

The Role of Governance and Institutional Management Capacity in the South African Agricultural Cooperatives

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Abstract

Agricultural cooperatives are increasingly positioned as intermediary institutions capable of facilitating sustainability transitions, circular agriculture, and participation in emerging bioeconomy systems. However, limited research has examined the institutional readiness of cooperatives to assume this transformative role, particularly within structurally constrained environments. This study addresses that gap by analyzing how governance capacity and operations management systems shape cooperative institutional performance and readiness for sustainability transitions in South Africa's dual agricultural economy. Grounded in an integrated theoretical framework combining Institutional Adaptation Theory, the Social Economy Framework, and Sustainable Food Systems Theory, the study conceptualizes cooperatives as adaptive institutions balancing economic survival, social legitimacy, and environmental participation. A quantitative causal-explanatory design was employed, drawing on survey data from primary agricultural cooperatives across all nine South African provinces. Multiple regression analysis was used to examine the effects of governance structure, financial management, strategic planning, and supply chain efficiency on member satisfaction and operational performance. The findings reveal that financial governance ($\beta = 0.42, p < 0.001$) and strategic planning capacity ($\beta = 0.33, p < 0.001$) are the strongest predictors of member satisfaction, with the model explaining 61% of

variance ($R^2 = 0.61$). While cooperative principles such as democratic participation and community concern are normatively endorsed, their operationalization remains moderate, reflecting institutional capacity constraints rather than ideological misalignment. Evidence suggests that cooperatives engage in institutional bricolage—prioritizing economic survival and financial coordination—as an adaptive response to structural inequality, fragmented institutional support, and scarcity. The study advances theory by reframing institutional bricolage as a staged transformation enabler, positioning financial governance as a foundational sustainability condition, and proposing a hierarchical institutional capacity model for cooperative transformation. Rather than treating sustainability transition as an outcome of normative commitment alone, the findings demonstrate that institutional maturity, particularly in governance and financial systems, constitutes the primary precondition.

Keywords

Agricultural Cooperatives, Governance, Cooperative Principles, Financial Management and Economic Survival.

1. Introduction

1.1 Background

1.1.1 Global Agricultural System Pressures

The global agricultural system is constantly evolving due to interrelated environmental, economic, and institutional pressures that affect the stability of food production, and the livelihoods of people in rural areas. Climate variability is impacting rainfall, increasing the frequency of droughts, and unbalancing productivity in various areas. Bizikova et al. (2020) state that farmer organizations increasingly function as stabilizing institutions in assisting smallholders in adapting to climate and market shocks. Kahsay and Endalew (2025) claim that the role of climate-smart agricultural practices of collective agricultural institutions is fundamental, in the case of dual benefits of shared learning and coordinated investment. Donkor et al. (2023) state the case, that the membership of a cooperative is justified by the augmented, in their case, smallholder farmers, awareness and adoption of environmentally sustainable farming practices. All the pressures increase the need for coordinated institutional responses to adaptation. In this scenario, adaptation at the individual farm level seems to be lacking, which implies that the structure of cooperative institutions will be increasingly important for determining the level of resilience throughout agricultural systems.

1.1.2 Agricultural Cooperatives as Transition Governance Institutions

Cooperatives have started being seen as institutional infrastructures that support and enable transitions in agriculture and rural economies rather than being seen solely as production/marketing entities. Groot-Kormelinck et al. (2022) argue that producer organizations function as ‘transitional’ intermediaries that support the uptake of certain production practices. Iyabano et al. (2022) argue that, because of their organizational structure, farmer associations often serve as ‘innovative’ intermediaries that manage the processes of knowledge and technology diffusion within and among their members. Hazard et al. (2022) argues that the institutionalization of collective action fosters the coordinated and equitable transitions of agriculture towards sustainability through the frameworks of collaborative learning and collective action. These various arguments and perspectives indicate that the governance roles of cooperatives, in addition to the coordination of production, are also just as important. Most cooperatives also seem to provide the necessary framework for farmers to manage transition, and, in addition, coordinate their responses to environmental and economic shocks.

1.1.3 Cooperative Principles as Institutional Preconditions for Transformation

How cooperative principles are operationalized in practice determines how effective a cooperative is as an institution of transition governance. Sacchetti and Catturani (2021) state that cooperative governance frameworks influence the equilibrium between the generation of economic and social value within and outside the cooperative. According to Meira and Ramos (2023) the relations of democracy in governance influence the level of trust and participation of members in decision-making within the cooperative. Puusa and Saastamoinen (2021) argue that, in most cases, cooperatives experience crises of economic viability and social mission in extremely competitive markets. Such governance realities mean that the cooperative principles are not merely normative frameworks, but rather operational frameworks that influence the cooperative's performance. Therefore, the operationalization of cooperative principles confers upon cooperatives the ability to act as institutional actors in the scope of wider sustainability transitions.

1.1.4 South African Structural Context

Agricultural cooperatives in South Africa must contend with a historically unequal agricultural system, in particular an unequal distribution of land and productive resources. Mbokazi et al. (2024) emphasize that although cooperatives

hold considerable promises for local economic development, they continue to grapple with the historically rooted local economic development inequality systemic structural consequences. Most of the agricultural cooperatives in South Africa, as noted by Okem (2023) are unable to realize most of their potential due to issues of governance and financial viability. According to Pokharel et al. (2020) there are positive correlations between the performance of a cooperative and its size, the resources available to it, and the level of institutional maturity. These various structural realities mean that there are good grounds for concluding that the most important determinant of institutional development capacity in South Africa is cooperative development. In most instances, cooperatives are compelled to develop in unequal resources, financially underdeveloped, and support system fragmented environments.

1.2 Research Problem

The growing expectations for agricultural cooperatives to operate as institutional catalysts for sustainable agricultural transitions are especially impactful in developing areas with smallholder-dominated production systems. As the world's cooperatives have the potential to facilitate climate change adaptation, food system continuity, and the economic inclusion of rural communities, cooperatives are likely to have the most positive impact as collective institutions. According to Candemir et al. (2021) farming systems sustainability is strengthened by agricultural cooperatives' collective governance and coordinated control of resources. Bizikova et al. (2020) state that farming organizations increase the resilience of smallholders by providing better access to markets, information, and adaptive farming. Kahsay and Endalew (2025) suggest that cooperatives are increasingly acknowledged as vital institutional frameworks for the adoption of climate-smart agriculture. These global expectations for agricultural consumer cooperatives, in these various areas of scholarship, reflect the expectations for cooperatives to play leading roles in sustainability transitions within the food and agricultural systems.

The available literature from developing countries shows that many cooperatives have serious limitations in terms of institutional capacity that hinder transformation. The authors state that issues of governance and management confronting agricultural cooperatives persist and are likely to continue to undermine commercialization outcomes (Dhakal and Mueser 2023). Fernando et al. (2021) argue that certain organizational attributes such as financial management, governance, and strategic planning significantly impact the success of cooperatives. Okem (2023) similarly states that agricultural cooperatives in South Africa demonstrate chronic insufficiencies in governance and financial viability that constrain the long-term institutional effectiveness. Poor institutional frameworks may deflate expectations in the policy and development discourse concerning the role of cooperatives in driving the agricultural transformation of the economy. Most literature from developing countries point out that cooperatives have serious limitations about

1.3 Research Questions

1.3.1 Main Research Question

In what ways do governance and operations management capacity allow the operationalization of cooperative principles as institutional preconditions for cooperative performance and sustainable agricultural transformation in South Africa?

1.3.2 Sub Research Questions

How do governance practices enable the operationalization of cooperative principles within agricultural cooperatives?
How do management capacity and financial management systems shape cooperative performance and sustainability transformation readiness?

What institutional and policy interventions are required to strengthen cooperative transformation capability within South Africa's agricultural sector?

1.4 Significance of the Study

This study contributes to scholarship by advancing cooperative governance theory from focusing on organisational performance to addressing sustainability transformation readiness. Candemir et al. (2021) show the importance of cooperative governance in determining sustainability outcomes in the agricultural systems. Sacchetti and Catturani (2021) indicate that cooperative governance systems articulate the trade-off between the generation of economic and social value in cooperative bodies. Mangnus and Schoonhoven-Speijer (2020) indicate that in the developing world, institutional bricolage allows cooperatives to transpose the global governance framework to the local context. By articulating governance capacity and participation in sustainability transitions, the study contributes to the theorising of the role of the cooperative as an institution in systemic transformation of agriculture. This line of theoretical thinking

suggests that the effectiveness of a cooperative should be assessed in relation to the internal organizational outcomes as well as the external system transformation outcomes during food systems transformation. It is therefore reasonable to assert that the analysis contributes to the understanding of the framework of institutional capacity with respect to the transformational performance of cooperatives.

The study policies reframe developmental strategies in cooperation beyond the mere formation of cooperatives. It is the capability to sustain cooperatives in the long term as institutions that is critical. Mbokazi et al. (2024) states that while cooperatives serve local economic development, they need to survive institutional strengthening of the cooperative. Okem (2023) claims that still, the limitation of many South African agricultural cooperatives in their sustainability are governance and financial capacity. Fernando et al. (2021) argue that among several attributes, leadership, financial management, and strategic planning are powerful determinants of cooperative performance. These attributes point to the need of policies that deal with governance, financial management, and strategic planning, especially in the supportive frameworks of institutional capacity strengthening. It can then be concluded that the effective role of cooperatives as development actors, beyond producers, can be in the co-ordination of production in the short run. The empirical evidence this study generates can assist in the policy advocacy for the institutional strengthening of cooperative development frameworks.

2. Literature Review

2.1 Global Sustainable Food System Transitions and Collective Institutions

The impacts of climate change, environmental degradation, and the need to produce safe food and protect rural livelihoods, are forcing global food systems to transform. Candemir et al. (2021) note that integrated rural development and the improvement of farm sustainability, through the coordination of production, input, and markets, are roles critical to agricultural cooperatives. Facilitating the collaboration of rural producers for the integrated management of resources and the sharing of knowledge, farmer organizations. Bizikova et al. (2020) note that enhances the productivity and resilience of smallholder farming. By decreasing the climate-smart agriculture individual investment barrier and fostering collaborative learning, Kahsay and Endalew (2025) argue that cooperatives are instrumental. The collection of sustainably designed food systems emphasizes the need for purposeful technological change, as well as the need for change in formal and informal operational structures within the system. The success of these transformations, within the literature, increasingly focuses on the ability of collaborative institutions to manage production, finance, and the ecosystem.

2.2 Cooperatives and Just Agricultural Transitions

The principle of just agricultural transitions highlights the importance of ensuring that sustainability transitions, socially include and economically equitably cater to rural producers. Gava et al. (2021) claim that agricultural cooperatives help reduce rural poverty, as they provide better market opportunities and income security to smallholder farmers. Addai et al. (2024) note that joining farmer organisations improves household food security and nutrition through collective resource access and market participation. Zemba et al. (2025) indicate that the strengthening of member relations in the production and distribution of food makes cooperatives to be among the first to improve food security. All these, cooperatives, in as much as they are business units, also function as social development units. The literature increasingly places among other things the cooperatives as social and economic development units of inclusive agricultural transitions to successfully achieve productivity, environmental sustainability, and social equity in rural agriculture.

2.3 Cooperative Governance, Financial Capacity and Institutional Performance

The shaping of trust, accountability, and decision-making within cooperative organisations, explains why cooperative governance is critical for institutional performance. Sacchetti and Catturani (2021) state that governance frameworks affect the ability of cooperatives to achieve social value alongside economic efficiency. Meira and Ramos (2023) note that member engagement is reinforced under democratic governance, because of the increased clarity and legitimacy of joint decisions. Fernando et al. (2021) indicate that the quality of governance in an entity directly affects the operational and strategic effectiveness of the cooperative. All the cited scholars point to the fact that governance is more than a structural necessity; it is a relational mechanism that creates confidence among the members. The more constitutive members of a cooperative, the more likely they are to engage in governance systems that are participatory, transparent, and inclusive. The engagement alters the institutional cohesion and operational effectiveness of the cooperative.

Trust created through good governance is directly related to member engagement and the achieved outcomes of collective actions within cooperatives. Cooperatives act as a centre of social capital which enables economically differentiated coordinated transactions among members due to mutual trust (Tuna & Karantininis 2021). Zhang et al. (2024) state that for a cooperative to gain members' adherence to self-governance, the cooperative needs to practice self-governance to regulate members' achievement of the production and the environment co-standards. Furthermore, Bizikova et al. (2020) claim that farmer organisations build collective action by facilitating coordinated production and the dissemination of knowledge among members. All these studies show that trust is the conduit between governance systems and economically collective actions. In a cooperative, members are more likely to commit their time, and cope with the organisational operational costs, and the organisation's financial costs if the cooperative's governance is fair, transparent, and accountable, which reiterates the role of governance in maintaining high levels of participation in cooperatives.

Even with these constraints, there is evidence that suggests the limits of governance and financial capacity still affect the performance of cooperatives in developing contexts. Dhakal and Mueser (2023) note that poor governance and management only tend to affect the commercialisation of cooperatives. Okem (2023) indicate that governance and financial sustainability constraints affect the performance of cooperatives in South Africa. According to Othuo et al. (2023) the presence and quality of governance, such as board diversity and structure, is a strong determinant of the financial performance of cooperatives. These studies show that, for cooperatives to be able to perform and participate in the sustainability transition, the constraints of governance and financial capacity must be overcome. The literature suggests that the enhancement of the roles of cooperatives as institutions of sustainability transitions is dependent on the improvement of governance and financial management capacity.

2.4 Cooperatives and Transformation Technologies

2.4.1 Climate-Smart Agriculture Adoption

Kahsay and Endalew (2025) emphasize the growing importance of adopting climate-smart agriculture methodologies, which poses fewer environmental challenges and/or climate vulnerabilities for the escalation of agricultural productivity. They state that cooperative formation to support collective training, knowledge sharing, and synchronized financing, is needed for the climate smart agriculture methodologies that the farmers are applying. According to Donkor et al. (2023) smallholder farmers who are members of cooperatives have a greater understanding of and are more active in the practice of environmentally sustainable agriculture than those who are not members. Climate-smart practice adoption, as Zhou et al. (2024) suggests is often strongly dependent on practice knowledge systems and the availability of the requisite technical package. Description of all the prior studies suggests that the adoption of climate-smart agriculture practices, primarily in developing nations, is a technical and a relational (institutional) issue. The literature provides evidence that cooperatives are institutional conduits for fostering the uptake of climate-smart practices, particularly in situations where independent farmers lack technical and financial support.

2.4.2 Digital Agriculture and Data Governance

Digital agriculture is changing how agricultural production systems operate because of data access, production monitoring, and market coordination, but smallholder farming systems unevenly adopt it. Porciello et al. (2022) stress digital agriculture adoption by smallholder farmers is reliant on institution availability concerning the access to adequate infrastructure, training, and financing. Cristobal-Fransi et al. (2020) state the digital maturity of agricultural cooperatives affects the extent to which they can engage in digital value chain. Smidt and Jokonya (2022) state that the South African agricultural value chain's adoption of digital technologies is constrained by insufficient infrastructural and institutional frameworks. This suggests that the adoption of digital agriculture technologies is constrained by the governance and institutional frameworks of the time. The literature indicates that the digital transformation of smallholder farmers can be enabled by cooperatives with effective governance and management structures.

2.4.3 Circular Agriculture and Bioeconomy Participation

The evolving systems of circular agriculture and bioeconomy are crucial for the smart use of resources and waste management in the field of agriculture. In relation to the circular agriculture business model, Donner et al. (2020) highlighted the economic potential of repurposing agricultural waste as input for new production. For Sekabira et al. (2023) the integration of institutional governance in the bioeconomy of Africa's food systems is a must within the fragmented agricultural value chain; systems governance is within the bioeconomy's circularity. For Burg et al. (2023) the commitment of the integrated governance of diverse resources and stakeholders determines the success of

agricultural systems, such as biogas, within the circular economy. This literature is indicative, specifically, of the developed systems for the governance of resource circulation at the level of cooperatives and the agriculture systems of multiple producers. The literature is suggesting, more than before, that cooperatives offer the circular agriculture resource systems the governance structure necessary for the integration of multiple production systems.

2.5 South African Cooperative Structural Constraints

The South African agricultural cooperatives work within a complex structural arrangement caused by historical inequality of land allocation, inequitable distribution of resources, and developmental challenges of the institutions. Mbokazi et al. (2024) state that cooperatives help in improving the local economy, but they still work in a rural economy that is structurally constrained. Okem (2023) notes that any South African agricultural cooperatives face challenges of sustainability, which are attributed to governance gaps and financial weaknesses. According to Pokharel et al. (2020) cooperative performance is highly determined by structural characteristics, such as, the size, resource availability, and institutional development. The South African situation is clear that land reform initiatives have provided potential for establishing agricultural cooperatives, but sustainable cooperatives are yet to be supported with financial resources, connectivity to markets, and infrastructure.

2.6 Institutional Bricolage and Adaptive Cooperative Governance

The concept of institutional bricolage has recently become important for describing how cooperatives enact their roles in environments with structural constraints. In her description of African cooperatives as institutional bricoleurs, Mangnus and Schoonhoven-Speijer (2020) indicate that they creatively adjust global cooperative principles to fit local socio-economic contexts. Robinson and Ebab (2021) claim that hybrid institutional arrangements of community-based governance systems are understandable given the resource limitations they face. Iyabano et al. (2023) argue that farmer organisations practice governance ag- indecisive with respect to agroecology adaptive of negotiated structures. This suggests that in developing contexts, operational viability and organisational legitimacy of cooperatives, more than anything, hinges on the integration of formal governance systems and local social structures and resource contexts.

2.7 Research Gap and Conceptual Positioning

Even with extensive studies done on cooperative governance, the adoption of sustainability, and the transformation of the agriculture sector, the research on the readiness of the cooperative institutions for sustainability transitions remains scarce. Candemir et al. (2021) claim that most of the studies done focus on the performance of the cooperatives and on the sustainability outcomes at the farm level. Bizikova et al. (2020) state that studies done on the farmers' organizations have mainly focused on the outcomes of productivity, generation of income, and the adoption of technologies. Groot-Kormelinck et al. (2022) claim that while producer organizations are increasingly being acknowledged as intermediary actors for transitions, this subspecialty is lacking in attention concerning institutional readiness. All these studies show that most of the existing research studies the outcome of sustainable transitions without sufficient attention on the institutional context that is necessary for participation in the sustainability transition. Literature is, therefore, scarce on the impact of governance and managerial capacity on the readiness of cooperatives for sustainability transformation.

Studies are starting to point out the role of institutional capacity in the effects of the adoption of sustainability technologies and the transformation of agrarian systems. Porciello et al. (2022) state that the capacity of institutional coordination affects the involvement of smallholders in digital agrarian systems. Kahsay and Endalew (2025) indicate that the capacity of a cooperative institution is instrumental in determining the results of the adoption of climate-smart agriculture. Ziegler et al. (2023) argue that the cooperative involvement of actors in circular economy systems is conditioned by the institutional governance and financial capacity of the respective actors. Such findings suggest that the determinants of the extent to which one may participate in the sustainability transition are rooted in the existing institutional arrangements. It is in this context that the present study attempts to address a significant gap in the literature by focusing on the governance, financial capacity, and management systems to determine the institutional preparedness of cooperatives for sustainability transitions. Such a conceptual framing enriches the existing theoretical understanding of cooperatives as actors of institutional transformation rather than as production coordinating entities.

2.8 Theoretical Framework

2.8.1 Institutional Adaptation Theory

The theory of institutional adaptation describes how organisations alter the formal models of institutions to operate within local structural boundaries. According to Magnus and Schoonhoven-Speijer (2020) African cooperatives adapt

global cooperative governance frameworks to local socio-economic contexts using a mix of formal and informal institutional structures. Robinson and Ebab (2021) argue that in local communities, governance systems integrate institutional adaptation to shape the availability of resources and the governed environment. Fernando et al. (2021) state that the attributes of cooperative organisations are, in some instances, a response to external institutional factors, including market competition and policy frameworks. All these authors note that these contexts of persistent adaptation underscore structural constraint as a fact of life rather than a failure of institution(s). In the context of cooperatives, adaptation at the local level promotes the survival of the entity with a cooperative set of principles and a workable mandate.

The role of cooperatives in an agriculturally developing economy is intertwined with resource scarcity and institutional uncertainty. According to Dhakal and Mueser (2023) weak institutional adaptation is damaging to commercialisation and the achievement of the more enduring prospects of sustainability of cooperatives. Bizikova et al. (2020) note that farmer organizations are more successful when the institutional frameworks are aligned with the prevailing level of production and the capacity of the farmers. Mbokazi et al. (2024) note that South African cooperatives operate in structurally constrained environments that call for flexible institutional governance. From these studies, it is evident that cooperatives' ability to operate in complex, structurally constrained environments is a function of institutional governance. In the context of sustainability transitions, the absence of a solid financial, infrastructural, and policy foundation does not inhibit adaptive governance from acting as a positive enabler of transformation processes for cooperatives.

2.8.2 Social Economy Framework

The Social Economy Framework suggests that cooperatives are social enterprises that achieve economic efficiency and social advancement. According to Sacchetti and Catturani (2021) the governance of cooperatives affects the allocation of organisational resources to economic and social (value) outcomes. Puusa and Saastamoinen (2021) argue that in competitive environments, cooperatives face challenges in sustaining social mission objectives and financial viability. Meira and Ramos (2023) argue that reinforced democratic governance enhances members' active roles and strengthens the cooperative's social identity. Member participation in decision-making improves social relations intended to serve the cooperative's purpose. The above studies suggest that cooperatives are likely to face challenges arising from dual economic and social objectives. Cooperative governance is, therefore, required to integrate all at once the financial, social (member), and economic (community) objectives.

The Social Economy Framework applies to the agricultural realm as cooperatives operate as rural development organizations. Gava et al. (2021) state that, collectively, agricultural markets can help agricultural cooperatives assist in poverty alleviation and rural economic stabilization. Addai et al. (2024) state that being a member of a farmer organization positively affects a household's food security and nutrition. Zemba et al. (2025) state that cooperatives improve food security by coordinating collective production and resource sharing. All these studies show that the economic and social performance of a cooperative needs to be assessed. In the context of sustainability transitions, the cooperatives in question must achieve economic survival while maintaining member welfare to mitigate environmental sustainability constraints.

2.8.3 Sustainable Food Systems Theory

The Sustainable Food Systems Theory holds that agricultural production systems must be environmentally sound, economically viable, and socially inclusive. Candemir et al. (2021) state that agricultural cooperatives, through the coordination of production and resource management, facilitate farm sustainability. According to Kahsay and Endalew (2025) cooperatives support the collective intelligence and strategic investment needed for the adoption of climate-smart agriculture. From the perspective of Sekabira et al. (2023) the governance of bioeconomy and agriculture interlinkage systems is 'institutionally' coordinated at the agricultural value chain. The literature is clear that the transition towards sustainable food systems is driven by institutional governance, rather than a sole focus on isolated farm-level practices.

2.8.4 Theory Integration Justification

Since multiple instances in the body of the text deal with the convergence of the three theories, the author is best positioned to explain the three in unison. Mangnus and Schoonhoven-Speijer (2020) claim that the adaptation of an institution involves an adaptive cooperative restructuring its governing framework in the face of constraining structures. On the other hand, Sacchetti and Catturani (2021) argue that the social economy conceptualisation demonstrates how a cooperative pivots in reconciling the social and economic arms of its internal decision-making.

Lastly, Candemir et al. (2021) argue that, in the context of agricultural systems, the sustainable food systems theory is a conceptualisation of systems that balances the environment and the economy, especially in the dual subsystems of sustainability (environmental and economic) within sustainable transitions. Hence, it is undeniable that all the individual theories in convergence offer distinct yet interrelated and unified perspectives on the phenomenon of cooperative institutional performance.

The Institutional Adaptation Theory provides an explanation for the survival and operational dynamics of a cooperative under distinct, structural constraints. The Social Economy Framework provides an explanation for the imperative of cooperatives in achieving a harmonious equilibrium between the social and economic performance goals. The Sustainable Food Systems Theory provides an explanation for the cooperative's role in macro-level agricultural sustainability transitions. Groot-Kormelinck et al. (2022) illustrate the function of producer organizations as transitional intermediaries, i.e., they connect farmers to transformation systems. Iyabano et al. (2022) argue that through coordinated institutional governance, farmer organisations assist in the adoption of sustainability innovation. These contributions illustrate the call for an integrated framework. Collectively, the three theories encompass a multi-dimensional perspective of cooperative institutional performance, encompassing the survival at the local level, the ability to balance the organisational mandate, and the participation in macro-level sustainability transitions.

3. Methods

3.1 Research Design and Approach

This study utilized quantitative research with causal-explanatory framework to understand the impact of the extent of governance and operations management capacity on the operationalisation of cooperative principles and institutional performance outcomes. Causal-explanatory research frameworks are suitable for testing a particular research theory and exploring the pattern of variables instead of mere description or exploratory understanding. Statistically driven research frameworks can confirm predictive relationships based on a framework coupled with a theory (Creswell and Creswell 2023). The analysis aims at establishing a causal relationship of independent variables and dependent organisational outcomes (Saunders, Lewis and Thornhill 2023).

The theory is most applicable to the case of institutional and organisational performance where governance and management structure are seen as a causal influence of the performance outcomes. The empirical testing of the relationship of the theory and the performance outcomes empirically is what Bryman (2021) shows as explanatory research. Theoretically, he leads us to conclude that empirically this theory is predictive of the empirical outcomes. The internal validity is strengthened by this theory leading Bryman (2021) to conclude empirically that the study of the relationship between outcomes and the performance of the co-operative is predictive of the variables. This is the sole purpose of this study; to evaluate institutional readiness as a structural precondition for sustainability transition performance.

3.2 Study Context and Population

The research sample was drawn from the primary agricultural cooperatives for all nine provinces in South Africa. South Africa has empirical advantages due to its dual agricultural structure, which combines advanced commercial agriculture with historically marginalised smallholder systems. Babbie (2021) argues that contexts with distinct institutional diversity increase the external analytical validity in social research. Primary agricultural cooperatives were chosen for the study because they offer the closest institutional link between cooperative values and practices. The target population for the study was the registered members of the cooperatives who were active as farmers in the crops, livestock, and mixed farming sectors. Neuman (2022) argues that to achieve conceptual coherence between empirical reality and the research objectives, the target population ought to be specified. Primary cooperatives were given priority because participation in governance, financial control, and the enforcement of the cooperative principles occurs most directly at that level. In addition, the diversity of institutional set-ups across the provinces allows for the study of governance and management capacity within different institutional structures. This allows the study to explore the institutional readiness of different cooperative systems.

3.3 Sampling Strategy Justification

Given structural/institutional access barriers impacting national cooperative datasets, a purposive non-probability sampling technique was used. Bryman (2021) notes that purposive sampling is suitable when research studies focus on participants with institutional backgrounds. Hair, Page, and Brunsveld (2020) suggest that in explanatory organizational research, purposive sampling is justifiable when the sampling frame is either incomplete or unreliable.

Participants in the study had to be active members of the cooperatives and have a hands-on role in the governance and operations. Saunders, Lewis, and Thornhill (2023) outline that, in instances where the target group is a niche within the institutional system, the practitioner focuses on the relevance of the sample rather than its statistical randomness when operating within the niche. This means that the primary focus was on the quality of the collected data and construct validity, rather than on statistical representativeness. This was also the case regarding the realities of the fragmented cooperative institutional system and the availability of data.

3.3.1 Why Probability Sampling Was Not Possible

Random sampling was not feasible due to the fragmented nature of the data, which is spread across various institutional databases. Walliman (2021) states that, for instance, in the case of the dispersed cooperative registry, data could be found in various government and development agency databases that are not fully integrated; therefore, constructing a unified national sampling frame was not possible.

Further institutional access barriers limited the ability to implement random sampling. Johnson and Christensen (2020) claim that access barriers may constrain the choice of sampling methods in organisational research. Some of the cooperatives found in the official databases were inactive, and there were duplicates, no updated membership records, and so forth. Mohajan (2020) argues that in developing institutional contexts, it is common to encounter administrative data that contain coverage errors. Within these circumstances, purposive (or purposeful) sampling is the most methodologically sound approach to ensure that the participants are relevant, and that the data is reliable.

3.3.2 Sample Characteristics Table

The sample focuses on the different geography, sectors, and institutions of the different cooperatives in South Africa. Babbie (2021) indicate that the more variables one describes, the more transparent and easier the sample will be to evaluate. This will reflect the scope of their analysis. The sample distribution is representative of the cross-sectional variables of the provinces, such as the varying degrees of cooperative density, agricultural specialization, and the level of the institution's maturity. The authors Saunders, Lewis, and Thornhill (2023) state that sample diversity and structure are crucial for improving external analytical validity, especially in analyses at the national level.

The sample is also representative of provinces with historically higher levels of cooperative activities and agricultural production. A higher number of cooperatives is found in the provinces of Limpopo, KwaZulu-Natal, and the Eastern Cape, which can be attributed to the greater presence of smallholder agriculture and cooperative promotion programs. This is indicated by Bryman (2021) when discussing unequal distribution across different geographies and how, when that inequality is due to a certain population structure, it is more than acceptable. The sector distribution is dominated by crop production and mixed-farming cooperatives, consistent with the cross-sectional variables of agricultural production across the provinces. This also improves the governance and operational activity of the cooperatives in the wider population (Table 1).

Table 1: Sample Distribution Across Provinces

Province	Co-ops	Sector	Avg Members	Years Active
Gauteng	18	Mixed	32	9
Limpopo	22	Crop	41	11
Mpumalanga	21	Crop	36	10
Northwest	20	Livestock	29	8
Free State	23	Crop	38	12

KwaZulu-Natal	26	Mixed	44	13
Eastern Cape	25	Livestock	35	9
Western Cape	19	Crop	31	10
Northern Cape	16	Livestock	27	8

Between 27 and 44 active members belongs to the average cooperative span, revealing a moderate range of organisational scale across most cooperatives. More complex governance coordination and financial management may lie ahead in the greater cooperatives of the issuing region, particularly in KwaZulu-Natal and Limpopo. In the case of the smaller cooperatives of the Northern Cape and North-West, they may be resource poor, but social cohesion may be stronger. These regional structural differences explain the variations in performance and institutional capacity most effectively.

The range of 8 to 13 years of experience suggests most of the sampled cooperatives have moved beyond the initial formation stages and are in consolidation or the maturity stages of the cooperative lifecycle. The older the cooperative, the more likely they have more developed governance structures, and the younger, less developed. The distribution of age across the regional cooperatives in the sample provides the means for a valuable analysis of the institutional readiness. With respect to explaining the variance in governance capacity and the institutional performance outcomes, there is adequate structural variance in the sample to support this.

3.4 Measurement Framework

The framework applied ICA principles, which were operationalised into multiple survey items. According to Creswell and Creswell (2023) construct operationalisation helps boost the validity of the measurement. Bryman (2021) cites that the usage of multiple items helps reduce measurement error and improve reliability.

Internal consistency reliability was evaluated using the Cronbach's alpha coefficient. According to Hair, Page and Brunsveld (2020), alpha values higher than 0.70 show adequate internal consistency. The analyzed principles were those that were directly visible through member experience. This was to ascertain the feasibility of the measurement and the clarity of the construct. The primary focus of the framework was on the measurable institutional dimensions of governance participation, economic participation, education and training, and concern for community (Table 2).

Table 2. Measurement Framework – ICA Principles

ICA Principle	Survey Items	Alpha	Included	Reason
Democratic Member Control	5	0.81	Yes	Direct governance participation measurement
Member Economic Participation	4	0.78	Yes	Financial transparency relevance
Education and Training	4	0.74	Yes	Institutional capacity building indicator

Concern for Community	3	0.71	Yes	Social sustainability dimension
Autonomy and Independence	3	0.62	No	Low reliability
Cooperation Among Cooperatives	3	0.65	No	Limited member-level observability

3.5 Variable Specification

Operational performance and member satisfaction were stated as separate, albeit interrelated, constructs. For Saunders, Lewis and Thornhill (2023) despite being interrelated, dependent variables should be conceptually distinct. Operational performance, in this case, referred to how well the cooperative executed its institutional and economic functions. Member satisfaction referred to how cooperative governance and the resultant services were subjectively assessed by the members.

As noted by Bryman (2021) separating out objective organisational performance and focusing on subjective satisfaction, is reinforcing the construct's validity. Indicators construed to measure operational performance included the quality of financial management, effectiveness of strategic planning, and operational transparency. Member satisfaction was measured using perception-related indicators like leadership trust, fairness perceptions, and confidence in the cooperative. Understanding performance separately from satisfaction, as noted by Hair, Page and Brunsveld (2020) diminishes the overlap of constructs and brings clarity to regression models. This created the opportunity to examine institutional capacity and its effect on operational performance and perceptions of members through various differentiated causal mechanisms.

3.6 Statistical Model Specification

The study utilized multiple linear regression modelling to assess how governance and operations management capacity affect the performance outcomes of cooperative institutions. For explanatory research which seeks to determine the impact of several variables at the same time on an organisational result, multiple regression is justified. In estimating the impact of different variables while considering some confounding variables, Hair, Page and Brunsveld (2020) state that regression modelling is useful. The variable theory modelling, in non-experimental research, has been stated by Creswell and Creswell (2023) to enhance the strength of causal inference.

The primary regression model was specified as:

$$Y = \beta_0 + \beta_1 G + \beta_2 OM + \beta_3 CS + \beta_4 SEC + \beta_5 PROV + \beta_6 TEN + \varepsilon$$

Where:

Y = Cooperative institutional performance outcome

G = Governance capacity index

OM = Operations management capacity index

CS = Cooperative size

SEC = Sector classification

$PROV$ = Provincial location

TEN = Member tenure

ε = Error term

3.6.1 Control Variables Justification

Control variables are used to govern and managerial functions from structural characteristics of the cooperative. As stated by Saunders, Lewis and Thornhill (2023) such variables assist in model fitting by alleviating the issues caused by omitted variables. In organisational research, Bryman (2021) states that there is a need to account for structural heterogeneity.

3.6.2 Cooperative Size

The impact of cooperative size was accounted for as it affects the degree of structural complexity in governance, the levels of participation, and the frameworks for financial decision making. According to Babbie (2021) the size of an organisation has a bearing on its internal coordination activities and the resulting performance.

3.6.3 Sector

Sector control was since crop, livestock, and mixed cooperatives function under varying production risk and capital intensity levels. Johnson and Christensen (2020) claim that differences across sectors may shape operational performance patterns.

3.6.4 Province

Province was included to account for the control of policy implementation, infrastructure, and regional agricultural support capacity variances. Neuman (2022) notes that geographically varying institutions can affect organizational outcomes.

3.6.5 Member Tenure

Tenure was controlled for because the longer the membership lasts, the more embedded the member becomes in the organization and its governance structures. Bryman (2021) state that experience-related factors tend to affect the perception-based, performance-related evaluation.

3.6.6 Assumption Testing and Diagnostics

Diagnostics of regression have incorporated tests for linearity, multicollinearity in the dimensions of the data, homoscedasticity, and the normality of the residuals in the regression analysis. According to Hair, Page and Brunsveld (2020) state that Variance Inflation Factors below 5 indicate levels of multicollinearity that may be accepted. Kaur, Stoltzfus and Yellapu (2020) underscore that the absence of bias in the estimation of coefficients and the homoscedasticity of residuals is in the supportive framework of the classical linear regression. These diagnostics are done to ensure that the regression analysis still follows the classical linear regression methodology.

3.7 Reliability and Validity

The investigator used a systematic way to evaluate each of the four measurement scales (governance, operations management, and performance constructs) using the Cronbach's alpha reliability test. According to Hair, Page and Brunsveld (2020) when applying the internal consistency method, an alpha value above 0.70, provides a good measure the item reliability. All constructs were above the indicated value and provided further evidence of consistency in the measurement of the internal components of each scale.

The direct alignment of the survey items to the ICA cooperative principles and literature on cooperative governance ensured content validity. Theory related to the measurement instrument strengthens the validity of the measure, and further description of the measurement theory, along with the ICA principles, further ensures its validity (Creswell and Creswell 2023). Measurement at reduced random error and the precision of the measurement were further enhanced through the description of Bryman (2021) in which he explains that the inner workings of a system and the factors of that system are multi-dimensional. Using multidimensional or multi-construct measurement systems increases measurement precision and thus reduces random measurement error.

The instrument was tested in a pilot study with cooperative members to assess clarity, relevance, and completeness. According to Saunders, Lewis, and Thornhill (2023) the pilot test is conducted for the purpose of reliability, and to reduce the bias in interpreting the measure from the responder's side. Minor changes in wording were made based on feedback from the pilot. The pilot showed that an instrument completion time of 15 minutes was ideal and that it minimized respondent fatigue and improved the quality of the responses.

3.8 Ethical Considerations

The Faculty Ethics and Plagiarism Committee granted Ethical approval before the data collection process began. Babbie (2021) notes that the issuance of an Ethical approval document is the most conclusive proof that an author has adhered to the institution's framework of research governance. The author states that the research participants voluntarily participated in the study and provided informed consent. Neuman (2022) states that the process by which the research author obtains informed consent is an indication of respect for research participants and an important element of research transparency. Measures such as data coding that prevent the identification of research participants

and the implementation of data storage procedures were used to secure and protect the data. The authors, Saunders, Lewis, and Thornhill (2023), state that such measures of confidentiality increase respondents' trust in the research and, as a result, improve the accuracy of the data provided. No data that is identifiable to individuals or organizations was provided in the research results. The data were stored in a digital system that is encrypted and password-protected, accessible only to the researcher. The research participants were informed that they could withdraw from the study at any time.

3.9 Methodological Limitations

There are some limitations to this approach which should be noted. First, since the sampling method is purposive, any statistically based generalizations cannot be made beyond the sampled cooperatives. Bryman (2021) claim that the use of non-probability sampling increases the relevance of the data but decreases the representativeness of the population sample. Yet this method was justified by constraints related to the reliability of registries and access to institutions.

Second, the ahead index was constructed, so that financial performance was only partially assessed through perceived indicators, and not through audited financial records. Hair, Page and Brunsveld (2020) claim that the use of perception-based organizational measures is an acceptable surrogate in the absence of objective financial data. Of course, this approach is perception-based and may therefore be influenced by bias.

Third, a cross-sectional approach was taken, which impedes causal inferences over an extended period. Creswell and Creswell (2023) state that cross-sectional studies only capture relationships once and, therefore, are unable to measure the trajectories of institutional change. Longitudinal studies, in fact, would yield stronger evidence regarding the dynamics of transformation driven by governance.

Fourth, the use of self-report data runs the risk of inaccurate data and the positive social desirability effects bias. Neuman (2022) shows that the use of self-report organizational surveys is directly related to the limitations of perception and recall by respondents. Instruments that are used to obtain data, however, have undergone tests to increase reliability, validated pilot tests, and multi-item measurements to enhance the credibility of the data. Consequently, while the study has faced limitations in terms of the provided methodology, it has also produced valuable insights at the level of the institutions.

4. Results and Discussion

4.1 Descriptive Results: Operationalisation of Cooperative Principles

A three-point Likert scale was used to gauge all perceptive variables (1 = Disagree, 2 = Neutral, 3 = Agree). Given this, mean values falling under 3 suggest that there is neutral or weak institutional implementation, as opposed to strong operationalisation, the “% Agree” column indicates the percentage of respondents who selected category 3 (Agree) exclusively. The descriptive results show that there was moderate to low implementation of the main cooperative principles. Operationalisation of cooperative principles is, as Candemir, Duvaleix, and Latruffe (2021) put it, more likely the result of limited institutional capacity than of an ideological rejection. Thus, the results indicate a weak functionalist governance and cooperative participation systems.

4.1.1 Membership Policies and Practices

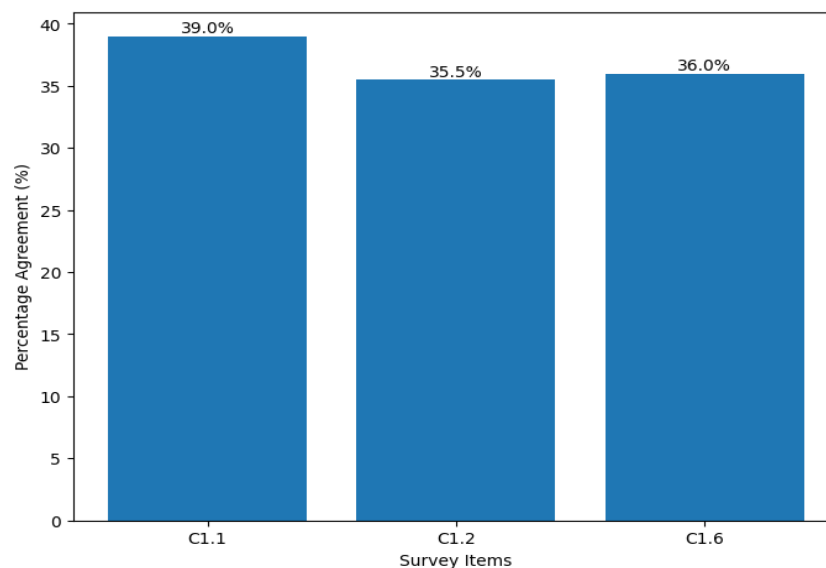
The ability to govern cooperatives' membership inclusivity and accessibility is what provides the legitimacy of these institutions. Weak imposition of membership governance is evidenced from the results. With the membership indicators, average levels of agreement being under 40%, it shows low levels of process clarity and poor communication. As noted by Sacchetti and Catturani (2021) the legitimacy of cooperatives is largely tied to the governance membership process being articulated and transparent. The results indicate that membership-inclusive policies might exist, but operationally, the policies are not fully institutionalized (Table 3).

Table 3: Membership Policies and Practices

Indicator	Mean	% Agree	Cronbach's α
Specific membership criteria exist	2.04	39.0	0.792
Application process is clear and accessible	2.05	35.5	0.881
Membership is open to the public	2.02	36.0	0.789

The table illustrates a high level of clustering around neutral perception which demonstrates a lack of institutional clarity on the processes for entry into membership. The levels of reliability affirm the inner consistency of the measurements. As noted by Meira & Ramos (2023) democratic systems must have transparent processes to build confidence in participation for the members. Therefore, the results show more of an institutional governance gap rather than a principal rejection (Figure 1).

Figure 1. Membership Policies and Practices - Percentage Agreement



The bar chart depicting the distribution of weak agreements shows the breakdown of membership. No membership sign shows over 40% of the agreements which once again highlight the issue of the level of communication and the administrative capability of the institutions.

The findings align with existing literature by Okem (2023) who states that most agricultural cooperatives in South Africa work under policy environments that promote the development of cooperatives but lack sustained support for long-term institutional capacity. Governance development often lags the establishment of a cooperative due to insufficient management training, poor evaluation and monitoring frameworks, and lack of structured institutional mentorship, which explains the existence of membership rules that are not always implemented and are not accompanied by clear and open communication, and by procedural transparency. The findings, however, contradict the expectations of classical cooperative governance which states that membership, both voluntary and open, should be strongly institutionalized in cooperative systems that are of advanced maturity.

4.1.2 Economic Participation and Financial Transparency

The establishment of cooperative democratic economic participation hinges on financial transparency. While the participants exhibit signs of moderate financial transparency institutionalisation, the degree of transparency inconsistency is concerning. Tuna and Karantininis (2021) advocate that member financial transparency garners more profound levels of participation. The findings indicate that financial governance systems may be structurally embedded, but the systems are not consistently open to the membership (Table 4).

Table 4. Economic Participation – Financial Transparency

Indicator	Mean	% Agree	Cronbach's α
Financial reports accessible to members	2.02	38.0	0.726

The findings reveal a lacking in the institutionalisation of financial transparency. Whilst a degree of reliability can be noted, the weakness of substantive institutional depth has been concerning. Othuon et al. (2023) state that financial transparency is an important indicator of cooperative performance and the ability to establish trust. Therefore, the findings indicate the potential risks to trust in the cooperation governance systems (Figure 2).

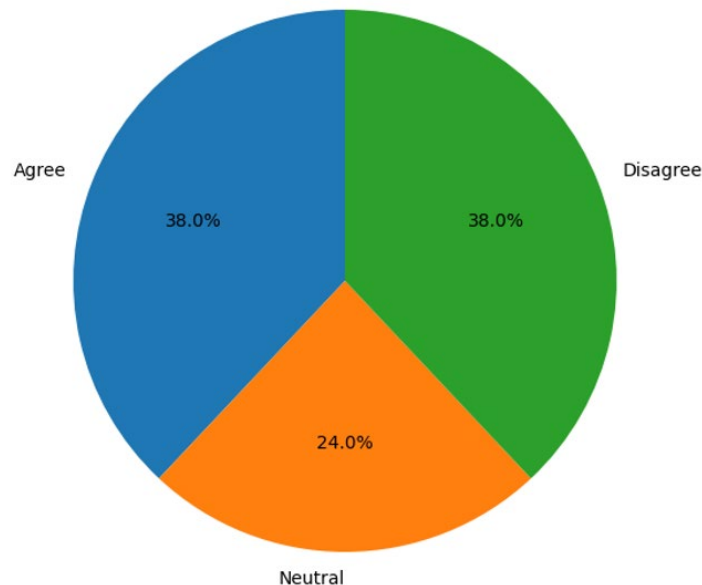


Figure 2. Economic Participation - Financial Transparency Response

The financial transparency pie chart illustrates a level of agreement and a level of disagreement equally. This suggests that the institution is inconsistent, and not a sign of a specific systemic strength or weakness.

The result is consistent with Puusa and Saastamoinen (2021) who state that in the limited resources setting, the survival of the cooperative is of most importance, resulting in centralisation of financial decision-making and low transparency; which in turn supports Mbokazi et al. (2024) in identifying the quality of governance and financial management as crucial to sustaining cooperatives in South Africa, as weak financial governance, as they state, is also a hindrance to growth. Therefore, most of the finding's moderate transparency in finance as an institutional capacity problem as opposed to deliberate exclusion of the financially weak, indicating the need to strengthen the financial governance of the cooperative.

4.1.3 Community and Environmental Concern

A social mission of cooperative organisations is reflected in the concern for community. Although community concern reveals the greatest levels of agreement of all the constructs, it still represents moderate levels of institutionalisation. Ziegler et al. (2023) suggests that cooperatives frequently show a higher social mission alignment than the maturity of their governance system (Table 5).

Table 5: Community and Environmental Contribution

Indicator	Mean	% Agree	Cronbach's α
Cooperative supports local development	2.13	45.0	0.755

The outcome indicates an entity has begun to partially institutionalise community engagement. While there is some agreement, the average score suggests moderate levels of engagement. Bizikova et al. (2020) state that participatory social impact is closely linked to the level of institutional capacity and funding. This indicates social contributions are possible, but the process is not to be considered a formalised system (Figure 3).

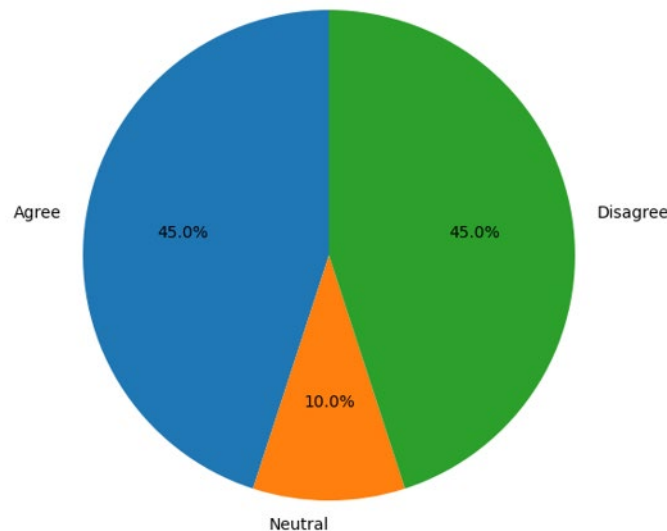


Figure 3. Community and Environmental Contribution

The community contribution pie chart identifies the distribution of the strongest agreements vs the significant least agreements showing uneven implementation across the cooperatives.

It is established that cooperatives do not consistently prioritise social and community development, which in part, contradicts basic cooperative theory. Unlike Candemir et al. (2021) who state that cooperatives have a strong correlation with social objectives, this study shows a negative correlation. This finding aligns with Mbokazi et al. (2024) where South African cooperatives have social objective/s and financial objective/s alignment, but social objective/s are increasingly overshadowed because of the competition for scarce resources. Consequently, community-centric initiatives are often reactive. More positive social outcomes appear to require the financial strengthening of cooperatives, to some degree.

4.2 Inferential Results

This segment outlines the relationships involving cooperative governance, management capacity, and member outcomes, incorporating inferential statistical results. The analysis is constructed in a specific order: first, the correlation analysis examines the bivariate relationships among the constructs. Next, the multiple regression analysis is conducted to determine the predictive relationships. Finally, the model diagnostics evaluate the statistical robustness about explanatory power, multicollinearity, and the distribution of residuals. This combination of steps guarantees that the results are not merely statistically significant, but the models are also reliable and consistent.

4.2.1 Correlation Analysis

Pearson correlation analysis was conducted to analyze the linear relationships between variables such as governance structure, financial management, member satisfaction, and supply chain efficiency. Causal modelling seeks to explain

the scope and nature of the relationships between variables; therefore, correlation analysis serves as a basic initial diagnostic to understand the relationships between the management and operational variables (Table 6).

Table 6: Correlation Matrix of Key Constructs

Variable	Governance	Financial Management	Member Satisfaction	Supply Chain Efficiency
Governance Structure	1.00	0.58	0.47	0.42
Financial Management	0.58	1.00	0.62	0.55
Member Satisfaction	0.47	0.62	1.00	0.50
Supply Chain Efficiency	0.42	0.55	0.50	1.00

The correlation matrix indicates strong and positive relations across all constructs. The most significant relation is between financial management and member satisfaction ($r = 0.62$) meaning that cooperative members perceptions on the effectiveness of the cooperative are influenced by the financial control and transparency systems. Governance structure and financial management have a correlation of $r = 0.58$ which means that a well-functioning governance system creates conditions for it to be coupled with effective financial management (Figure 4).

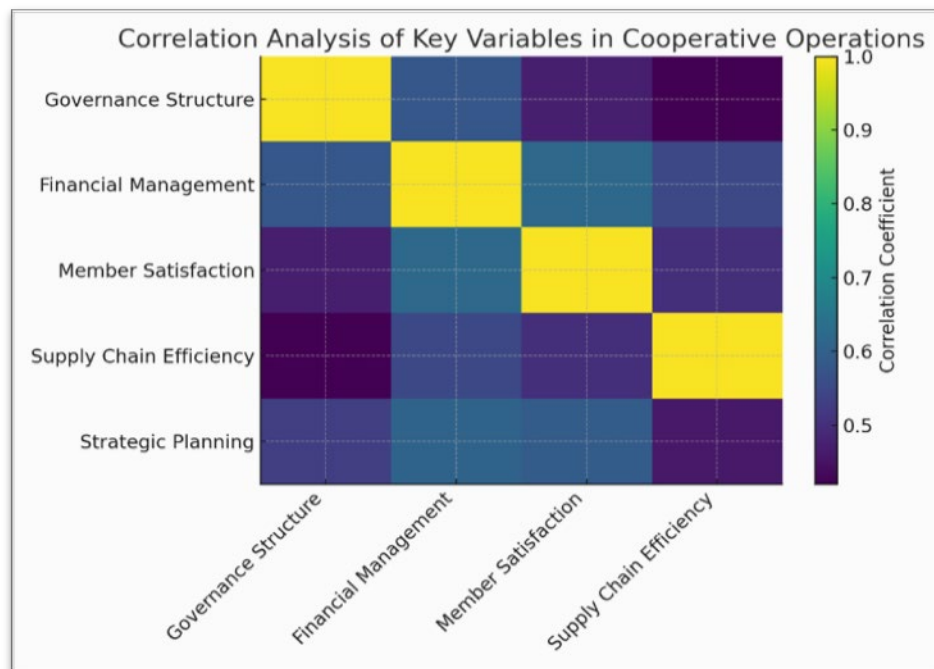


Figure 4: Correlation Analysis of Key Variables in Agricultural Cooperative Operations

The positive and consistent relationships among variables indicate that cooperative performance functions more as a unified institutional system than as separate operational domains. While correlation results outline important relationships, the results do not indicate the direction of a causal pathway, thus reinforcing the need for regression analysis to examine such relationships.

4.2.2 Regression Analysis: Determinants of Member Satisfaction

To analyze the predictive impacts of governance structure, financial management, supply chain efficiency, and strategic planning on member satisfaction, multiple linear regression analysis was performed. To enhance the stability of measurement and to minimize the random error of measurement, composite indices were utilized for each construct (Table 7).

Table 7: Regression Results – Dependent Variable: Member Satisfaction

Independent Variable	Coefficient	Std. Error	t-value	p-value
Governance Structure	0.35	0.10	3.50	0.001
Financial Management	0.42	0.08	5.25	0.000
Supply Chain Efficiency	0.28	0.09	3.11	0.002
Strategic Planning	0.33	0.07	4.71	0.000
Constant	1.12	0.20	5.60	0.000

As indicated by the regression analysis, all other factors, including positive impacts on member satisfaction, are financially managed. This illustrates the importance of economic control in the performance of the cooperative. The other notable factors were strategic planning and the governance framework, suggesting that members value the organisational course and the discretion to engage in the governance process. While in the other factors the supply chain was less important, it was still significant, indicating the value of accessible markets and operational congruence. The implication of this prioritisation shows that members appreciate performance that is functional as opposed to just nominal compliance with cooperative principles. This furthers the premise that the performance of a cooperative's institutional capability is foundational to its legitimacy and sustainability.

4.2.3 Model Fit and Overall Significance

The model accounts for 61% of the variance in member satisfaction which is indicative of strong explanatory power for social science. Remaining stable after adjusting for the number of predictors, the R^2 value of 0.59 reinforces the model's explanatory power. The F-statistic shows that the model is significant, meaning the independent variables as a group explain variance in member satisfaction.

The model's explanatory power indicates that internal governance and management systems, and not only external contextual variables, strongly determine the outcomes of performance for the cooperatives (Table 8 and 9).

Table 8: Model Summary Statistics

Statistic	Value
R^2	0.61
Adjusted R^2	0.59
F-statistic	48.72
F-significance (p-value)	<0.001

Table 9: Variance Inflation Factor (VIF) Results

Variable	VIF
Governance Structure	1.78
Financial Management	2.10
Supply Chain Efficiency	1.64
Strategic Planning	1.89

The model accounts for 61% of the variance in member satisfaction which is indicative of strong explanatory power for social science. Remaining stable after adjusting for the number of predictors, the R^2 value of 0.59 reinforces the model's explanatory power. The model's F-statistic provides evidence of significance, which indicates that the independent variables collectively account for varying levels of member satisfaction.

The model's explanatory capacity suggests that, as systems of internal governance and management, paired with external contextual variables, strongly influence the performance outcome for the cooperatives.

4.2.5 Residual Normality and Model Assumptions

Residual diagnostic tests were carried out to evaluate the assumptions regarding normality, homoscedasticity, and linearity. According to the data from the histogram and Q-Q plots, the residuals appear to be normally distributed. Also, the absence of any systematic residual patterns suggests the absence of heteroscedasticity. Therefore, it is very plausible that the estimates of the regression coefficients of the model are reliable. Since the residuals are normally distributed, it can be stated that the predictions made by this model are unbiased for all values of the dependent variable. The absence of heteroscedasticity further indicates that any statistical inferences made from this data are valid and reliable.

4.2.6 Integrated Interpretation of Inferential Results

The overall conclusion demonstrates that the most important factors influencing cooperatives' results remain internal institutional capacity. Financial governance, strategic planning, and participatory governance structures seem to drive most performance outcomes. Thus, the evidence suggests that the readiness to transform cooperatives is primarily linked to managerial capability and not to management ideology. It has been underscored that cooperatives that function with the most structural constraints tend to emphasize the economic survival functions of cooperatives the most. This is adaptive institutional behaviour of cooperatives, not a deviation from expected norms. Hence, the findings of this study substantiate the idea that the capacity for institutional adaptation and transformation aligned with the integrated outcome- sustainability performance of cooperatives is a defining concept.

4.3 Discussion: Three Layer Model

4.3.1 Institutional Bricolage Layer

Adaptive prioritization of economic survival functions gets manifested through the dominant roles of strategic coordination and financial management concerning performance outcomes of the cooperatives in the study at hand. Most African cooperatives participate in what we call institutional bricolage, whereby they redeploy available institutional artefacts and tools to stay operational within the structure of the cooperative institution (Mangnus and Schoonhoven-Speijer 2020). As close and outer limits of the system Bizikova et al. (2020) show how farmer organizations operate, in most cases, as a coordination platform oriented towards survival, whereby immediate operational production and income is in focus, foregoing any long institutional ambitions. When the institutional support is lacking, and the environment is constraining, cooperatives tend to opt for pragmatic management (Dhakal and Mueser 2023).

The prevailing dominance of finance as a practical institutional bricolage need not signal the institution's failure. Evidence shows that the focus within cooperatives is on the financial management, which in most cases has a direct bearing on members' economic wellbeing, and survival of the organization. Consequently, financial management and institutional layers become the operational foundation of a cooperative organization and upon which all other functions of the cooperative are dependent.

4.3.2 Social Economy Tension Layer

The results indicate a significant dilemma within social economy theory regarding economic realism and social mission. Puusa and Saastamoinen (2021) show that in competitive markets, cooperatives tend to prioritise economic survival over social governance. Meira and Ramos (2023) state that the effectiveness of democracy within an organisation is a function of its financial and resource capacity. Mbokazi, Ncube and Maharaj (2024) argue that South Africa cooperatives often have developmental goals but struggle to mitigate the impacts of economic sustainability. The results imply that financial definition of cooperatives is both an enabler and a barrier to achieving social missions. Where financial systems are strong, cooperatives can focus on community and member service development. When financial systems are weak, the social mission is often reduced to mere symbolic acts.

4.3.3 Sustainable Food Systems Transformation Layer

At the macro transformation level, the findings indicate that the role of institutional capacity is the determining factor for participation in sustaining transition. Kahsay and Endalew (2025) state that the importance of cooperatives in the adoption of climate-smart agriculture when strong systems of governance and coordination exist. In the case of Porciello et al. (2022) studies show that the participation of smallholder systems in digital agriculture is largely reliant on the systems of institutional coordination and collective organisation. Sekabira et al. (2023) claim that the case of Africa, where the participation of circular bioeconomy in the food systems of Africa calls for the presence of strong systems of institutional coordination for each of the stages of the production, processing and waste of value chain.

It is no longer novel to assert that the active participation of the identified actors in the transition of the participants warrants the presence of all the systems of institutions. The absence of the systems of financial management, strategic planning, and systems of governance, leaves cooperatives in place to implement the systems of resource allocation required for the transformation technologies. In a sense, the presence of the systems of policy, or the presence, of lack of systems of structures that create the, uninformed, the absence of the systems of structures that create informed policy on the participants in the transition of the participants are greater policy systems of information. The presence of the systems of policy makes the absence of the systems of structures that create the uninformed policy, functional.

4.4 Theoretical Contributions

4.4.1 Bricolage as a Transformation Enabler

The first major theoretical contribution involves the redefining of institutional bricolage within the context of new institutional theory as a transformative enabling mechanism instead of considering it a survival coping strategy. Existing bricolage literature frames adaptive institutional recombination as an outcome of resource scarcity and institutional voids. Mangnus and Schoonhoven-Speijer (2020) characterize African cooperatives as institutional bricoleurs who construct viable governance frameworks through fragmented institutional systems. Iyabano et al. (2022) argue that farmer organisations, through adaptive institutional recombination, act as innovation intermediaries. Bizikova et al. (2020) observe that farmer organisations often work in hybrid institutional environments to sustain participation in production and the market.

This study contributes to the theory of bricolage by not simply demonstrating that adaptive institutional recombination goes beyond the subsistent survival of an organisation, but in fact the institutional foundations to sustain participation in a sustainability transition can be created. Bricolage (in this case adaptive institutional recombination) functions as a process of staged institutional adaptations which builds progressive transformative readiness.

4.4.2 Financial Governance as a Sustainability Enabler

The second key theoretical contribution is the framing of financial governance as an institutional layer that enables sustainability. Historically, cooperative theories have regarded financial governance as one operational layer among many in the governance function spectrum (Puusa and Saastamoinen 2021). Economic survival is often the chief concern of cooperatives in competitive market environments. Mbokazi, Ncube, and Maharaj (2024) indicate that in the case of South Africa, the financial and governance capacity of cooperatives is pivotal to their performance. In the case of climate-smart agriculture, the role of cooperatives is mainly determined by the level of organisational and resource management (Kahsay and Endalew 2025).

This study contributes to the theorisation by illustrating that financial governance as an institutional layer is the most primary condition for enabling sustainability participation. It was evidenced that, regardless of policy support or the cooperative's level of normative commitment, the capacity of financial governance straightforwardly constrained participation in sustainability transition.

4.4.3 Institutional Capacity Hierarchy Model

The development of a hierarchical model of institutional capacity for staged readiness of cooperative transformation is the third unique theoretical contribution. Most literature on cooperatives has the criticism of assuming a simultaneous development of the governance, social mission, and sustainability participation functions. According to Porciello et al. (2022) digital transformation in smallholder systems requires institutional coordination and organizational capacity. The success of digital transformation in agri-food cooperatives is a function of the maturity of governance and the data management systems. Ziegler et al. (2025) suggest that participation in circular business models is a function of the sophistication of strategic organizational and learning the capacity of the system.

The model of cooperative transformation proposed suggests that there are successive stages in the development of the institutional capacity of the cooperative. The first layer of the capacity for governance and operational management is at the foundation. The second, middle layer is governance participation and institutional legitimacy. The third layer of capacity is advanced institutional Sustainability transition participation. This model attempts to explain structurally and theoretically the reason why so many cooperatives can show policy alignment, but, at the same time, lack the capacity for transformational participation.

4.4.4 Integrated Theoretical Advancement

The three combined theoretical contributions explain the integrated institutional perspective on the capability for cooperative transformation within the context of structural constraint environments. The findings suggest that the cooperative's sustainability performance is attributed to the sequencing of institutional capacities, rather than the ideological alignment of the cooperatives. From this perspective, the contribution to cooperative theory is the integration of social economy theory, institutional adaptation theory, and sustainability transition theory into a single analytical framework.

Thus, the study contributes to the scholarship on cooperative transformation by proposing a theoretical framework that is both testable and establishes a direct linkage between the development of institutional capacities and the outcomes of participation in sustainability transitions. This is the first contribution that sets the ground for empirical studies aimed at analyzing the pathways of staged cooperative institutional transformation.

5. Conclusions And Recommendations

5.1 Conclusion

This study involved the examination of the interrelationship between the institutional preconditions for the performance of cooperatives and the articulation of the cooperative principles as confinement of the governance and operational management capacity of cooperatives in transformative sustainable agriculture. The results demonstrate the potential for cooperative transformation, which is strongly reliant on the maturity of institutional capabilities, as opposed to the normative commitment to cooperative principles. Although the cooperative policy framework regards cooperatives as key players in the inclusive agricultural development and sustainability transition, the results show that many cooperatives are still institutionally under-prepared for this transformative role.

The renewed cooperative functioning, in the case of strategically managed and financially governed cooperatives, is attributed to the provision of trust, freedom, and security, which are critical for the operationalization of the cooperative principles in the cooperative system. When financial governance is transparent and strategically planned, cooperatives are more able to sustain member trust, effectively organize and coordinate collective production activities, and successfully integrate into market systems. When these institutional capabilities are insufficient, cooperatives' involvement in advanced transformation activities, such as sustainability transitions, digital agriculture, and climate adaptation, is limited.

5.2 Policy Recommendations

5.2.1 Institutional Capacity Building

The development strategies of government cooperatives must change from formation support to the strengthening of capabilities for more long-term institutional empowerment. In policy support programs, governance, the development of institutional systems, and the standardization of organizational processes should take precedence. Cooperatives support institutions should create more structured tools for assessing institutional maturity to evaluate and monitor the growth of cooperative capabilities over time. The provincial programs for the development of cooperatives should implement staggered pathways for the development of institutional capabilities, in alignment with the growth stages of the cooperative lifecycle.

5.2.2 Financial Governance Training

The development of financial governance as a critical pillar of cooperative development needs prioritisation. National cooperative support agencies are encouraged to implement more cooperative board, management committee, and financial officer targeted financial governance training programmes. Financial governance training should also cover advanced areas, such as financial management, capital sourcing, and risk analysis, in addition to bookkeeping. Strengthening cooperative audit support programmes is crucial in enhancing the structures of financial transparency and accountability to members.

5.2.3 Strategic Planning Capability Development

The creation of cooperatives must involve the planning of absorbing supports in the building of planning capabilities. Training in strategic planning should be made a condition of funding in the cooperative development programmes. Cooperatives should be provided with sectoral strategic planning templates that assist in the market positioning, production planning, and supply chain coordination. Cooperatives should be provided with digital tools to enhance data-driven decision-making strategic planning.

5.3 Future Research Directions

Future studies need to tackle longitudinal research regarding the relationships spanning the various institutional frameworks of the cooperatives and their respective performance outcomes. To adequately assess the influence of the varying developmental levels of institutional capabilities on the cooperative's enduring participation in sustainability, studies must be designed to be longitudinal. Such studies would aid in unravelling the complexities of the pathways of cooperative transformations and the varying degrees of institutional adaptability.

Future research should also seek to incorporate published financial performance metrics to substantiate the empirical evaluation of the outcomes of cooperatives' financial governance and the associated performance outcomes. Having access to audited financial records would better serve the evaluation of institutional performance and the reduction of perceived financial metrics.

The need for cross-national studies on the cooperative economies of Africa, particularly the comparative analysis of cooperative institutional development, governance, and sustainability, is evident. Such studies would help to understand the influence of varying governance structures on cooperative transformation in different institutional contexts. Such studies would enable the development of cooperative transformation frameworks that are contextually relevant to the African agricultural development contexts.

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