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Investigating Supply Chain Enablers and Barriers in the Agricultural Industry in the Vhembe District Municipality, South Africa

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ABSTRACT
The purpose of the study was to examine the supply chain enablers and barriers in the agricultural industry of Vhembe District in Limpopo Province. Interpretivism was the philosophical foundation of the study. The study was explorative, qualitative, and descriptive. The target population for this research comprised of personnel drawn from the agricultural industry in Limpopo Province. A non-probability purposive sampling method was employed to select 16 research participants. Primary data was gathered using a semi-structured interview guide. Atlas-ti 23 was utilized to analyze qualitative data. The results revealed that enabling factors were farmers' collaboration, information sharing, and proper packaging. Factors hindering effective supply chain management processes included competition and inadequate resources. To achieve a competitive advantage, it is recommended that mills and storage facilities be located closer to suppliers and customers. In addition, training in change management and supply chain management (SCM) should be prioritised. Disaster response strategies must be established to address potential catastrophes and disease outbreaks. Marketing should include the provision of incentives and discounts as well as the adoption of more aggressive global marketing strategies to create viable export avenues for locally produced agricultural products.

Keywords: *Barriers, Enablers, Information Sharing, Packaging, Supply Chain*

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INTRODUCTION
Supply chain effectiveness in the agricultural sector still faces several challenges in some parts of South Africa.[1] The idea of supply chain management (SCM) is viewed as the oversight of connections and interactions within a company.[2] Farmers in rural areas such as Vhembe District still face challenges as they struggle with costs associated with quality improvement, time to order and faster speed to market.[3] This research is primarily driven by the difficulties encountered by farmers in the Vhembe District.

[1] Forbes Chiromo, Andre Nel, and Tumelo Oupa Sebele, "Lean Manufacturing Challenges in a South African Clothing Company," *International Association for Management of Technology*, 2015, 1966–74.
[2] John Thomas Mgonja, Pieternel Luning, and Jack G A J Van der Vorst, "Diagnostic Model for Assessing Traceability System Performance in Fish Processing Plants," *Journal of Food Engineering* 118, no. 2 (2013): 188–97.
[3] Ivona Bajor and Dario Babić, "Reverse Logistics Retail Level Return," *International Journal for Traffic and Transport Engineering* 4, no. 2 (2014): 161–70.

Chakwizira, Mudau, and Radali state that the economy of Vhembe District Municipality primarily relies on agriculture, agribusiness, mining, and forestry, as well as wholesale and retail sectors.[4] Ramigo also states that the area can maximize social development and grow its economy.[5] The implementation of agricultural businesses has been lacking because the government was only focusing on small farmers. They did not reach all the farmers because of the supply chain (SC) systems that were implemented.[6] To mitigate this, the findings of this study have the potential to extend to medium-sized and large-scale agribusinesses to accommodate all farming spectra.

Farmers currently face several challenges, including the market's demand for consistently high-quality products, lack of knowledge about acceptable agricultural practices, and the need to comply with market and regulatory requirements. Additionally, they encounter new issues related to conformity assessment and traceability. These challenges are particularly significant for farmers who lack effective supply chain management systems, resulting in their exclusion from fully participating in the agricultural supply chain and limiting their access to high-value markets.

Borucke et al. highlight that agribusiness can drive economic development if farmers can access high-value markets within the agricultural supply chain, allowing them to take advantage of these profitable opportunities.[7] Currently, there is a significant demand for high-value agricultural products even in rural areas like Vhembe. However, this comes with increased food safety and quality standards and the rise of supply chain management (SCM) integration. Mothupi, Mukonza, and Khalo point out that lengthy procurement processes, often due to lack of understanding of SCM procedures and a failure to adhere to established processes and timelines, frequently cause delays.[8] These issues hinder farmers in the Vhembe District Municipality from tapping into expanding markets**.**

Additionally, other researchers have identified further challenges affecting farmers in the Vhembe District. These include lack of cooperation and coordination of activities within municipalities, inadequate planning, and political intervention. These issues often lead to the implementation of unplanned projects, delays in the procurement of services by providers, and late registration of projects, all of which can be attributed to poor planning.[9] Farmers in Vhembe District could not meet the demand due to several barriers and challenges within the supply chain. In addition, such challenges pose a massive threat to these farmers, as they cannot cross the bridge between their suppliers and customers.

The problem lies in the lack of specific studies focusing on supply chain enablers and barriers within the agricultural sector of the Vhembe District. This research intends to identify these barriers and highlight the enablers to improve the effectiveness of the supply chain for agricultural businesses in the Vhembe District. It further aims to address these problems by offering solutions to these challenges.

LITERATURE REVIEW

The reviewed literature in this section includes the agricultural industry and the factors leading to its success, as well as hindrances in the SCM industry in Vhembe District.

Supply Chain Management in the Agribusiness Industry in Vhembe District

Supply chain networks in Vhembe primarily cater to large commercial farmers in the province. These farmers typically sell their products through major retailers such as fresh produce markets and supermarkets using formal contract agreements. In contrast, most smallholder farmers rely on informal

[4] P M Mudau, James Chakwizira, and A C O Radali, "Managing Traffic Congestion in Small Sized Rural Towns in South Africa: The Case of Vhembe District Municipality," 2014.
[5] Ramigo Pfunzo, "Agriculture's Contribution to Economic Growth and Development in Rural Limpopo Province: A SAM Multiplier Analysis" (Stellenbosch University, 2017).
[6] Pfunzo, "Agriculture's Contribution to Economic Growth and Development in Rural Limpopo Province: A SAM Multiplier Analysis."
[7] Michael Borucke et al., "The National Footprint Accounts, 2012 Edition," *Global Footprint Network: Oakland, CA, USA*, 2012.
[8] Tumelo F Mothupi, Ricky M Mukonza, and Titos Khalo, "Factors Hindering the Implementation of the Procurement Plan in a Selected National Research Utility," *Journal of Transport and Supply Chain Management* 16 (2022): 11.
[9] Joshua Kenneth Baloyi, " An Analysis of Constraints Facing Smallholder Farmers in the Agribusiness Value Chain: A Case Study of Farmers in the Limpopo Province" (University of Pretoria (South Africa), 2010); Ayodeji Oke, Clinton Aigbavboa, and Ernest Dlamini, "Factors Affecting Quality of Construction Projects in Swazilland," in *Conference: Conference: 9th International Conference on Construction in the 21st Century, At Dubai, UAE*, 2017; G L Smith, F A C Da Lomba, and D C Andersen, "The Challenges of Infrastructure Development in the Eastern Limb of the Bushveld Complex of South Africa," in *Third International Platinum Conference 'Platinum in Transformation'. The Southern African Institute of Mining and Metallurgy Narrow Vein and Reef*, 2008.

intermediaries like street vendors or hawkers.[10] According to Chweya & Eyzaguirre, the variety of African Leafy Vegetables (ALV) species in Africa is significantly greater than that of exotic ones, and they are better suited to the local environment compared to introduced exotic vegetables.[11] ALVs offer low-cost, high-quality nutrition for many households in the Vhembe District Municipality.[12] Despite their nutritional benefits, ALVs remain underutilized in Limpopo, with a preference for exotic products.[13]

The benefits and constraints of protected areas in the Vhembe District are well documented, with many supply chain (SC) systems involved. According to Sebola, some benefits include small business development, employment opportunities, and discounted entrance fees in the Vhembe District of Limpopo.[14] Binswanger-Mkhize highlighted the opportunities and benefits associated with the agribusiness sector, such as its contribution to the rural economy through job creation, food security, and income generation from various activities in which rural people engage.[15] Chipfupa and Wale noted that many SCs in the Vhembe District have been converted from livestock farms to wildlife operations, as it became more economically viable to use and maintain wildlife for commercial purposes.[16] Additionally, a study by Statistics South Africa reported that in 2014, ranchers generated an estimated R4.3 billion from live sales.[17]

Supply Chain Enablers and Barriers in the Agricultural Industry

Agriculture is recognized as one of the three pillars of the economic development strategy for Limpopo Province, including the Vhembe District. To actualize the role of agribusiness in the province, the provincial executive council mandated studies to provide valuable managerial information to guide investment decisions for both government and private investors in the Limpopo agricultural sector.[18] These authors also highlighted the challenges affecting this sector, emphasizing the urgency of addressing critical issues and the lack of sufficient managerial and strategic information. According to Wale and Chipfupa, most supply management systems in the Vhembe District initially focused on livestock farms, but wildlife is now also used for commercial purposes.[19] A study by Stats SA revealed that in 2014, ranchers generated an estimated R4.3 billion from sales, demonstrating the achievement of an efficient supply chain network.[20]

The Vhembe district has been impacted by several SC processes that have affected product targets and the output of such processes. Firstly, the SC processes in the district involve the farmer (first-tier supplier), transportation, warehousing, distribution and customers (end users) have all encountered major bottlenecks within the value chain of these processes.[21] Vhembe district has employed several SC professionals in their agri-business processes, but several challenges have since affected the growth and success factors of a value chain which can bring change to the community of Vhembe.

[10] Andre Louw and Danie Jordaan, "Supply Chain Risks and Smallholder Fresh Produce Farmers in the Gauteng Province of South Africa," *Southern African Business Review* 20, no. 1 (2016): 286–312.
[11] J.A. Chweya and P. B. Eyzaguirre, *The Biodiversity of Traditional Leafy Vegetables* (Rome: International Plant Genetics Resources Institute, 1999).
[12] Chweya and Eyzaguirre, *The Biodiversity of Traditional Leafy Vegetables*.
[13] Paul Van Jaarsveld et al., "Nutrient Content of Eight African Leafy Vegetables and Their Potential Contribution to Dietary Reference Intakes," *Journal of Food Composition and Analysis* 33, no. 1 (2014): 77–84.
[14] Mokoko P Sebola, "Financing Emerging Black Farmers for Agricultural Development in South Africa: A Wasteful and Unworkable Model for Creating Black Farmers," *TD: The Journal for Transdisciplinary Research in Southern Africa* 14, no. 1 (2018): 1–7.
[15] H. P. Binswanger-Mkhize, " From Failure to Success in South African Land Reform," *African Journal of Agricultural and Resource Economics* 9, no. 4 (2014): 253–69.
[16] Unity Chipfupa and Edilegnaw Wale, "Farmer Typology Formulation Accounting for Psychological Capital: Implications for on-Farm Entrepreneurial Development," *Development in Practice* 28, no. 5 (2018): 600–614.
[17] Statistics South Africa, "Stats SA Releases Census of Commercial Agriculture 2017 Report" (Statistics South Africa, 2020).
[18] Khathutshelo A Tshikolomo, Sue Walker, and Azwihangwisi E Nesamvuni, "Perceptions of Municipal Water Managers of Limpopo and Luvuvhu-Letaba Water Management Areas on Water Resources, Uses and Restrictions," *International Journal of Business and Social Science* 3, no. 5 (2012).
[19] Chipfupa and Wale, "Farmer Typology Formulation Accounting for Psychological Capital: Implications for on-Farm Entrepreneurial Development."
[20] Statistics South Africa, "Stats SA Releases Census of Commercial Agriculture 2017 Report."
[21] W. Sihlobo, "The Effects of the Covid-19 Pandemic on Agricultural Employment in South Africa," 2020, https://www.bizcommunity.com/Article/196/358/205388.html/.

METHODOLOGY

The methodology section provides an overview of the research approach, participant selection, data collection methods, trustworthiness measures, and data analysis techniques.

Research Design

This study subscribes to the interpretive paradigm because it concentrates on the way people think about the events that are happening around them as mentioned by Bhattacherjee.[22] This study aimed to investigate the supply chain (SC) enablers and barriers in the agricultural industry of the Vhembe District in Limpopo Province. To achieve this, a qualitative approach was employed, allowing for the collection of in-depth data. This research method was selected because no previous studies had specifically addressed SCM enablers and barriers in the agribusiness sector of the Vhembe District. As Zou, Sunindijo, and Dainty explain, a qualitative study provides a rich, detailed account of the phenomenon under investigation, shedding light on the relationships between research subjects and their natural environments.[23] Additionally, the qualitative research approach aims to explore and describe new areas of inquiry where knowledge is limited and to understand individuals' beliefs from their viewpoints.[24]

In this study, the researchers' interest was in agribusinesses in the Vhembe District of Limpopo, and in modelling the data collected. Qualitative researchers prioritize subjectivity, immersing themselves in the participants' natural environments to understand their experiences from an insider's perspective.[25] This enabled the researcher to experience the subjective dimensions of the phenomenon under study. As a result of such phenomena, the researcher interviewed the participants in their natural settings, to observe some of the issues raised.

Sampling and Population

The study focused on personnel from the agricultural sector in Limpopo Province. The sampling frame was a list provided by the Vhembe District, which included all firms in the agricultural industry that are full members of the association and have passed audits based on its code of conduct. Participants were selected using a non-probability purposive sampling method. This approach does not ensure that every element of the target population will be represented in the sample.[26] Purposive sampling involves selecting individuals or units based on a specific purpose.[27] In this case, only personnel who had at least 2 years of experience in the agricultural industry were chosen. The sample size was not predetermined; instead, it was determined by the point of saturation.

Data Collection and Participants

In this study, primary data was collected using a semi-structured interview guide for four months. Interviews were conducted with key players in the supply chain (SC) industry within the Vhembe District Municipality. All interviews were pre-arranged and took place at relevant locations, specifically agribusinesses within the Vhembe District. Each interview was recorded and transcribed. Primary data, as defined by O'Leary, refers to data originally collected for a specific study, including written notes, interview transcriptions, and observations made by the researcher during data collection.[28] Before the main data collection, the interviews were piloted to evaluate the timeliness, accuracy, and relevance of the responses for the project. During the piloting process, it was identified that obtaining an overall perspective of the SC from the farmers was necessary.

Data was collected through semi-structured, in-depth interviews. Semi-structured interviews were chosen because they facilitate deeper engagement, allowing participants to adequately share their

[22] Anol Bhattacherjee, " Social Science Research: Principles, Methods, and Practices" (University of South Florida, 2012).
[23] Patrick X W Zou, Riza Yosia Sunindijo, and Andrew R J Dainty, "A Mixed Methods Research Design for Bridging the Gap between Research and Practice in Construction Safety," *Safety Science* 70 (2014): 316–26.
[24] Ashish Kothari, "Traditional Knowledge and Sustainable Development," *International Institute for Sustainable Development*, 2007.
[25] D. Gough, S. Oliver, and J. Thomas, *An Introduction to Systematic Reviews* (Los Angeles, CA: Sage, 2012).
[26] Paul D. Leedy and Jeanne Ellis Ormrod, *Practical Research: Planning and Design*, 11th ed. (London: Pearson Education Ltd, 2015).
[27] J. W. Creswell, *Research Design: Qualitative, Quantitative and Mixed Method Approaches*, 4th ed. (Los Angeles: Sage Publications, 2011).
[28] Z. O'Leary, *The Essential Guide to Doing Your Research Project* (London: Sage, 2013).

experiences.[29] By using open-ended questions and probes, the interviewer could elucidate participants' relationships with their experiences of the phenomenon. This approach helped the researcher understand the meaning behind the interviewees' experiences.[30] The authors argued that to grasp the meaning one ascribes to their experience; the person must share deep social and personal matters related to the phenomena. This level of insight is only achievable through in-depth interviews, which was the preferred method for data collection in this qualitative study.

Data Analysis Techniques

The audio-recorded interviews conducted during the qualitative research were transcribed verbatim, to prevent bias and to give a permanent record of what was said. Also, field notes of observations, thoughts, and ideas about the interview that were made during and immediately after each interview were used in the data analysis process. Non-verbal cues were considered. That was followed by data cleaning, which involves the correction of transcription errors. Data was analyzed qualitatively utilizing Atlas-ti 23, which is one of the software used to analyze qualitative data.

Ethical Consideration

Throughout the study, efforts were made to ensure credibility, dependability, confirmability, and transferability. According to McMillan and Schumacher, credibility "is the extent to which the results approximate reality and are judged to be accurate and reasonable."[31] To ensure the validity of the results, interpretations were cross-checked against the raw data collected.

Confirmability measures how much a research study's conclusions can be independently corroborated by other sources.[32] By ensuring that participants had the opportunity to see their interview transcripts, an audit trail was finished for each interview to prove confirmability. All the participants attested to the accuracy of the interview transcriptions. Transferability refers to the extent to which the findings can be applied to different contexts, circumstances, and scenarios.[33] Transferability was assessed by frequently referencing analogous situations and cases in the agribusiness sector in other South African regions. In this study, it was acknowledged that the agribusiness industry in the Vhembe District is comparable to those in other districts within the Limpopo province of South Africa. This similarity is confirmed by the fact that these industries are located in the same province and face similar political, economic, social, technological, legal, and ecological (PESTLE) dynamics.

PRESENTATION OF RESEARCH FINDINGS

The research findings include a description of the sample, the factors that facilitate supply chain management (SCM) in the agribusiness sector, and the primary barriers to successful SCM practices identified in the industry. This study explored the main themes, findings, theoretical and managerial implications, as well as limitations and suggestions for future research.

Description of the Sample

Interviews were conducted with a total of 16 participants from the agricultural industry. Various sources, including Baker & Edwards, Charmaz, Dworkin, and Morse, suggest that a sample size of five to fifty participants is adequate for qualitative interviews.[34] In this study, saturation was achieved at 16 interviews,

[29] Terese Stenfors-Hayes, Hakan Hult, and Madeleine A Dahlgren, "A Phenomenographic Approach to Research in Medical Education," *Medical Education* 47, no. 3 (2013): 261–70.
[30] Barbara DiCicco-Bloom and Benjamin F Crabtree, "The Qualitative Research Interview," *Medical Education* 40, no. 4 (2006): 314–21.
[31] J.H. McMillan and S. Schumacher, *Research in Education: Evidence-Based Inquiry*, 7th ed. (Upper Saddle River, NJ: Pearson, 2010).
[32] Y.S. Lincoln, S.A. Lynham, and E.G. Guba, "Paradigmatic Controversies, Contradictions and Emerging Confluences," in *The Sage Handbook of Qualitative Research*, ed. N.K. Denzin and Y.S. Guba, 5th ed. (Thousand Oaks, CA: Sage, 2017).
[33] N. Lee and I. Lings, *Doing Business Research: A Guide to Theory and Practice* (Thousand Oaks, CA: Sage, 2008).
[34] S.E. Baker and R. Edwards, *How Many Qualitative Interviews Is Enough?* (Southampton: National Centre for Research Methods (NCRM), 2012); Kathy Charmaz, "'Discovering'Chronic Illness: Using Grounded Theory," *Social Science & Medicine* 30, no. 11 (1990): 1161–72; Shari L. Dworkin, "Sample Size Policy for Qualitative Studies Using In-Depth Interviews," *Archives of Sexual Behavior* 41, no. 6 (December 12, 2012): 1319–20, https://doi.org/10.1007/s10508-012-0016-6; Janice M Morse, "Determining Sample Size," *Qualitative Health Research* (Sage Publications Sage CA: Thousand Oaks, CA, 2000).

meaning that no new or relevant themes were obtained beyond this point.[35] 16 volunteers served as the final sample size, which was deemed to be enough for this investigation. Table 1 displays the demographic profiles of 16 participants representing all levels of the community. Regarding demographic responses, ten (10) were male participants and six (6) were female. The results also show that all participants had over 5 years of experience in the agribusiness supply chain (SC) industry. Drawing from the results presented above, it can be concluded that the gender participants ratio was 6:4, and the participants proved to have enough experience to understand the context of this study.

Table 1: Demographics of Participants

Participants	Gender	Highest Qualification	Occupation/Department	Years in the agricultural sector
1	Female	Matric	Community Member	5 years
2	Male	Postgraduate degree	Community Member	15 years
3	Male	Postgraduate degree	Community Development Worker	15 years
4	Male	Bachelor's degree	Community Development Worker	10 years
5	Male	Matric	Community Member	5 years
6	Male	Matric	Community Member	16 years
7	Female	Matric	Community Member	17 years
8	Female	Bachelor's degree	Community Development Worker	16 years
9	Female	Postgraduate Diploma	Community Development Worker	18 years
10	Female	Matric	Community Member	16 years
11	Male	Matriculated	Community Member	18 years
12	Male	Diploma	Community Member	5 years
13	Male	Matric	Ward Councillor	17 years
14	Male	Matric	Community Member	4 years
15	Female	Diploma	Community Member	18 years
16	Male	Diploma	Community Development Worker	16 years

Enabling factors of supply chain management in the agribusiness industry

This section focused on unravelling the factors that enable the success of agricultural businesses. The enabling factors that were revealed from the analysis are farmers' collaboration, quality product provision, proper packaging, and information sharing.

Farmers' Collaboration

The results revealed that collaboration was one of the factors enabling the success of agricultural businesses. This was evidenced by the expressions of participants, shown in the following excerpts:

> "I have a lot of networks; for instance, in our area, farmers meet to discuss the setting of prices upon which we also make decisions. We also advise each other in terms of working hard and developing ourselves, so that we can be able to make enough profit rather than to plant for a loss." **(P8)**

> "As farmers, we have our own WhatsApp group where we communicate and do all kinds of networking, so what I can tell you is that marketing is the best weapon ever when doing business.

[35] Mark Mason, "Sample Size and Saturation in PhD Studies Using Qualitative Interviews," in *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research*, vol. 11, 2010.

> So, whenever we do our meetings, all we do, we make sure that we connect, network, and market, so communication is the best. So, if we are networking 10 in the meeting amongst ourselves, we will all need different things, you might find that one person has 100 friends or people around him whilst others have 30, so it makes things easier in terms of doing business." **(P14)**

Based on the above evidence, the participants indicated that they held their meetings and advised one another in terms of commitment and developing themselves and their businesses, towards enhancing their profitability. The participants further indicated that through these meetings or gatherings, they can establish networks that ensure their businesses remain a going concern. The participants also mentioned that such meetings provide a platform for addressing issues such as how they can obtain fertilizer, enhancing farming processes, and ways in which they can address the challenge of pests affecting plant growth.

Information Sharing

The results also revealed that information sharing is one of the factors contributing to the success of agriculture businesses. This is evidenced by the views of participants 6 and 8 as shown in the following excerpts:

> "It works in that way because there's some information that you will need to get through asking. For example, when planting maize meal, you will have to know that there are various seeds that are planted in each season, so we get this information through advising each other." **(P6)**

> "We also have specialist farmers from the department of agriculture who come in our area to motivate us to do farming business." **(P8)**

Proper Packaging

Proper packaging is one of the factors that has been proven to result in the success of the agriculture business. This is evidenced by the expressions of Participants 8, 12, and 14, shown below:

> "We use boxes to package our products, this is based on what the agent wants, the agent will tell us maybe on WhatsApp how he/she wants the package system to be done. I normally package chillies and green beans in packaging boxes." **(P8)**

> "Firstly, we harvest our crop products in crates for packaging, and in terms of packaging we have different types of packaging such as boxes or you can use a sack." **(P12)**

> "So, in terms of packaging our products, for some we use boxes, some we wrap using plastics, so it depends on the product we have using the wrapping machines." **(P14)**

The participants indicated that they packaged their products in appropriate packages that are appealing to the market. The participants also indicated that they had wrapping machines that facilitate the packaging, though the packaging is dependent on the product type. Properly packaging the product results in the farmers' products that are appealing to the customers, or in the market, which also contributes to enhancing their competitive edge thereby improving the success of the products in the market. Participants added that this product differentiation results in the basis for business competitiveness and, hence, success. See Figure 1 below for enabling factors in agricultural businesses:

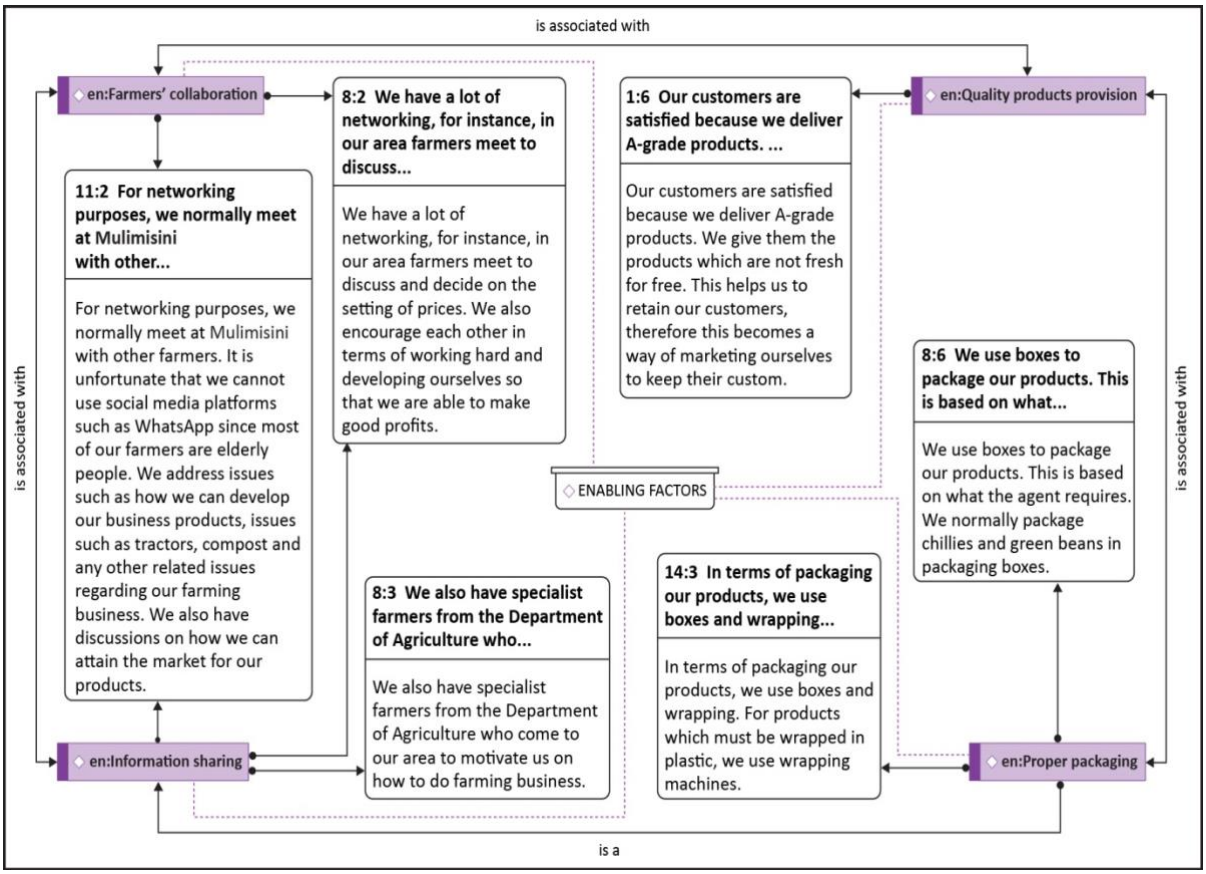

Figure 1: Enabling factors in agricultural businesses

Factors hindering effective supply chain management processes in the agribusiness industry

Competition

The results showed that competition is one of the factors hindering the success of agricultural businesses. This was evidenced by the expressions of participants 1, 6, and 10, as shown in the following quotations:

> "Sometimes when you supply the products, you can come across some challenges of competing with other agricultural businesses. You may find that I am not the only one who has planted the macadamia nuts, you may find that there are several people who are currently busy planting." **(P1)**

> "What we normally experience in the farm is that if we all plant more or less the same thing, we then find it hard to get the market or more customers. For instance, if we all plant sweet potatoes, it means that we will all face challenges where one might even sell at the price of R50 per crate when we have all decided on R120 per crate. It means that customers will go to the one selling at the lower price than others." **(P6)**

In terms of competition, the participants indicated that they faced challenges in competing with other agricultural businesses, as more farmers or businesses were supplying the same product. The participants also indicated that price reductions also occurred among the farmers, resulting in customers preferring products sold at lower prices.

Inadequate Resources

Inadequate resources were established to be another factor hindering the success of the agricultural businesses. Inadequate resources as a hindering factor were evidenced by the views of participants 2, 7, and 8, as shown in the following excerpts:

> "We even don't have refrigerators since they are required to operate in the warehouse with extensive amount of electricity, which can cost you up to an estimated amount of R100,000." **(P2)**

"Another thing is a shortage of tractors; the government has only given us one tractor which is not really usable, considering the fact that we have a lot of farmers with different hectares. This led us to follow a queue which a season might even surpass before one gets an opportunity to use that particular tractor. For instance, now is the season for beans, but because we have one tractor, you might find that we have to start late due to waiting for the tractor." **(P7)**

Based on the above evidence, the participants indicated that they lacked resources such as refrigerators, which are required in warehouses, attracting electricity bills that the farmers are not able to afford. The participants further indicated that resources such as tractors were a major concern. This is because the government provides only one tractor among many farmers, which results in the planting season passing while they are still in the queue to access the tractor. This means that lack of resources such as refrigerators, finances, and tractors had a detrimental impact on the operation of the farmers and hindered their very successful prospects. See Figure 2 below, for hindering factors in agricultural businesses.

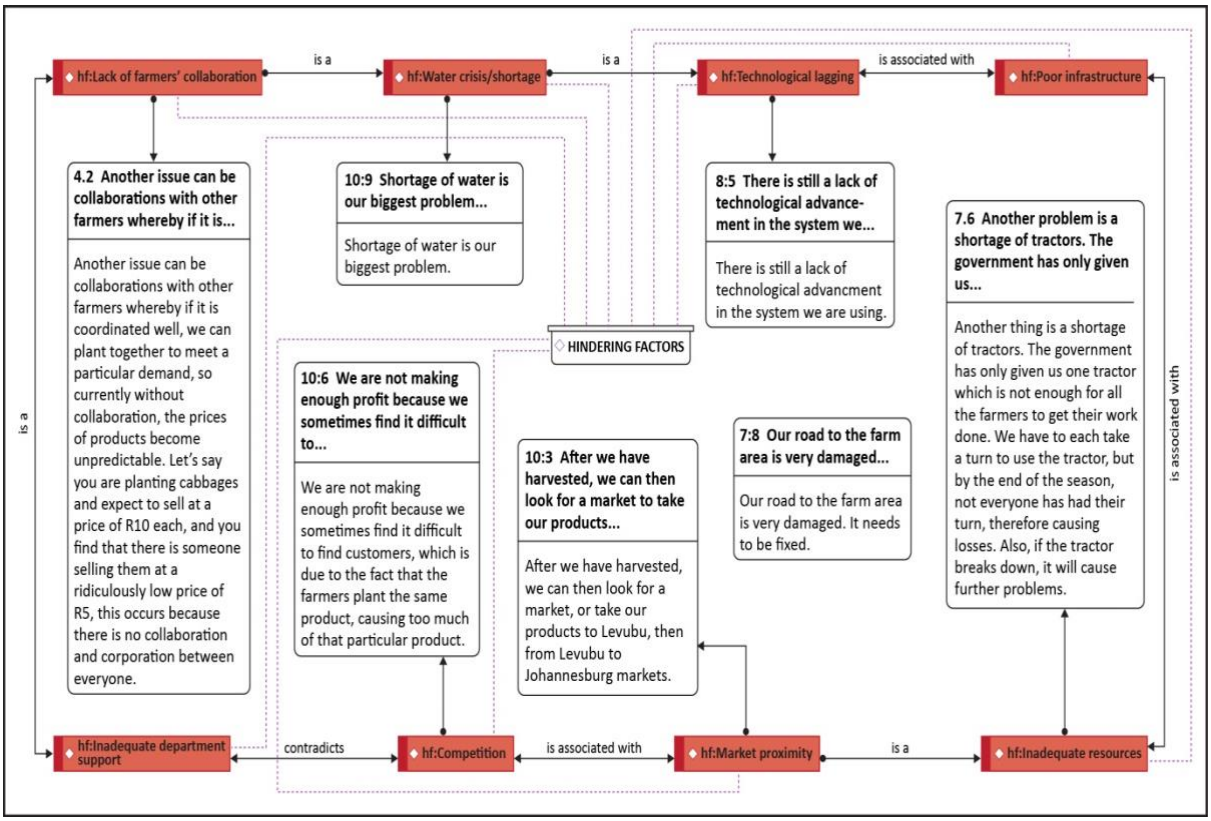

Figure 2: Factors hindering agricultural businesses

DISCUSSION OF FINDINGS

The participants in the current study indicated that engagements and collaborations formed the foundation for success in their operations. The results are supported by Gold, Chowdhury, Huq, & Heinemann, who elucidated that collaboration provides the premise for businesses of all sizes to be able to address diverse societal and business aspects through dealing with the gaps that exist in both resources and knowledge.[36] In addition, Ngaka and Zwane also stipulated that collaborative arrangements offer farmers increased returns through the ability to achieve scale at a lower capital cost.[37] The reduction of costs was duplicated between farmers and risks were shared.

[36] Stefan Gold et al., "Social Business Collaboration at the Bottom of the Pyramid: The Case of Orchestration," *Business Strategy and the Environment* 29, no. 1 (2020): 262–75.
[37] M J Ngaka and E M Zwane, "The Role of Partnerships in Agricultural Extension Service Delivery: A Study Conducted in Provincial Departments of Agriculture in South Africa," *South African Journal of Agricultural Extension* 46, no. 1 (2018): 14–25.

Participants mentioned that information sharing is a key factor contributing to the success of agricultural businesses. These findings align with those of Zhang & Liu, who defined information sharing as the exchange of knowledge between supply chain partners.[38] This deeper relationship can reduce opportunistic behaviour, mitigate the bullwhip effect, and enhance the efficiency of information among farmers. The study indicates that information sharing requires deep trust among partners, but reducing opportunistic behaviour can further enhance trust between enterprises. In other words, reducing opportunistic behaviour promotes information sharing, which in turn diminishes the reciprocal nature of opportunistic behaviour.[39]

The view of the participants was that packaging products in appropriate packages made them look appealing in the market. Aligning with this study's findings, Wyrwa and Barska postulate that creative and innovative packages attract customers in the market and differentiate products from those of competitors.[40]

The results of the current study revealed that competition hinders the success of agricultural businesses. These findings align with Makhura and Mokoena, who noted that many emerging farmers struggle to compete in formal agricultural markets.[41] Consequently, formal markets are often not appealing to these farmers. Lack of market participation is a common issue among emerging farmers globally and has been identified by Bienabe & Vermuelen as a significant constraint to their development.[42] Dias, Rodrigues & Ferreira concur with this study's findings, elucidating that the looming increased competition among the agricultural businesses often presents challenges among small businesses, as they will not have the capacity to compete with the bigger firms, or among the same-level firms, resulting in losses mainly among perishable products.[43]

Participants mentioned that inadequate resources such as refrigerators and tractors were a challenge. Chapagain and Raizada also pointed out the difficulty when they stated that lack of adequate resources threatens the overall operations of the farmers, and the yield thereof, in developing countries, as their effectiveness or productivity is highly dependent on the availability of resources.[44]

Discussion Summary

This study aimed to investigate the supply chain management (SCM) drivers of growth (enablers), inhibitors, and disruptions in the agribusiness sector of the Vhembe District in Limpopo Province. The themes identified in this study highlighted several SCM-related enablers, impediments, and disruptions within the agricultural sector. Regarding the factors enabling the success of agribusinesses, farmers' collaboration was established to contribute to the success of these ventures. The findings showed that through farmers' collaboration, the farmers/entrepreneurs have meetings where they advise one another in terms of commitment and developing themselves and their businesses towards improving the profitability of their businesses. These meetings were also found to be providing a platform for networking, broadening the businesses' networks, and ensuring the basis for improved operations and the success thereof. Proper packaging of products was also found to be a contributing factor to the success of these businesses. Factors that hinder the success of the supply chain in agricultural business include competition and inadequate resources.

[38] Qing Zhang and Zhixue Liu, "Coordination of Supply Chain Systems: From the Perspective of Information Flow," in *2008 4th International Conference on Wireless Communications, Networking and Mobile Computing* (IEEE, 2008), 1–4.
[39] Hua Song et al., "Supply Chain Network, Information Sharing and SME Credit Quality," *Industrial Management & Data Systems* 116, no. 4 (2016): 740–58.
[40] Joanna Wyrwa and Anetta Barska, "Innovations in the Food Packaging Market: Active Packaging," *European Food Research and Technology* 243 (2017): 1681–92.
[41] M. Makhura and M. Mokoena, *Market Access for Small-Scale Farmers in South Africa* (Pietermaritzburg: University of Natal Press, 2003).
[42] Estelle Biénabe and Hester Vermeulen, "Improving Smallholders' Market Participation: Insights from a Business Scheme for Maize in Limpopo Province, South Africa," *Development Southern Africa* 28, no. 4 (October 2011): 493–507, https://doi.org/10.1080/0376835X.2011.605567.
[43] Claudia Dias, Ricardo Gouveia Rodrigues, and João J Ferreira, "Linking Natural Resources and Performance of Small Agricultural Businesses: Do Entrepreneurial Orientation and Environmental Sustainability Orientation Matter?," *Sustainable Development* 30, no. 4 (2022): 713–25.
[44] Tejendra Chapagain and Manish N Raizada, "Agronomic Challenges and Opportunities for Smallholder Terrace Agriculture in Developing Countries," *Frontiers in Plant Science* 8 (2017): 331.

The findings showed that information sharing was established as a factor contributing to the success of these businesses. It was also found that proper packaging was adopted as a marketing strategy by these businesses, which effectively positioned their products in the market and improved their competitive edge. This implies that proper packaging contributes immensely to the overall acceptance of the product in the market and enables businesses to attract customers and compete profitably.

In terms of the factors hindering the success of agribusinesses, this study found that competition was detrimental to the operation of such businesses. Within the competition context, the findings showed that many farmers supplied the same products, resulting in market saturation. The saturation of a product in the market often leads to price reductions by farmers to make sales, which often results in them sustaining considerable losses. Competition has thus been identified as a factor adversely affecting the efforts of these farmers, and hence hindering the success of their endeavours.

Theoretical and Managerial Implications of the Study

This study is vital as it provides detailed knowledge to farming businesses and their owners and management. Firstly, the study provides theoretical knowledge by linking several studies on the challenges that are faced by farmers in remote areas such as Vhembe District. Secondly, it provides in-depth guidance through the results on the supply chain enablers which can be used by businesses and even those within other sectors. These enablers provide the business and the management community with an understanding of the factors that assist farmers and their supply chains to be more viable and reduce failure risks.

Practically, this study highlights the factors (enablers) that agricultural practitioners should focus on to enhance the performance of agricultural supply chains in the Vhembe District. By identifying SCM barriers and disruptions, the study aids in developing risk management strategies for the agricultural sector. Since the agricultural industry cannot control the upgrade of national infrastructure like roads and ports, locating mills and storage facilities closer to suppliers and customers is recommended for competitive advantage. Training in change management, from top management to lower-level staff, is essential to integrate change as a part of business strategies, utilizing effective change management models tailored for the agricultural industry.

Furthermore, SCM education and training are crucial for ensuring that all industry professionals recognize the importance of adopting and integrating SCM as a core strategy in farming. Given the unpredictability of climate and pandemics, disaster response strategies must be established to address potential catastrophes and disease outbreaks, particularly in underprivileged areas like the Vhembe District of Limpopo Province. Enhancing farmer loyalty through value-added benefits for customers purchasing feed from mills, such as providing incentives and discounts, is also recommended.

Additionally, addressing the oversupply of agricultural equipment in the province by expanding supplies to other markets across the country is necessary. More aggressive global marketing strategies should be adopted to create viable export avenues for locally produced agricultural products.

CONCLUSION

Considering the fact that farmers' collaboration contributed to the success of agribusinesses, they must devote their time and resources to creating business networks to access information and resources. Farmers must continually improve product packaging to enhance sales. To counter the problem of competition in the mature market, they should consider geographic expansion to other provinces in the country and even internationally.

LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

This study is limited by its use of a qualitative approach, meaning the findings reflect the subjective opinions of the participants. Additionally, the study's focus on a specific area, Vhembe District, which means that the conclusions may not be generalizable to other regions. While some generic conclusions can be drawn, they should be approached with caution. The applicability of the study to other contexts is further restricted by the fact that all participants were based in a single district (Vhembe). Several suggestions for future research have been identified. Similar studies could be conducted in other districts in South Africa and beyond to gain an in-depth understanding of the subject matter in different contexts.

Additionally, a quantitative study could be undertaken to reach a broader sample and provide a more comprehensive understanding of the subject matter.

BIBLIOGRAPHY

Bajor, Ivona, and Dario Babić. "Reverse Logistics Retail Level Return." *International Journal for Traffic and Transport Engineering* 4, no. 2 (2014): 161–70.

Baker, S.E., and R. Edwards. *How Many Qualitative Interviews Is Enough?* . Southampton: National Centre for Research Methods (NCRM), 2012.

Baloyi, Joshua Kenneth. " An Analysis of Constraints Facing Smallholder Farmers in the Agribusiness Value Chain: A Case Study of Farmers in the Limpopo Province." University of Pretoria (South Africa), 2010.

Bhattacherjee, Anol. " Social Science Research: Principles, Methods, and Practices." University of South Florida, 2012.

Biénabe, Estelle, and Hester Vermeulen. "Improving Smallholders' Market Participation: Insights from a Business Scheme for Maize in Limpopo Province, South Africa." *Development Southern Africa* 28, no. 4 (October 2011): 493–507. https://doi.org/10.1080/0376835X.2011.605567.

Binswanger-Mkhize, H. P. " From Failure to Success in South African Land Reform." *African Journal of Agricultural and Resource Economics* 9, no. 4 (2014): 253–69.

Borucke, Michael, Alessandro Galli, Katsunori Iha, Eli Lazarus, Scott Mattoon, Juan Carlos Morales, Pati Poblete, Mathis Wackernagel, and Global Footprint Network. "The National Footprint Accounts, 2012 Edition." *Global Footprint Network: Oakland, CA, USA*, 2012.

Chapagain, Tejendra, and Manish N Raizada. "Agronomic Challenges and Opportunities for Smallholder Terrace Agriculture in Developing Countries." *Frontiers in Plant Science* 8 (2017): 331.

Charmaz, Kathy. "'Discovering'Chronic Illness: Using Grounded Theory." *Social Science & Medicine* 30, no. 11 (1990): 1161–72.

Chipfupa, Unity, and Edilegnaw Wale. "Farmer Typology Formulation Accounting for Psychological Capital: Implications for on-Farm Entrepreneurial Development." *Development in Practice* 28, no. 5 (2018): 600–614.

Chiromo, Forbes, Andre Nel, and Tumelo Oupa Sebele. "Lean Manufacturing Challenges in a South African Clothing Company." *International Association for Management of Technology*, 2015, 1966–74.

Chweya, J.A., and P. B. Eyzaguirre. *The Biodiversity of Traditional Leafy Vegetables*. Rome: International Plant Genetics Resources Institute, 1999.

Creswell, J. W. *Research Design: Qualitative, Quantitative and Mixed Method Approaches*. 4th ed. Los Angeles: Sage Publications, 2011.

Dias, Claudia, Ricardo Gouveia Rodrigues, and João J Ferreira. "Linking Natural Resources and Performance of Small Agricultural Businesses: Do Entrepreneurial Orientation and Environmental Sustainability Orientation Matter?" *Sustainable Development* 30, no. 4 (2022): 713–25.

DiCicco-Bloom, Barbara, and Benjamin F Crabtree. "The Qualitative Research Interview." *Medical Education* 40, no. 4 (2006): 314–21.

Dworkin, Shari L. "Sample Size Policy for Qualitative Studies Using In-Depth Interviews." *Archives of Sexual Behavior* 41, no. 6 (December 12, 2012): 1319–20. https://doi.org/10.1007/s10508-012-0016-6.

Gold, Stefan, Ilma Nur Chowdhury, Fahian Anisul Huq, and Kristin Heinemann. "Social Business Collaboration at the Bottom of the Pyramid: The Case of Orchestration." *Business Strategy and the Environment* 29, no. 1 (2020): 262–75.

Gough, D., S. Oliver, and J. Thomas. *An Introduction to Systematic Reviews*. Los Angeles, CA: Sage, 2012.

Jaarsveld, Paul Van, Mieke Faber, Ina Van Heerden, Friede Wenhold, Willem Jansen van Rensburg, and Wim Van Averbeke. "Nutrient Content of Eight African Leafy Vegetables and Their Potential Contribution to Dietary Reference Intakes." *Journal of Food Composition and Analysis* 33, no. 1 (2014): 77–84.

Kothari, Ashish. "Traditional Knowledge and Sustainable Development." *International Institute for Sustainable Development*, 2007.

Lee, N., and I. Lings. *Doing Business Research: A Guide to Theory and Practice*. Thousand Oaks, CA: Sage, 2008.

Leedy, Paul D., and Jeanne Ellis Ormrod. *Practical Research: Planning and Design*. 11th ed. London: Pearson Education Ltd, 2015.

Lincoln, Y.S., S.A. Lynham, and E.G. Guba. "Paradigmatic Controversies, Contradictions and Emerging Confluences." In *The Sage Handbook of Qualitative Research*, edited by N.K. Denzin and Y.S. Guba, 5th ed. Thousand Oaks, CA: Sage, 2017.

Louw, Andre, and Danie Jordaan. "Supply Chain Risks and Smallholder Fresh Produce Farmers in the Gauteng Province of South Africa." *Southern African Business Review* 20, no. 1 (2016): 286–312.

Makhura, M., and M. Mokoena. *Market Access for Small-Scale Farmers in South Africa*. Pietermaritzburg: University of Natal Press, 2003.

Mason, Mark. "Sample Size and Saturation in PhD Studies Using Qualitative Interviews." In *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research*, Vol. 11, 2010.

McMillan, J.H., and S. Schumacher. *Research in Education: Evidence-Based Inquiry*. 7th ed. Upper Saddle River, NJ: Pearson, 2010.

Mgonja, John Thomas, Pieternel Luning, and Jack G A J Van der Vorst. "Diagnostic Model for Assessing Traceability System Performance in Fish Processing Plants." *Journal of Food Engineering* 118, no. 2 (2013): 188–97.

Morse, Janice M. "Determining Sample Size." *Qualitative Health Research*. Sage Publications Sage CA: Thousand Oaks, CA, 2000.

Mothupi, Tumelo F, Ricky M Mukonza, and Titos Khalo. "Factors Hindering the Implementation of the Procurement Plan in a Selected National Research Utility." *Journal of Transport and Supply Chain Management* 16 (2022): 11.

Mudau, P M, James Chakwizira, and A C O Radali. "Managing Traffic Congestion in Small Sized Rural Towns in South Africa: The Case of Vhembe District Municipality," 2014.

Ngaka, M J, and E M Zwane. "The Role of Partnerships in Agricultural Extension Service Delivery: A Study Conducted in Provincial Departments of Agriculture in South Africa." *South African Journal of Agricultural Extension* 46, no. 1 (2018): 14–25.

O'Leary, Z. *The Essential Guide to Doing Your Research Project*. London: Sage, 2013.

Oke, Ayodeji, Clinton Aigbavboa, and Ernest Dlamini. "Factors Affecting Quality of Construction Projects in Swazilland." In *Conference: Conference: 9th International Conference on Construction in the 21st Century, At Dubai, UAE*, 2017.

Pfunzo, Ramigo. "Agriculture's Contribution to Economic Growth and Development in Rural Limpopo Province: A SAM Multiplier Analysis." Stellenbosch University, 2017.

Sebola, Mokoko P. "Financing Emerging Black Farmers for Agricultural Development in South Africa: A Wasteful and Unworkable Model for Creating Black Farmers." *TD: The Journal for Transdisciplinary Research in Southern Africa* 14, no. 1 (2018): 1–7.

Sihlobo, W. "The Effects of the Covid-19 Pandemic on Agricultural Employment in South Africa," 2020. https://www.bizcommunity.com/Article/196/358/205388.html/.

Smith, G L, F A C Da Lomba, and D C Andersen. "The Challenges of Infrastructure Development in the Eastern Limb of the Bushveld Complex of South Africa." In *Third International Platinum Conference 'Platinum in Transformation'. The Southern African Institute of Mining and Metallurgy Narrow Vein and Reef*, 2008.

Song, Hua, Kangkang Yu, Anirban Ganguly, and Rabia Turson. "Supply Chain Network, Information Sharing and SME Credit Quality." *Industrial Management & Data Systems* 116, no. 4 (2016): 740–58.

Statistics South Africa. "Stats SA Releases Census of Commercial Agriculture 2017 Report." Statistics South Africa, 2020.

Stenfors-Hayes, Terese, Hakan Hult, and Madeleine A Dahlgren. "A Phenomenographic Approach to Research in Medical Education." *Medical Education* 47, no. 3 (2013): 261–70.

Tshikolomo, Khathutshelo A, Sue Walker, and Azwihangwisi E Nesamvuni. "Perceptions of Municipal

Water Managers of Limpopo and Luvuvhu-Letaba Water Management Areas on Water Resources, Uses and Restrictions." *International Journal of Business and Social Science* 3, no. 5 (2012).

Wyrwa, Joanna, and Anetta Barska. "Innovations in the Food Packaging Market: Active Packaging." *European Food Research and Technology* 243 (2017): 1681–92.

Zhang, Qing, and Zhixue Liu. "Coordination of Supply Chain Systems: From the Perspective of Information Flow." In *2008 4th International Conference on Wireless Communications, Networking and Mobile Computing*, 1–4. IEEE, 2008.

Zou, Patrick X W, Riza Yosia Sunindijo, and Andrew R J Dainty. "A Mixed Methods Research Design for Bridging the Gap between Research and Practice in Construction Safety." *Safety Science* 70 (2014): 316–26.

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