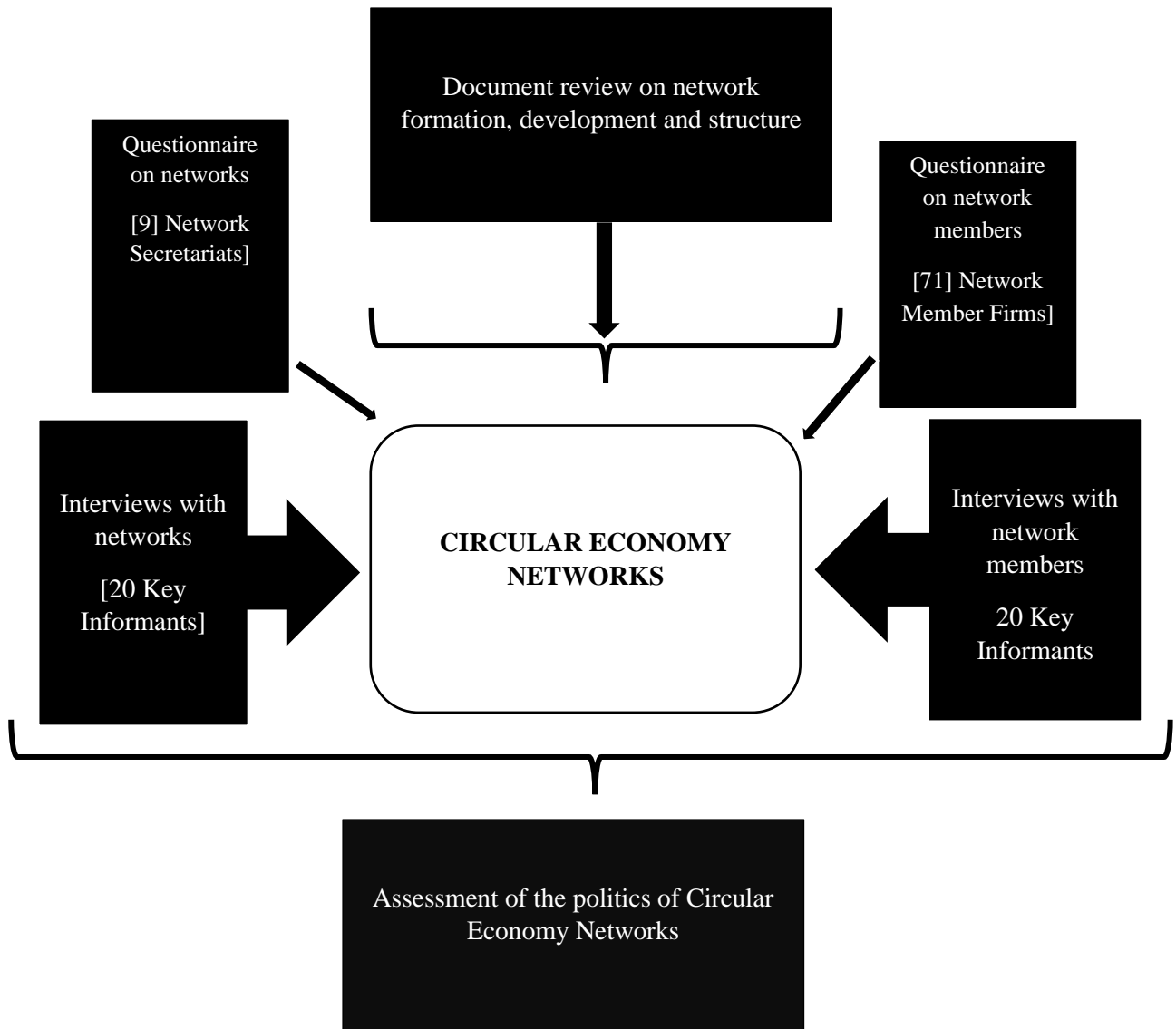


Figure 1. Data Collection Methods for Assessing Circular Economy Networks

4. RESULTS

4.1. Modes of Succession for Circular Economy Networks

There were differences and commonalities in the modes of succession for networks. The modes of succession were either electoral or by appointment. The most dominant mode was by electoral processes through a simple majority vote. In the case studies assessed, the mode of succession was determined by the constitution or charter of the network. These founding documents determined how the leadership would be selected, as well as how the nomination process was undertaken. In one case study, there was no constitutional provision for electoral processes. It was observed that most networks followed their succession processes based on the constitution or charter. However, there were situations where Board Members overstayed their welcome due to failure to convene regional roundtables and electoral events. This implied that if the network had ineffective leadership, it could only undertake leadership renewal during the next opportunity to convene membership. If this opportunity did not arise in the immediate future, the network viability was under jeopardy. Table 1 presents the different succession processes and criteria for selecting network leadership in the studied networks.

Table 1. Succession Processes of Selected Networks in Africa

Case Identity	Constitution/Charter	Succession Process	Criteria for Selection of President or Chairman	Decision Making Platform	Highest Decision Making Body	Term Limits	Thawing period
Case Study A	Constitution	Appointment	Willingness	Annual General Meeting	Executive Committee	No	Not applicable
Case Study B	Constitution	Appointment	Willingness	Annual General Meeting	Council	2 terms of 3 years	Not applicable
Case Study C	Charter	Electoral	Majority Vote	General Assembly	Executive Committee	2 terms of 2 years	Not applicable
Case Study D	Charter	Electoral	Majority Vote	Members Assembly	Board	2 terms of 2 years	Not applicable
Case Study E	Constitution	Appointment	Willingness	Annual General Meeting	Board	No term limits	Not applicable
Case Study F	Constitution	Electoral	Majority Vote	Cluster Meetings	No Board	No term limits	Not Applicable
Case Study G	No Constitution	Appointment	Willingness	Annual General Meeting	Board	No term limits	Not applicable
Case Study H	Constitution	Electoral	Majority Vote	Annual General Meeting	Board	2 terms of 4 years	Not applicable
Case Study I	Constitution	Electoral	Majority Vote	Annual General Meeting	Board	No term limits	Not applicable

4.2 Jostling for Positions

Two patterns of succession emerged in the results – one related to assuming office by appointment and another related to assuming leadership through elections. Both approaches had advantages and disadvantages. It was observed that there was an element of jostling for positions in networks that had electoral processes of succession. Such jostling was evident in the selection of Chairpersons, Presidents of the Network, Secretariat members, Executive Committee Members as well as Board members. During interviews with the key informants, the need for elections within Circular Economy networks was based on the need to ensure democratic transition of power and leadership renewal.

However, on the other hand, electoral processes tended to be competitive in some networks to the extent of causing rivalries. The motivation for the competitiveness, was based on the fact that the position of network leadership was associated with greater clout, power, influence and validation by peers. Electoral processes were witnessed in associations such as the Case Study C where the President had to be voted into power at the General Assembly which would normally be held alongside the Regional Roundtables.

In contrast, associations such as the Case Study B appointed their leadership by direct approach to prospective candidates. For example, the office of the Executive Director was assumed via appointment by the Council and upon mutual consent. This process ensured that there were, non-rivalries in assumption of power, but at the same time did not give a chance for democratic choices to be made by the members of the circular economy network.

In organisations where the Executive Director was appointed on full time basis, there was very little room for politics as the position was not very open for regular selections and politicking – due to the position being considered a “*fixed job*” rather than a “*position at stake*”. In the context of the Case Study A, hiring a full time Executive Director, played a key role in its growth. Leadership based on appointment of competent candidates reduces the chance of politicking in Circular Economy networks, although it does not completely eliminate it. The Case Study B modus operandi of appointing Chairmen who are members of Council – the highest decision making body, is by consensus and endorsed at the Annual General Meeting. In the same context, there have been no tightly contested races for the Chairmanship. Another key factor observed is that in some situations where the Chairmanship was on a voluntary basis, the chances of rivalry in electoral processes and politicking were greatly reduced.

In the Case H, the document reviews showed that, the assumption of the Chairmanship of the network, was characterised by intense campaigning amongst prospective candidates. In selected cases, jostling for positions was eliminated by some contestants pulling out of the leadership race, leaving one candidate to enter the election uncontested. In selected cases, there have been instances identified from document review, indicating a few legal battles to stop ascendancy of elected leadership. These findings demonstrate that networks are indeed institutions that are alive with politics, influence, power and high stake contestations. Leading the associations, networks or chambers of commerce requires individuals who have strong resilience, knowledge and skill; coupled with political guile. The ability to influence people and disseminate ideas in the midst of competition for leadership positions, was a dynamic trait that was required for network leadership. The level of intensity of the politics, influence, power and contestations varied, depending on the country and organisational context. This occurrence is in sync with the Contextual Interaction Theory promulgated by scholars such as (Bressers, 2007).

4.3 Voting on Regional Lines

Within regional networks such as the Case Study C, some members interviewed during the research pointed out that in some cases when they made choices, they considered the regional alignment of the candidate. At other times, they indicated that merit was a key decider of making their choices in the context of selecting the leadership of the networks. Voting on regional blocks was also prevalent in global networks such as Case Study D especially given the creation of regional chapters. In line with the Institutional Isomorphism Theory (Di Maggio & Powell, 1983), the convergence of voting on regional blocks can be interpreted as a form of “*mimetic isomorphism*” due to organisations imitating each other. Whilst regional chapters were good and offered an opportunity of continuity at regional level, they also had a tendency of alienating the collective reasoning of the Global Network.

4.4 Campaigning for Leadership

Campaigning was observed at Regional Roundtables and chambers of commerce, although some of it could be classified as lobbying for selection. In professional bodies, full-blown campaigning like that observed in national politics was very uncommon. However, in certain circumstances it was observed that some candidates could dish out propaganda and denigrate opponents in time before the General Assembly or else the Annual General Meetings (AGMs). Such antics were in line with previous literature that explains the, ‘*high stakes*’ character of competitive positions. In this regard, results demonstrate that Circular Economy networks are not spared of this political character – albeit at a lower level. The use of campaign posters was unpopular across the networks, but social media was observed to be fast becoming a tool for enhancing visibility – including the limited use of campaign posters.

4.5 Factionalism and Alliances within Membership

It was observed that some networks had alliances rather than factions. Some individuals of the network could align with certain candidates. The alignment was not aggressive as it was in the political arena of national politics. It was a mere preference that could gain traction and be promoted within the network. These alliances occurred silently in the lead up to electoral conferences, Annual General Meetings and General Assembly events. In networks which did not have any electoral processes, the political nature of managing members could arise when certain members decide not to follow certain Circular Economy activities citing weaknesses of the decision making bodies. In extreme circumstances, members of the association could trigger special clauses in the constitution to dissolve the leadership through an Extraordinary General Meeting (EGM). This provision in selected constitutions ensured that power remained in the hands of the members of the associations. Full implementation of these clauses, offered an opportunity for keeping leadership of the network in a productive mode, due to the fear of being ejected out of office based on failure to perform or else facing ejection by the Extraordinary General Meetings.

4.6 Succession Modalities: Election and Nomination

In order to take up leadership in the studied networks, prospective leaders had to fulfil different requirements. In networks such as the Case Study B, the succession was based on nomination or selection by the Council². There was no room for election, jostling for positions or voting for the Executive Director. To some stakeholders, this comes across as a process of selecting individuals with commitment and ability to run the network; whereas to other stakeholders, it was considered as an undemocratic process. Depending on the pedestal of the stakeholders, the appointment of the Executive Director has always come without aggressive politics in the last 30 years of existence of the association. Whilst appointment of the Chairman, was based on election within the Council, it was a voluntary non-paid role which at times became honorary.

Due to the fact that most of the work of the Case Study B at Chairman and Council level was undertaken on a voluntary basis, we observed the lack of jostling for positions or the lack of tensions in the nomination and selection of the Chairman and Council. Even with a recent addition of the position of Vice Chairman to the echelons of hierarchy of the Case Study B, it was observed that the process was not mired with rivalries. A quote from the Secretariat indicated a harmonious process of leadership transfer with respect to governance, “*It is*

² The Council is the highest decision making body of the Business Council for Sustainable Development Zimbabwe

specified in the constitution and the members participate in the election process whilst the councillors participate in electing the Chairman”.

Electoral selection based institutions such as the Case Study C, which was one of the case studies of the research, showed that at regional roundtables, elections were held for the President and Executive Board³. The appointment of the President and the Board mostly went smoothly. In selected years there was no consistency in undertaking the regional roundtables, thereby delaying elections. This had a challenge of creating leadership vacuum within the Case Study C. Where necessary, Interim Executive Committees took over the running of the Regional Roundtable.

Analysing some of the network dynamics also poses some potential possibility of political hijack of the collaborative networks, which should remain neutral in dissemination of circular economy activities. A quote from one of the interviewees engaged during the study mentioned the following: *“Political interest of network activities has the risk of hijacking the network”*. This calls for networks to remain focused on their main core business

4.7 Popularity vs Delivery?

A common observation from the networks studied in this research, was the fact that the popular candidate was usually selected in the case of electoral based institutions. This was notwithstanding the case that the individual had never had a chance to lead an association. The lack of capacity to manage a Circular Economy Network, played an important role in the ultimate fate of the network – either success or failure. Some candidates selected would be popular professionals, eloquent and great orators – but with limited administrative capabilities to facilitate and oversee network operations. The selection of popular candidates over those with proven administrative capabilities proved to be a stumbling block to the success of networks. The concept of the Circular Economy is a new complicated phenomenon. Therefore, candidates to be selected to lead Circular Economy networks needed to have advanced knowledge on the circular economy concept. This would facilitate a better ability to set agenda on circular economy, determine thematic focus and develop relevant programmes for network members. There was no empirical link between popularity and ability to deliver Circular Economy programmes.

4.7.1 The Influence of Founder Members and Former Leaders

Although they play a very important role of ensuring institutional memory is preserved, founder members in both elected and selected modalities of networks, continued to wield an influence in the affairs of the networks. In certain case studies, they acted upon consultation, whereas in certain networks they acted based on their own volition. There were two patterns observed with regards to the involvement of founder members. Firstly, they were a source of intellectual property and institutional memory which could be utilised by the network leadership incumbent at any given time. However, in some networks, they were perceived to be poking into the current running and politics of the association. This situation has the potential to cause dependency on network founder members. For networks to be sustainable in their quest to promote a circular Economy, they should be able to transfer power and run autonomously without overreliance on founder members. In one of the case studies, the relationship between the founder members and the current network leadership soured. Whilst it is essential to maintain good relations with the founder members of the network, there is need to guard against the danger of reminiscence of old strategies of running Circular Economy networks. Founder members should allow for the new members and their leadership to chart a new way forward as well as evolve in light of recent developments in the area of Circular Economy.

Founder members were also embroiled in succession politics and in some instances wanted a say in the ushering in of new leadership. Although they had the advantage of having previous authority, such leadership selection antics had a risk of creating patronage within Circular Economy Networks. In one of the case studies, some founder members found their way back into power with respect to Executive Directorship, Chairmanship and Presidency of the networks. This had two paradoxical outcomes. Firstly, this enabled rejuvenation of the networks which had become passive and on the contrary, in some cases, resulted in the return to the previous management styles. The return of founder members in a specific purpose of being an interim committee after a

³ The Executive Board is the highest decision making body of the African Roundtable for Sustainable Consumption and Production.

leadership collapse, was observed as a key strategy of maintaining network vitality and reviving dormant leadership.

4.8 Factors Affecting Succession

A number of factors were identified as affecting succession in the business networks. Chief amongst them was the legitimacy of the succession process. When the transfer of leadership was done under legitimate circumstances such as electoral processes following procedures set by the network, the transition was observed to be smoother. However, even with the following of procedures; some losing and disenfranchised opponents could take the process to be a legal battle observed in one of the case studies. When this leadership transition had to be guided by legal systems external to the network, in some networks it was observed to have “coercive isomorphism” effect, in congruency to the Institutional Isomorphism Theory suggested by (Di Maggio & Powell, 1983). Succession was also affected by the competence of the leadership assuming responsibility of leading the network. Demonstrating high levels of competence, greatly reduced the chances of the leadership being recalled by the General Assembly or the stakeholders who wielded power in the network. Delays in transition from one network leadership regime to another network leadership regime had a bearing on the succession and effective delivery of the mandate of the network. Proper planning and establishing roadmaps of action by both incumbent and incoming network leadership was seen as a mechanism of minimising the risk factors of leadership vacuum within the network.

In both circumstances of electoral and leadership by appointment transition, there were challenges identified. These challenges are illustrated in Figure 2.

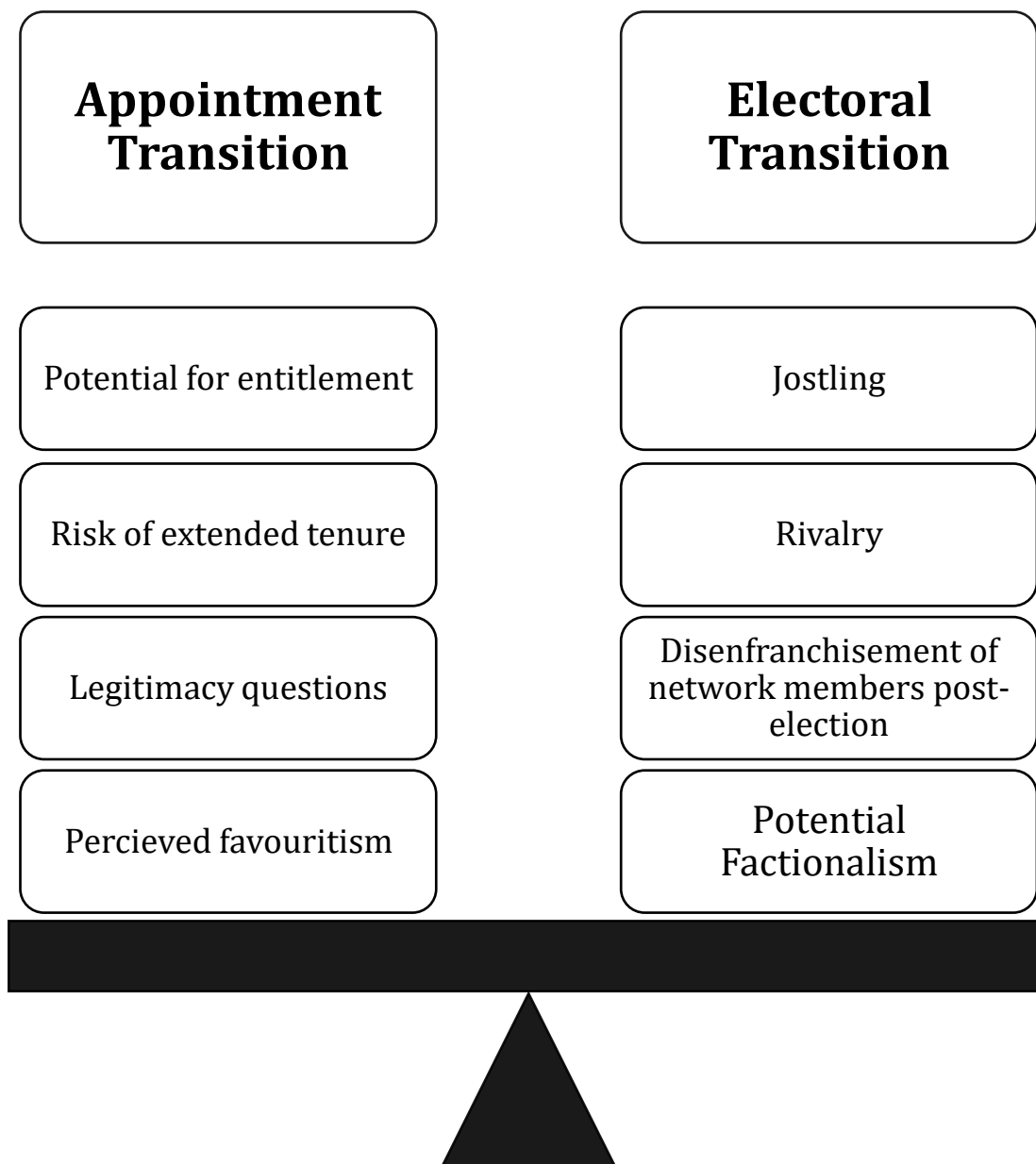


Figure 2: Challenges of both electoral and appointment based leadership transitions in Circular Economy (CE) Networks

5 DISCUSSION

The results of this research show diversity in terms of the political character of Circular Economy networks. Two trends emerge from the empirical results mainly aligned to assuming leadership through either *electoral* and *appointment* mechanisms. Out of the 9 network case studies assessed, five of them transfer power and undertake succession through elections by a majority vote. A total of four networks prefer appointment of competent individuals to manage networks. The levels of rivalry and jostling for positions varied considerably amongst the case studies, with the highest level of competition evident in electoral processes. In the run up to key events of the networks such as Annual General Meetings, Extraordinary General Meetings and other electoral platforms, prospective leaders were observed to be presenting manifestos, campaigning for leadership and power – whether directly or indirectly. Almost in all the networks determined by electoral processes, the results show that there was no direct linkage between elected personnel and their ability to administer a sustainable business network. This pattern of populism could be the reason why sustainable business networks face challenges in delivering a high impact in Africa. Furthermore, succession was also effected by the inability of some networks to undertake electoral processes, thereby continuing with leadership from the previous tenure.

The political processes of the networks were espoused in the network constitutions as well as the charter of the network. In one of the case studies there was no constitution that governed the electoral or power transfer processes. Comparative analysis of the countries showed that in Kenya, there was more intense competition amongst prospective candidates vying for leadership positions within the networks. The Zimbabwean and South African networks assessed in this research, had typologies of appointment to positions in the networks and the countries had less competitive duels in network leadership selection.

The effect of organisational politics in the execution of network duties was evident in one case studies where the assumption of power was temporarily disturbed by a court challenge. These findings show that the leadership of networks, whether or not network leaders are rewarded monetarily or not; is becoming a high-stakes game due to the power, influence, opportunities and other non-monetary benefits associated with the specific position. The empirical findings confirm the fact that all organisations have politics and especially in collaborative partnerships the politics is amplified by the presence of other potential network partners seeking to influence the direction of the network. Anxiety during transition periods of succession are endemic in most networks. This confirms prior research by (Chikerema & Nzewi, 2020). Furthermore, collaborative arrangements were comprised of stakeholders with different interests, which escalated their rivalries in contested settings such as networks determined by electoral processes. This confirms prior work by (Atchison, 2017).

Voting on regional lines was observed as a potential hindrance to the progression and diversity of the network. There was also an observation that popularity was mostly preferred at the expense of delivery in the context of Circular Economy. Most of the assessed networks, considered the charismatic tendencies, oratory skills and promises of prospective candidates as they presented themselves for election. However, in certain circumstances, there was an element of subdued performance of the sustainable business networks despite having charismatic leadership.

The findings show that organisational politics affect the success or failure of the Circular Economy networks. Highly intense political battles in associations showed potential to stifle network progress, cause divisions amongst network members and facilitate polarisation. There were no concrete actions to ensure reunification of the network beyond political processes associated with leadership selection. Greater care and effort needs to be placed in the quest to promote network coherence and unity beyond electoral processes. Results show that in networks where appointments were made, there was a high level of consideration of the technical capabilities of the incumbent appointee. This ensured a reduced risk of operating the network with incompetent personnel. However, this model also showed tenets of nepotism and deprivation of democratic space for other network members desiring network leadership.

6 CONCLUSIONS

In this study, we assessed the politics of inter-organisational networks based on the experiences from 9 networks. The research concludes that inter-organisational networks are characterised by politics throughout their operational life-cycle. Levels of political activity vary depending on whether the network manages succession on electoral lines or based on appointment. Fighting and jostling for positions is more evident in associations that have electoral processes, whilst this is less likely to happen in networks where incumbents are appointed by an appointing authority.

The network succession is affected by the availability of instruments that define succession processes. This could be related to the existence of constitutions, charter and other founding documents. When these documents are available, they can lay bare the political process of network succession. The progression of the network is affected by the ability to transfer power by the incumbent leadership of the networks.

Politics within the networks affects the ability to deliver Circular Economy activities through the appointment of opinion leaders who have capabilities of reaching out to wider audiences of the population. When effectively managed and if ushering competent leadership, the politics of networks plays out well to legitimise leadership with the ability to mobilise, lead, transform and inspire circular economy transition. However, politics also affects the ability of a network to deliver through contested elections of network members into leadership positions, jostling, denigrating opponents and propaganda ushered to network members. These negative effects are less pronounced in professional networks and especially those where an individual is appointed into the position of leading a network. However, ascending to power without the mandate of the people, was also observed as a source of conflicts as some network members could not recognise network leadership due to legitimacy issues. The research concludes that the enhancement of networks is greatly influenced by the politics of association and ultimately has a key determining effect on the success or failure of the network. Both election and appointment of network leaders present potential effects on the success or failure of the network, in combination with country specific factors existing in the host country.

The research concludes that the dominant mechanism of ushering new leadership of Circular Economy Networks is through election by a majority vote. We conclude that there is also a considerable level of transfer of power by Appointment. In the selected geographical scope of countries, Zimbabwe, Kenya and South Africa there are both electoral and appointment modes of network succession, However, there is more pronounced competition in networks observed from Kenya as compared to those in Zimbabwe and South Africa.

The politics needs to be managed through ensuring that there is transparency in the selection processes of network leaders. It is also prudent to build capacity in network actors to understand that selection of network leadership should not cause divisions in the network. In order to avoid members becoming restless, networks should ensure that whenever the constitution or charter requires leadership renewal, the constitutional provisions are adhered to. If the network leadership is by appointment, it is concluded that the network should have clear criteria and systems of selection in order to rule out any nepotism to be alleged by other network actors. Even if assumption of leadership in Circular Economy networks is by appointment, leaders should find appropriate times to vacate network leadership positions in order to ensure renewal and emergence of new ideas. The role of founder members requires clear definition, in order to prevent having issues with incumbents.

AUTHOR CONTRIBUTIONS

Tawanda Collins Muzamwese: Lead authorship, conceptualisation, methodology, investigation, writing, editing and reviewing.

DECLARATIONS

The research has received ethical clearance from the University of Twente, Behavioural, Management and Social Sciences ethical committee / Domain Humanities & Social Sciences. Furthermore, consent has been sought from the respondents and case studies.

Competing interests The authors declare no competing interests.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

REFERENCES

- Aisbert, E., Raynal, W., & Steinhauser, R. J. (2023). International green economy collaborations: Chasing mutual gains in the energy transition. *Energy Research & Social Science*(104), 1-12. doi:<https://doi.org/10.1016/j.erss.2023.103249>
- Atchison, A. (2017). The politics of presence in Academic Associations: A Research Note on Governance of the APSA. *Political Science & Politics*, 50(4), 970-978.
- Baah, C., Agyabeng-Mensah, Y., Afum, E., & Kumi, C. (2023). Do circular practices accelerate CSR participation of SMEs in a stakeholder-pressured era? A network theory perspective. *Journal of Cleaner Production*(394), 1-9. doi:<https://doi.org/10.1016/j.jclepro.2023.136348>
- Bacudio, L., Benjamin, M., Eusebio, R., Holaysan, S., Promentilla, M., Yu, K., & Aviso, K. (2016). Analyzing barriers to implementing industrial symbiosis. *Sustainable Consumption and Production*, 57-65.
- Berlin, D., Feldman, A., & Nuur, C. (2022). Supply network collaborations in a circular economy: A case study of Swedish Recycling. *Resources, Conservation and Recycling*.
- Blasi, S., Fano, S., Sedita, S., & Toschi, G. (2022). A network perspective of cognitive and geographical proximity of sustainable tourism organisations: evidence from Italy. *International Journal of Contemporary Hospitality Management*, 1-27.
- Boschma, R. (2005). Does geographical proximity favour innovation? *Open Edition Journals - Economie & Institutions*, 111-128.
- Bressers, H. (2007). *Contextual Interaction Theory and the issue of boundary definition: Governance and the motivation, cognitions and resources of actors, Contribution to theoretical framework*. ISBP, CSTM, University of Twente,. Retrieved from <https://www.researchgate.net/publication/252252061>
- Brundtland, G. (1987). *Our Common Future: Report of the World Commission on Environment and Development*. Geneva: UN-Dokument A/42/427/. Retrieved from <http://www.un-documents.net/ocf-ov.htm>
- Chikerema, F., & Nzewi, O. (2020). SUCCESSION POLITICS AND STATE OF AFRICA: The Case of Zimbabwe. *Journal of African Elections*, 146 - 167. doi:<https://www.eisa.org/storage/2023/05/2020-journal-of-african-elections-v19n2-succession-politics-state-administration-africa-zimbabwe-eisa.pdf>
- Di Maggio, P., & Powell, W. (1983). The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields. *American Sociological Review*, 147-160.
- Eichenberger, P., Rollings, N., & Schaufelbuehl, J. (2023). The brokers of globalisation: Towards a history of business associations in the international arena. *Business History*, 65(2), 217-234.
- Ellen MacArthur Foundation. (2012). *Towards the Circular Economy: Economic and business rationale for an accelerated transition*. Isle of Wight: Ellen MacArthur Foundation. Retrieved May 30, 2023, from <https://emf.thirdlight.com/file/24/xTyQj3oxiYNMO1xTFs9xT5LF3C/Towards%20the%20circular%20economy%20Vol%201%3A%20an%20economic%20and%20business%20rationale%20for%20an%20accelerated%20transition.pdf>
- Fadly, D., & Fontes, F. (2019). Geographical proximity and renewable energy diffusion: An empirical approach. *Energy Policy*, 129, 422-435.
- Gellar, S. (2005). Political Associations, Parties, and the Press. In S. Gellar, *Democracy in Senegal*. New York: Palgrave Macmillan.

- Ghisellini, P., Cialani, C., & Ulgiati, S. (2016). A review on circular economy: the expected transition to a balanced. *Journal of Cleaner Production*, 11-32.
- Ghosh, S., & Ghosh, S. (2023). *Circular Economy Adoption - Catalysing Decarbonisation through policy instruments*. Springer Nature Singapore. doi:<https://doi.org/10.1007/978-981-99-4803-1>
- Hart, L. (1995). A Natural Resource Based View of the Firm. *Academy of Management Review*, 986-1014.
- Haswell, F., Edelenbosch, O., Piscicelli, L., & van Vuuren, D. (2024). The geography of circularity missions: A cross-country comparison of circular economy policy approaches in the Global North and Global South. *Environmental Innovation and Societal Transitions*, 52, 1-20. doi:<https://doi.org/10.1016/j.eist.2024.100883>
- Hina, H., Chauhan, C., Kaur, P. K., & Dhir, A. (2022). Drivers and barriers of circular economy business models: Where we are heading. *Journal of Cleaner Production*(333).
- Jafariyani, H., Mortazavi, S., Nazemi, S., & Bull, P. (2012). *Political Behaviour in Organisational Context: Nature, Research and paradigm*. Management Science Letters.
- Jager, J., & Piscicelli, L. (2021). Collaborations for circular food packaging: The set-up and partner selection process. *Sustainable Production and Consumption*(23), 733-740.
- Kierans, G., & Chen, Q. (2022). Financing the Circular Economy: Four Elements of Success. *Proceedings of the Society 5.0 Conference 2022*. 84, pp. 50-60. Shenzhen: Epic Series in Computing.
- Koech, M., Munene, K., Kinoti, M., & Situma, D. (2023). Circular Economy Policies and Innovations in Africa: Pillars for Achieving Sustainable Development. In S. Ghosh, & S. Ghosh, *Circular Economy Adoption - Catalysing Decarbonisation through Policy Instruments* (pp. 99-130). Springer Nature Singapore. doi:https://doi.org/10.1007/978-981-99-4803-1_4
- Leising, E., Quist, J., & Bocken, N. (2018). Circular Economy in the building sector: Three cases and a collaboration tool. *Journal of Cleaner Production*(176), 976-989.
- Madanhire, I., & Mupaso, T. M. (2018). Industrial Area Into Eco –Industrial Park (EIP) - Case Study of Harare. *Proceedings of the International Conference on Industrial Engineering and Operations Management* (pp. 977-988). Washington DC: IEOM Society International. Retrieved June 4, 2023, from <http://ieomsociety.org/dc2018/papers/252.pdf>
- Mahuni, K., & Bonga, W. (2016). An Explanatory Analysis on the Impact of Industrial Cluster Strategy on Industry Growth in Zimbabwe. *Dynamic Research Journals' Journal of Economics and Finance (DRJ-JEF)*, 1(1), 22-32.
- Mbohwa, C., Rwakatiwana, C., & Fore, S. (2010). The Impact of Industrial Clusters in Greening Manufacturing Industry Practices: The Case of the Old Ardbennie Industrial Cluster in Harare, Zimbabwe. *International Journal of Business and Emerging Markets*.
- Mudavanhu, N., Dzomba, P., Mudavanhu, C., & Mazorodze, S. (2013). Occupational Safety and Environmental Risks Scenario of Small and Medium Enterprises (SMEs): An Analysis of the Situation in Harare Chemical Industries, Zimbabwe. *American Chemical Science Journal*, 3(2), 98-110. doi:10.9734/ACSJ/2013/2759
- Muzamwese, T., Franco-Garcia, L., & Heldeweg, M. (2024). Industrial Clusters as a vehicle for Circular Economy Transition: A Case Study of networks in four industrial clusters in Zimbabwe. *Journal of Cleaner Production*(447), 1-18.
- Muzamwese, T., Heldeweg, M., & Franco-Garcia, L. (2024). Financing and Business Models for Scaling up Sustainable Business Networks - Building a Circular Economy. *Circular Economy and Sustainability*, 1-13. doi:<https://doi.org/10.1007/s43615-024-00348-8>

- Ncube, A., Sadondo, P., Makhanda, R., Mabika, C., Beinisch, N., Cocker, J., . . . S. (2022). Circular bioeconomy potential and challenges within an African context: From theory to practice. *Journal of Cleaner Production*, 1-13. doi:10.1016/j.jclepro.2022.133068
- Nhapi, I., & Hoko, Z. (2004). A cleaner production approach to urban water management potential for application in Harare, Zimbabwe. *Physics and Chemistry of the Earth*(29), 1281-1289.
- OECD DAC. (2019). *Better Criteria for Better Evaluation: Revised Evaluation Criteria Definitions and Principles for Use*. OECD/DAC Network on Development Evaluation.
- Ronit, K. (2022). *The governance of global industry associations - The role of Micro-politics*. Copenhagen: Elgar Politics and Business Series.
- Samitthiwetcharong, S., Kulivaniyaya, P., Suwanteep, K., & Chavaparit, O. (2023). Towards sustainability through the circular economy of plastic packaging waste management in Rayong Province, Thailand. *Journal of Material Cycles and Waste Management*, 25, 1824-1840. doi:https://doi.org/10.1007/s10163-023-01657-0
- Schepman, S., Valentijn, P., Bruijnzeels, M. M., de Bakker, D., Batenburg, R., & de Bont, A. (2018). Do project management and network governance contribute to inter-organisational collaboration in primary care? A mixed methods study. *BMC Health Services Research*, 18(427), 1-8. doi:https://doi.org/10.1186/s12913-018-3169-8
- Schroder, P., Anantharaman, M., Anggaraeni, K., & Foxon, T. (2019). *The Circular Economy and the Global South - Sustainable Lifestyles and Green Industrial Development* (1st Edition ed.). London: Routledge. doi:https://doi.org/10.4324/9780429434006
- Sithole, D., Tagwireyi, C., Marowa, T., Muwidzi, F., Mapanda, F., Svinurai, W., . . . Veysey, J. (2023). Climate change mitigation in Zimbabwe and links to sustainable development. *Environmental Development*(47), 1-30. doi:https://doi.org/10.1016/j.envdev.2023.100891
- Suchek, N., & Franco, M. (2023). Inter-organisational Cooperation Oriented Towards Sustainability Involving SMEs: A Systematic Literature Review. *Journal of the Knowledge Economy*, 1-21. doi:https://doi.org/10.1007/s13132-023-01196-x
- Tura, N., Keranen, J., & Patala, S. (2019). The darker side of sustainability:Tensions from sustainable business practices in business networks. *Industrial Marketing Management*(Issue 77), 221-231. doi:https://doi.org/10.1016/j.indmarman.2018.09.002
- UNIDO. (2011). *Networks for prosperity: Achieving development goals through knowledge sharing*. Vienna: UNIDO.
- Varrichio, P., Diogenes, D., Jorge, A., & Garnica, L. (2012). Collaborative Networks and sustainable business: A case study in the Brazilian System of Innovation. *Procedia - Social and Behavioural Sciences*(52), 90-99. doi:https://doi.org/10.1016/j.sbspro.2012.09.445
- Veleva, V., & Bodkin, G. (2018). Corporate-entrepreneur collaborations to advance a circular economy. *Journal of Cleaner Production*(188), 20-37.
- Veschuren, P., & Dooreward, H. (2010). *Designing a Research Project (Second Edition ed.)*. The Hague: Eleven International Publishing.
- Wang, P. (2022). Political Associations. In P. Wang, *Interests Politics Series*. Springer.
- Xu, R., Wu, J., & Gu, J. R.-U. (2023). How inter-firm cooperation and conflicts in industrial clusters influence new product development performance? The role of firm innovation capability. *Industrial Marketing Management*, 229-241. doi:https://doi.org/10.1016/j.indmarman.2023.04.009

- Xu, X., Li, Z., Wang, J., & Huang, W. (2019). Collaboration between designers and contractors to improve building energy performance. *Journal of Cleaner Production*(219), 20-32.
doi:<https://doi.org/10.1016/j.jclepro.2019.02.036>
- Yin, R. 2. (2003). *Case Study Research: Design and Methods (Vol. 3)*. New Dehli: Thousand Oaks, Sage Publications.
- Yin, Y., Yan, M., & Zhang, Q. (2022). Crossing the valley of death: Network structure, government subsidies and innovation diffusion of industrial clusters. *Technology in Society*, 71.