

**KNOWLEDGE TRANSFER AND SUPPLY CHAIN CHALLENGES IN SCALING UP
NUTRIENT-DENSE FOOD PRODUCTS IN A NIGERIAN SMALL
ENTERPRISE: A DEVELOPMENT PAPER**

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Authors:

Missi, F. *, Choudrie, J.,

author's names, email addresses, institutions

* Dr Farouk Missi. First Author (corresponding author)

email: f.missi@herts.ac.uk

Department of Business Analysis and Systems (BAS)

Hertfordshire Business School, De Havilland Campus

University of Hertfordshire, Hatfield, Hertfordshire AL10 9AB, United Kingdom

Professor Jyoti Choudrie

email: j.choudrie@herts.ac.uk

Department of Business Analysis and Systems (BAS)

Hertfordshire Business School, De Havilland Campus

University of Hertfordshire, Hatfield, Hertfordshire AL10 9AB, United Kingdom

Mr Emanuel Oni Oluwafolakunle: Associate, Africa Agriculture Knowledge Transfer Partnership (AAKTP)

email: emmanuel.oni@bellsuniversity.edu.ng

Bells University of Technology, Ota, Nigeria

Dr obakinsanya

email: obakinsanya@bellsuniversity.edu.ng

Department of Chemical and Food Sciences, Bells University of Technology, Ota. Ogun State, Nigeria

Dr Taiwo Olufemi Olurin

email: toolurin@bellsuniversity.edu.ng

Department of Chemical and Food Sciences, Bells University of Technology, Ota. Ogun State, Nigeria

ABSTRACT

This developmental paper explores the role of Knowledge Transfer Partnerships (KTPs) in addressing supply chain inefficiencies and commercialisation challenges for small and medium-sized enterprises (SMEs) in the Nigerian food sector. The study focuses on an ongoing KTP collaboration between two universities (UK and Nigeria) and a rural Nigerian SME aiming to scale nutrient-dense food innovations for undernourished women and children.

Preliminary findings from supply chain assessments, market research, and situational analysis reveal persistent barriers such as inconsistent sourcing, production constraints, and price-sensitive consumer behaviour. While KTPs provide structured knowledge exchange, their practical impact is often constrained by financial limitations and SME capacity gaps. This paper raises key developmental questions: How can knowledge transfer mechanisms be better integrated into SME operations? What role can digital solutions play in improving supply chain resilience? How can industry collaborations support commercialisation efforts?

The study remains at an exploratory stage, with ongoing data collection and analysis. The paper invites discussion on adaptive knowledge transfer models, cost-effective automation strategies, and phased digital adoption to support SME commercialisation. The findings contribute to broader debates on how research-driven food innovations can be effectively translated into sustainable, market-responsive business models in emerging economies.

Keywords: Knowledge Transfer Partnership (KTP), Supply Chain, Digital Adoption, SME Innovation, Product Commercialisation, Food Systems, Emerging Markets

INTRODUCTION AND RESEARCH AGENDA

SMEs are the backbone of Nigeria's food sector, yet many struggle to translate research-driven innovations into commercially viable products. Despite increasing academic and policy interest in SME development, critical gaps remain in understanding how knowledge transfer, supply chain inefficiencies, and digital adoption intersect to impact commercialisation efforts.

This study, embedded within a Knowledge Transfer Partnership (KTP) framework, examines how structured academia-industry collaborations can support SME food businesses. The ongoing collaboration between UK and Nigerian universities and a rural SME provides a real-world case study to explore these dynamics.

However, significant questions remain:

- To what extent can knowledge transfer mechanisms help SMEs scale food innovations?
- What structural and operational barriers affect supply chain efficiency in the Nigerian SME food industry?
- How can digital solutions (e.g., cloud computing, e-commerce) improve inventory management, supply chain transparency, and market penetration?
- What are the most effective strategies for aligning research insights with SME operational realities?

This paper presents preliminary insights from the study and outlines the next steps in data collection and analysis, seeking feedback on theoretical, methodological, and practical considerations.

THEORETICAL BACKGROUND AND LITERATURE REVIEW

Small and Medium-sized Enterprises (SMEs) play a crucial role in Africa's economic development, contributing significantly to employment, local food systems, and poverty reduction. However, despite their potential, many African SMEs face structural challenges such as limited access to finance, fragmented supply chains, and inadequate technological adoption. Research on SMEs in Africa has increasingly focused on strategies to enhance their resilience, scalability, and market competitiveness. Studies highlight the importance of knowledge transfer partnerships, digital transformation, and policy support in bridging capacity gaps and fostering innovation. As African economies continue to grow, collaborative research between academia, industry, and policymakers remains vital in identifying sustainable solutions to enhance SME performance and drive long-term economic progress (Wixe et al., 2021).

Existing research highlights the critical role of SMEs in Africa's economic development, but their ability to scale research-driven food innovations is often hindered by structural and operational constraints (Wynn & Turner, 2013; Babalola et al., 2023). Key challenges include:

1. **Knowledge Transfer Barriers:** Many SMEs struggle to implement research insights due to limited absorptive capacity, financial constraints, and workforce skill gaps (Cohen & Levinthal, 1990). While KTPs provide structured interventions, their effectiveness in resource-constrained environments remains underexplored.
2. **Supply Chain Inefficiencies:** Weak procurement systems, high logistics costs, and inconsistent raw material supply create bottlenecks that hinder SME scalability (Musa et al., 2014; Raak et al., 2016).
3. **Limited Digital Adoption:** Cloud-based inventory tracking and e-commerce could improve efficiency, but SMEs often lack the financial resources and technical expertise to implement such solutions (Ivanov & Dolgui, 2020).

While studies have examined these issues individually, few have explored how these factors interact within SME food businesses, particularly in emerging economies. This study aims to bridge this gap by integrating insights from knowledge transfer, supply chain management, and digital transformation literature.

DEVELOPMENTAL FOCUS

- How can SMEs adapt KTP recommendations to their operational realities?
- What context-specific supply chain interventions are most effective?
- How can digital adoption be scaled in a financially viable manner for SMEs?

METHODOLOGY AND RESEARCH DESIGN

This study employs a qualitative case study approach, combining:

1. **Situational Analysis:** Mapping SME operations, identifying key pain points in production, procurement, and market access.
2. **Supply Chain Assessment:** Examining sourcing challenges, supplier reliability, and logistics inefficiencies through supplier audits and operational reviews.
3. **Market Research:** Conducting consumer preference surveys and competitor benchmarking to understand pricing, branding, and packaging influences.
4. **Digital Adoption Feasibility:** Assessing SME readiness for cloud-based inventory tracking, supplier coordination tools, and e-commerce integration.

Data sources include:

- **Interviews with SME stakeholders** (owners, production managers, procurement officers)
- **Market surveys** on consumer preferences for fortified food products
- **Secondary data** from industry reports and policy documents

Next Steps in Research Development:

- **Expand data collection** to include more SMEs and supply chain actors.

- **Conduct comparative analysis** of SMEs with and without structured knowledge transfer interventions.
- **Develop a framework** for integrating KTP recommendations into SME business models.

The study remains in progress, with further data analysis required to refine key findings and theoretical contributions.

PRELIMINARY FINDINGS AND DISCUSSION

Supply Chain and Operational Challenges

Initial assessments reveal three critical barriers:

1. **Sourcing Inconsistencies:** SMEs rely on informal supplier networks, leading to volatile pricing and raw material shortages (Christopher, 2016).
2. **Production Bottlenecks:** Semi-automated processes cause quality inconsistencies and extended processing times (Luning & Marcelis, 2020).
3. **Limited Digital Adoption:** While digital tools could improve efficiency, financial constraints and technical capacity gaps hinder implementation (Ivanov & Dolgui, 2020).

Knowledge Transfer and SME Adaptation

- Interviews highlight gaps in structured training, with process improvements occurring informally rather than systematically.
- SMEs express concerns about cost vs. feasibility of academic recommendations, underscoring the need for practical, phased interventions.

Next Steps and Developmental Questions

- How can SMEs balance process automation with cost limitations?

- What role can phased digital adoption play in mitigating supply chain risks?
- How can knowledge transfer initiatives be better tailored to SME operational realities?

This developmental paper seeks feedback on how best to refine these research directions.

CONCLUSION AND FUTURE RESEARCH DIRECTIONS

This study examines how knowledge transfer, supply chain efficiency, and digital adoption shape SME scalability in Nigeria's food sector. While KTPs offer a structured model for industry-academia collaboration, SMEs face persistent constraints in implementation.

Key areas for further research and development:

- Designing adaptive knowledge transfer frameworks tailored to SME constraints.
- Exploring low-cost, incremental digital adoption strategies.
- Examining the long-term impact of supply chain interventions on SME competitiveness.

The study is ongoing, and this paper seeks feedback on theoretical refinements, methodological improvements, and practical implications.

Call for Discussion and Feedback

This developmental paper invites BAM 2025 participants to:

- Share insights on effective SME knowledge transfer models.
- Provide feedback on methodological approaches to SME scalability research.
- Discuss strategies for bridging research-practice gaps in food innovation.

By fostering academic discussion, this study aims to refine its contributions and advance the conversation on SME innovation and commercialisation in emerging economies.

Key Questions for BAM 2025 Discussion

1. How can SMEs better integrate academic research into business operations?
2. What strategies can improve supply chain stability for small food enterprises?
3. How can digital solutions be adapted for financially constrained SMEs?

By incorporating feedback from BAM 2025, this study will refine its methodological approach, theoretical contributions, and practical implications for SME growth in emerging markets.

REFERENCES

- Babalola, H. B., Rahim, M. K. I. A., & Omar, S. (2024). Environmental factors and adoption of green supply chain management among SMEs in Nigeria: Moderating role of environmental uncertainty. *International Journal of Energy Economics and Policy*, 14(1), 640-650.
- Chesbrough, H. (2003). *Open Innovation: The New Imperative for Creating and Profiting from Technology*. Harvard Business Press.
- Christopher, M. (2016). *Logistics & Supply Chain Management*. Pearson UK.
- Cohen, W.M. & Levinthal, D.A. (1990). *Absorptive capacity: A new perspective on learning and innovation*. *Administrative Science Quarterly*, 35(1), 128-152.

- Ivanov, D., & Dolgui, A. (2020). Viability of intertwined supply networks: Extending the supply chain resilience angles towards survivability. *International Journal of Production Research*, 58(10), 1176-1193.
- Luning, P. A., & Marcelis, W. J. (2020). *Food Quality Management: Technological and Managerial Principles and Practices*. Wageningen Academic Publishers.
- Maestre, M., Poole, N., & Henson, S. (2017). Assessing food value chain pathways, linkages and impacts for better nutrition of vulnerable groups. *Food Policy*, 68, 31–39.
- Musa, I.J., Abbas, S., & Umar, A. (2014). *Logistics and distribution problems of agricultural commodities from Greater Zaria Area, Nigeria*. European Journal of Business and Management, 6(34), 193-204.
- Ngcobo, K., Bhengu, S., Mudau, A., Thango, B., & Lerato, M. (2024). Enterprise data management: Types, sources, and real-time applications to enhance business performance-a systematic review. *Systematic Review*| September.
- Odigbo, B. E., Ogbidi, J. B., & Ewa, E. A. (2015). A Situational Analysis Study of Yam Distribution Strategies of Farmers In Boki Local Government Area Of Cross River State, Nigeria In 2015. *Journal of Economics and Sustainable Development*, 6(14), 190-201.
- Oladokun, N.O., Larbani, M., & Mohammed, M.O. (2015). *The problems facing the agricultural sector in Nigeria and the prospect of Muzara 'ah and supply chain model*. Humanomics, 31(1), 18-36.
- Raak, N., Symmank, C., Zahn, S., Aschemann-Witzel, J., & Rohm, H. (2016). *Processing-and product-related causes of food waste and implications for the food supply chain*. Waste Management, 61, 461-472.

Wixe, S., Nilsson, P., Naldi, L., and Westlund, H. (2021). *The role of collaboration and external knowledge for innovation in small food firms*. The Annals of Regional Science (2023) 70:135–155

Wynn, M. & Turner, P. (2013). *The role of Knowledge Transfer Partnerships in SME innovation: A case study approach*. Journal of Business Research, 66(10), 2000-2005.