

Achieving operational resilience through kaizen practice: a case in a commercial livestock farm in Nigeria

Operational
resilience and
kaizen practice

Daniel E. Ufua

*Department of Business Management,
Centre for Economic Policy and Development Research (CEPDeR), College of
Management and Social Sciences, Covenant University, Ota, Nigeria*

Mukhtar Itai

*Department of Business Management, College of Management and Social Sciences,
Covenant University, Ota, Nigeria*

Ajay Kumar

Department of Business Administration, ILMA University, Karachi, Pakistan, and

Mamdouh Abdulaziz Saleh Al-Faryan

*Faculty of Business and Law, School of Accounting, Economics, and Finance,
University of Portsmouth, Portsmouth, UK and
Economics and Finance, Riyadh, Saudi Arabia*

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Abstract

Purpose – This study is focused on achieving operational resilience through the practices of kaizen across the operational structure. The research is based on a case study of a commercial livestock farm in Nigeria. The study views the practice of kaizen from the perspective of the commitment of the members of the case study organisation who are directly involved with the operations of the organisation.

Design/methodology/approach – The study applies a qualitative approach to explore the topic, engaging members of the case study organisation in the research to gather relevant data on the implementation of kaizen practices and the drive to attain resilience in the case study organisation. Semi-structured personal interviews and workshops were used for data collection. The study adopts systems theory to explore the topic, identifying and engaging relevant stakeholders.

Findings – Parts of the findings relating to kaizen are the issues with the livestock production process, aggressive leadership and the issue of livestock mortality in the case study organisation. These were discussed based on extant literature. The study affirms the importance of organisational members' commitment and adequate leadership support to achieve sustainable kaizen practices. The study highlights the need to align kaizen practices with relevant organisational practices, such as reward systems and contextual requirements for its implementation in an operational process. The study suggests that further study can focus on the dynamics of the legal system on the implementation of kaizen, especially from a developing economic background like Nigeria, where this study was conducted.

Originality/value – The study projects learning about the spatial factors that can affect the practices of kaizen in critical sectors like livestock management.

Keywords Continuous improvement, Developing economy, Kaizen, Operational process, Operational objectives, Stakeholder commitment

Paper type Research paper

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1. Introduction

The core of operations management practice is striving to develop values to meet customer requirements. This is a result of uncontrollable business environmental forces that require the development and adoption of suitable operational approaches to address and keep the focus of the practicing organisation. Organisations, therefore, need to practice a tradition of continuous preparedness and response to business environmental changes that can affect their operations (Essuman *et al.*, 2020).

Business environmental challenges result in changes in the business processes and practices, which require the continuous manipulation of the operational business process to suit the disruptive and unstable environmental forces such as customer demand patterns and changes in regulatory measures that underpin the operations of practicing organisations (Mui and Muthuveloo, 2020). A critical focus of the study is to explore how an organisation can develop and adopt an encompassing operational practice that maintains its focus on setting objectives and continuously address emerging operational changes through the engagement of relevant stakeholders. While organisations tend to pursue operational efficiency and resilience, continuous changes in the business environment create a critical gap, demanding the attention of the operations managers and practitioners.

Similarly, Ibadunni *et al.* (2022) note the fickle nature of the Nigerian business environment, laden with unpredictable changes that shape the relationships between the practicing organisation and the stakeholders. This requires the organisations, especially in the context of a developing economy such as Nigeria, to continue to provide value-improved products and services that meet the inherent changes in the expectations of these stakeholders (Alake *et al.*, 2022). It also justifies the current research focusing on investigating the practice of kaizen and the attainment of operational resilience in the Nigerian commercial livestock sector. The Nigerian commercial livestock sector tends to be prone to waves of environmental changes that can result in sharp effects that can pose significant risks such as low demands, low product output, consistent criminal inversion and theft due to inadequate security and an unreliable legal system (Ufua *et al.*, 2020b). These environmental challenges present the practicing organisation with the responsibility to develop and adopt suitable operational approaches such as kaizen to address the emerging issues due to these challenges. The adoption of resilient operational practices such as kaizen would also provide the needed respite to address the extant burden on the business organisations, especially in the Nigerian private sector where most practitioners such as livestock farmers bear all operational risks with minimal support from the public sector (Adeyemo *et al.*, 2021). This study is aimed at investigating how an organisation-wide kaizen thinking can support the strive to sustain its resilience to meet downstream customers' demands continually in Nigeria. This study views the topic from the perspective of stakeholders who are either involved or affected by the implementation of kaizen practice. The study is based on a case study of a commercial livestock farm operating in Nigeria. The research pays particular attention to environmental issues and their effects on the practice of kaizen and how its practices can support the drive to facilitate operational resilience.

This paper assumes the following structure. The next section provides a detailed review of the kaizen operations. The methodology follows this, methods applied in this study and the background of the case study organisation. Thereafter the key kaizen issues and further discussion on the practice of kaizen in the case study organisation are discussed. The following section is the conclusion and recommendation for further studies.

2. Overview of the practice of kaizen and operational resilience

The practice of kaizen has become popular among operational systems practitioners and researchers; there seems to be no universally accepted definition of its concept. Its principles

have been widely embraced across different industries and sectors around the world. Kaizen means continuous improvement in an operational process intending to continuously achieve operational output goals regarding value development and retention that can guarantee customer satisfaction (Chaffee, 1993; Ferreira and Saurin, 2019). Kaizen operational practice became popular as part of Toyota production systems in the auto manufacturing sector in Japan, which developed after World War II (Magnier-Watanabe, 2011). It is a Japanese compound word comprising two components; Kai-meaning “change” and Zen-meaning “for the better” (Palmer, 2001). Whilst there are diverse views about the meaning of kaizen, cutting across sectors of operational practices, authors such as Brunet and New (2003) see kaizen as a complex organisational practice that epitomises the mobilisation of the workforce, providing the main channel for employees to contribute to their company’s development. They explain that Kaizen is continuous, incremental and participative in an operational process. They observe that kaizen practice consists of pervasive activities that tend to easily take the participants beyond their original expertise to identify and achieve outcomes he believes contribute to the organisational goals. Kaizen, therefore, is a broad operational practice that projects an awareness of the need for learning skills development among organisational members. At the same time, that is expected to yield effectiveness in terms of meeting customer value requirements and efficiency within an operational system in the long run (von Thiele Schwarz *et al.*, 2017). Pinto *et al.* (2018) explain that the essence of kaizen involves the engagement of all members of an organisation in a systemic exertion of the skills and interactions within an operational process to achieve positive changes. Therefore, this study views kaizen as a compound operational activity engaged in a joint process of interactions to identify operational challenges and address them within an operational process. These interactions are developed to develop continuous improvement strategies to promote operational competence and sustainability (Singh and Singh, 2009; Liker and Franz, 2011).

However, a critical issue of concern in kaizen practice, especially in a developing economic background such as the Nigerian commercial livestock production sector, is the wave of the unpredictability of the business environment which leaves the practicing businesses with the challenges of coping with environmental changes that affect their operations (Agbeja *et al.*, 2021). Janjić *et al.* (2019) caution that kaizen managers need to focus on the transferability of kaizen principles to ensure suitable adaptation, giving due consideration to factors that might pose significant threats to its success in an organisation. This, therefore, leave the kaizen managers and practitioner with the task of developing an adaptation atmosphere for a consolidated practice, especially in different environmental contexts (Nakamori *et al.*, 2019).

According to Ganin *et al.* (2016), resilience is the level of resourcefulness and rapidity to develop an aggregated response to an emerging profane issue in an operational process and actions taken to recover the system from swerving off its course of operations and minimise the probability of failure consequences. Kaizen serves as a mechanism that increases the level of awareness and capacity to manage psychosocial issues that result in the development of creative approaches to help practicing firms address emerging operational challenges (Ishiwata, 2009; Ibidunni *et al.*, 2022). This positions them to embrace resilience in their operations which serves them the preparedness to identify issues of interest in their operations and project the development of responsive actions and approaches to address them and as well strive on a continuous basis to keep their operational process in focus (Schmidt and Simchi-Levi, 2013). It also puts the kaizen organisation on its operational edge, with the challenge of the continuous innovative improvement process aimed at achieving set objectives and sustainability (Mapunda, 2019; Jones *et al.*, 2022). This leaves the organisation and its members with the task of continuous learning and development of relevant models and approaches required to help the kaizen project towards a sustainable future while striving to maintain the present prospects, such as the market share (Suwandi and Sidik, 2021). Suraj and Bontis (2012) note that kaizen is the best means to generate increased value

to satisfy customers. This assertion tallies with [Bahra \(2001\)](#), who remarks that the best way to sustain competitive advantage is to keep learning and adapting to changes in the business environment ahead of competitors. This tends to suggest that learning and development are essential requirements for effective kaizen practice in an organisation.

According to [Imai \(1997\)](#), organisations strive for improvement and sustainability to maintain competence in their operations. The pursuit of kaizen, both as an ongoing operational practice that seeks better operational practices and deliberate innovation and creativity with the broad intention to create positive and effective change that support the improvement drive embedded in kaizen ([Suarez-Barraza et al., 2022](#)). That is also focused on the engagement of organisational members and management towards attaining a trend of improvement in their operation that can yield others' positive effects, such as quality output across the structure. This would also demand certain supportive inputs such as technology and human capital development, to enhance the pursuit of set kaizen objectives ([Brunet and New, 2003](#)). Moreover, a key implication of these findings is that the nature of operational resilience and the disruption circumstances under which it is deployed shape its efficiency value ([Essuman et al., 2020](#)).

[Ballé and Régnier \(2007\)](#) suggest that operational managers should consider the systemic effects of their operational process improvement approaches (kaizen practices), explaining that an activity, designed paradigm to solve a problem at one end of the system can create new problems elsewhere, cancelling the original positive results. This might be because kaizen thinking can affect all parts of an organisation, not just the operational function, even though the intervention may initially be in the operational process ([Hicks, 2007](#)). Thus, the kaizen manager needs to consider the potential impacts of change on the current operational system more widely ([Hosny et al., 2022](#)). In other words, a holistic approach to continuous improvement is a necessity for productivity, efficiency and improved quality of an organisation's operational structure ([Chikwendu et al., 2020](#)).

These observations align with the need for organisations in the Nigerian commercial livestock sector to adopt the operational tradition of resilience, which provides them with the readiness to develop a response to emerging business environmental changes. Such changes might require swift attention to address and position their operations toward the continuous pursuit of their set objectives ([Kwesi-Buor et al., 2019](#)). A critical question raised in this study is how can the implementation of these operational models enhance the achievement of kaizen and operational resilience in the Nigerian commercial livestock sector?

Researchers highlight other key factors for measuring the impacts of kaizen in an operational process. These include the skills gained from participating in kaizen events, the extent of understanding embracing the need for kaizen, impact of the overall commitment to kaizen operations by organisation members ([Singh and Singh, 2009](#); [Shang, 2017](#)). This emphasises the fact that effective practice of kaizen is consequent upon the extant commitment of the organisational members across the structure and the external partners who participate in a joint process of action based on the set kaizen objectives operated in the organisation ([Böckerman, Bryson and Ilmakunnas, 2012](#); [Ufua et al., 2022a](#)). It also leaves these organisation members and partners with the challenge of embracing the volatility within the broad business. These include sudden changes in government policy, customers' tastes and preferences, which tend to continuously affect internal operational practices such as kaizen, requiring them to develop resilient operations such as disruptive innovation and creativity to address emerging profane changes in their kaizen operations ([Ibidunmi et al., 2022](#)).

On the other hand, what remains a key factor in the implementation of kaizen and the drive for operational resilience is the extent to which its practice can be matched with sufficient rewards for the organisation members who are at the fore of its practices. This is imperative for sustaining the effective practice of kaizen as it requires the emphatic commitment of the organisation member to show a continuous willingness to show commitment to kaizen. In

other words, if the rewards and motivation are insufficient, purported kaizen implementation can result in undue exploitation and marginalisation in an operational process (Womack *et al.*, 1990; Womack and Jones, 1996; Bockerman *et al.*, 2020). It is therefore noteworthy to state that these kaizen measures are only useful when the operations and contexts of the organisation are sufficiently structured to provide the room for effective participation and human resource commitment that might create the fair contributory platform for meaningful advancement of their operational system kaizen practice (Glover *et al.*, 2011).

3. Underpinning theory

This study is anchored on systems theory to explore kaizen practice and resilience in an organisational operation in the Nigerian commercial livestock structure. It embraces an inter-functional approach on a cohesive trend towards attaining set objectives (Von Bertalanffy, 2019). The adoption of systems theory coincides with the conspicuous imperative of kaizen practice, as it covers the entire ambience of an organisation's operation. Researchers reckon that systems theory provides a comprehensive means to develop and pursue critical organisational models of operations such as kaizen, with due consideration of the various parts of the operational structure and their connectivity, as well as functioning resiliently towards identified purpose in a business environment (Mui *et al.*, 2022).

Researchers and practitioners tend to favour other theoretical backings such as the resource-based view which canvasses for the use of the right resource to build operational competitive advantage or the knowledge-based view which focuses on the acquisition of the most suitable knowledge to acquisition to develop values and effective processing of input to generate transformation (David-West *et al.*, 2018; Caputo *et al.*, 2019). However, the adoption of systems theory in this study is aimed to address other factors that might affect the focus of this study, including behavioural and material resource impacts that can affect the practice of kaizen and the drive for operational resilience in the Nigerian commercial livestock sector. This might also unravel other critical issues, such as the marginalisation of certain stakeholders' interest in the research study. It can also enhance a joint development of operational boundaries that can facilitate effective performance management while keeping the operational process in line with the drive for resilience through the broad adoption of operational models such as kaizen, focused in the current study (see Schwandt, 2018; Helfgott, 2018; Hepi *et al.*, 2021). The stance of this study is that the adoption of systems theory would create the platform to understand the organisation-wide impact of kaizen practice, in the drive to achieve operational resilience in the Nigerian commercial livestock sector (see Gharajedaghi, 2011).

Given the foregoing narrative about kaizen and operational resilience in the Nigerian commercial livestock sector, the current study is focused on developing learning on the current contextual practices on the usefulness of kaizen and operational resilience.

4. Methodology

The study adopted a qualitative approach to explore the practice of kaizen in a case study firm. It assumes the approach to engaging with the critical members of the case study organisation. A qualitative research approach can enhance the development of effective policy and implementation that reflect the awareness and commitment of the relevant organisation members who participated in the study. That can promote overall operational resilience across the structure of an organisation (Suyatno *et al.*, 2021; Washizu and Nakano, 2022).

Contemporary studies such as Sani-Ibrahim *et al.* (2021), who adopted a quantitative approach focusing on migration and pastoral farming in Nigeria, with the intention to

generate findings that can command extant reliability. The adoption of a qualitative approach in this study is intended to engage the key stakeholders of the case study organisation in a kaizen process from the perspectives of the various stakeholders' interests, aimed to achieve a joint operational improvement in the case study organisation (Asamu and Babatund, 2015). These were selected based on their levels of participation in the kaizen and operational resilience drive in the case study organisation. The snowball approach was applied to identify the relevant stakeholder at each stage of the study. This was aimed at having a consolidated research process that reflects the true status of kaizen practices and operational resilience rather than a research process that is expert-driven or depending on secondary data records that can be misleading (Midgley, 2000, 2011; Guise *et al.*, 2013).

Consequently, the engagement of these stakeholders would facilitate adaptable findings without marginalising the participants in the research, thereby resulting in possible broad acceptance and commitment to the course of change developed from the research. In the current study, these include members of the organisation at various levels of the operational structure, who are involved in critical organisational practices and policy implementation, such as kaizen and resilience, focused in this study. They, therefore, stand a chance to effect critical organisational transformational drives such as the kaizen and resilience drive in the Nigerian commercial livestock sector, focused on in this study (see Boaz *et al.*, 2018).

Similarly, Jellason *et al.* (2021) adopted a review to explore the farming challenges and resilience management in the era of climate change in Nigeria. The findings were based on the developmental trend of the topic in literature. The engagement of such stakeholders in this study is based on the prevailing situation under which kaizen is practiced to enable an adaptive analytical process that reflects current practices in the case study organisation (Ambulkar and Shekdar, 2004; Shtrikov *et al.*, 2022). Singh and Singh (2018) researched kaizen practices in a case study in Northern India using a questionnaire survey method. They found that effective analysis is an essential element of kaizen. However, the current study adopts exploratory research based on a case study organisation. The findings can form a good foundation for building new ideas that can be subject to further debate on kaizen and resilience practices, especially in a developing economy where the current research is based (Rahim and Baksh, 2003; Rendtorff, 2015).

Qualitative data were sourced from a case study firm, a commercial farm in the food production sector in Nigeria. Many authors (e.g. Gerring, 2007; Gibbert *et al.*, 2008) have offered criticisms on the use of a single case study because the generalisation of findings could be problematic, lacking repeated confirmation in a given research process. However, Denzin and Lincoln (2011) suggest that case studies could enhance "in-depth" details and richness of findings, which contrast statistical research approaches that mainly provide broader coverage of cases, usually over long periods. They suggest the need for researchers to consider the nature of their research in choosing the appropriate case for their research. Similarly, Researchers suggest generating sufficient information from case studies research to give confidence in the depth of findings from a particular context, such as adopting kaizen in the current study (see Yin, 2004, 2009; Debnath, 2019; Olaifa *et al.*, 2022).

The adoption of case study is common practice amongst operations management scholars because most operational projects come with unique features and specific cultural factors, which impair the possibility of considering multiple cases in an intervention. Otherwise, it could result in findings that cannot be uniformly applied to different cases because of contextual issues (Liker and Hoseus, 2008; Papadopoulos *et al.*, 2011; Tsang, 2014).

The research process embraces the combination of different data collection methods, which are adopted on a complimentary basis to explore the practices of kaizen and possibly project learning from the current research (Taylor and Taylor, 2009). These were applied on a complimentary basis in line with the kaizen practices in the research context of Nigeria's

commercial livestock production sector. The various data collection methods are presented in the following subsections.

5. Semi-structured personal interview

Information was sourced through Semi-structured interview questions, which were framed in line with the general research objective, aiming to set appropriate boundaries that would enable adequate participation by the identified stakeholders (Kallio *et al.*, 2016). It is a primary data collection method in which the respondents are talked with on a one-to-one basis and asked questions to find out what they think about the subject being researched. It provides both the focus of the data collection process and allows the further supplementary question to be asked for clarification on issues not yet covered (Collis and Hussey, 2009; Sánchez-Guardiola Paredes *et al.*, 2021). Gillham (2000) observes that semi-structured interviews usually have enough structure to ensure key topics are covered but not so much that it destroys the flexibility needed to engage with emergent issues in the interview process. They can also be used to obtain certain types of data suitable for direct measurements and useful information for the development of insights needed to address contextual issues in an operational process (Rabionet, 2011; O’Keeffe *et al.*, 2016).

In this study, semi-structured interview was designed to serve as a flexible means of gathering in-depth information (see Kitzinger, 1994; Gillham, 2005; Brown and Danaher, 2019). This was engaged at the inception of the data collection process and on a complementary basis with the other data collection tool in this study (see Table 1). Open-ended questions were adopted to allow the interview respondents to respond adequately. However, probes in an interview process were not predictable and mainly depended on the kind of initial response given by the interviewees (see McIntosh and Morse, 2015).

Semi-structured interview was engaged as an initial information-gathering tool about the key kaizen practices in the case study organisation. While these were further discussed at the workshops, the semi-structured interview was also a tool for clarification of identified kaizen issues (see Table 1). With the permission of the case study organisation and the consent of the respondents, collected interview data were duly recorded and manually transcribed and sorted for further analysis, in line with the topic of this research (Schmidt, 2004).

6. Workshop

Watts and Ebbutt (1987) define a workshop as a congregation of more than two participants in a discussion simultaneously for the purpose of gathering research data. Workshops

<i>Initial interviews</i>	
Top Management	10
Middle Managers	9
Junior Staff	8
Veterinary Expert	1
Total	28
<i>Further Interviews Conducted</i>	
Top Management	7
Middle Managers and Supervisors	7
Junior Staff	9
Veterinary Expert	2
Total	25

Source(s): Table by the authors

Table 1.
Breakdown of semi-structured interviews conducted

provided an opportunity to simultaneously source information from more than one respondent, which can be more efficient than structured interviews. However, effectiveness in accessing viewpoints can be compromised if participants do not feel able to talk openly in front of others. Workshops equally validate existing information. In addition, they say that participants may stimulate each other in the discussion process, enhancing ideal generation (Bender and Ewbank, 1994). Workshops created an inclusion of those who may not participate in other forms of qualitative data collection, such as the questionnaire method; this is particularly important when participants are illiterate or semi-literate (Langford and McDonagh, 2003, Table 2).

However, Arksey and Knight (1999) identify the possibility of conflict in workshops, leading to a prolonged argument among participants and disrupting the entire workshop process. Moreover, a good agreement with participants at each stage on what issues to be discussed at the workshop was useful in addressing the emergence of prolonged arguments. The researchers equally took a proactive step to avoid any anticipated conflict by separating participants with opposing perspectives into separate groups. However, in this research, this was done with the consent of the participants at each stage of the research process (Gobat *et al.*, 2015). All participants were notified in advance about the workshop and the proposed topic to be discussed. Participants are allowed the freedom to express their opinions during discussion (see Table 2). The aim is to engage these participants in their kaizen practice. Which could underpin operational process decisions and actions aimed at achieving their set objectives (Fine *et al.*, 2009; Simon and Canacari, 2012).

7. Ethical consideration

For ethical reasons, subsisting formal permission was secured by the lead author during his academic study and other previous publications that were done with the case study organisation. This sufficiently covered the current study, and also, the research and ethical practice unit of the lead author's institution was duly informed (Ufua, 2020; Ufua *et al.*, 2021). All participants were pre-informed of their consent to participate voluntarily in the research process, both in the personal interviews and workshop sessions. Participants were selected and engaged based on the issues identified and the level at which each participant was affected or involved.

Finally, the confidentiality of the interviewees and their perspectives were preserved. According to Harris and Brown (2010), confidentiality is vitally essential if respondents are going to be honest in discussing issues, especially in situations where people who exhibit power relationships have different perspectives. Based on the agreement reached with the case study organisation, the participants' individual identities were significantly concealed within the preference of the management of the organisation (Thompson *et al.*, 2021). While the full identity of the case study organisation was concealed for ethical reasons, the participants permitted their positional identities (e.g. Manager, Junior staff) to present the findings of this research process.

Table 2.
Summary of
participants in the
workshop sessions

Top management	3
Middle Managers and Supervisors	8
Veterinary Expert	2
The CSO's office	1
Security staff	4
Total	18

Source(s): Table by the authors

8. Background of the case study organisation

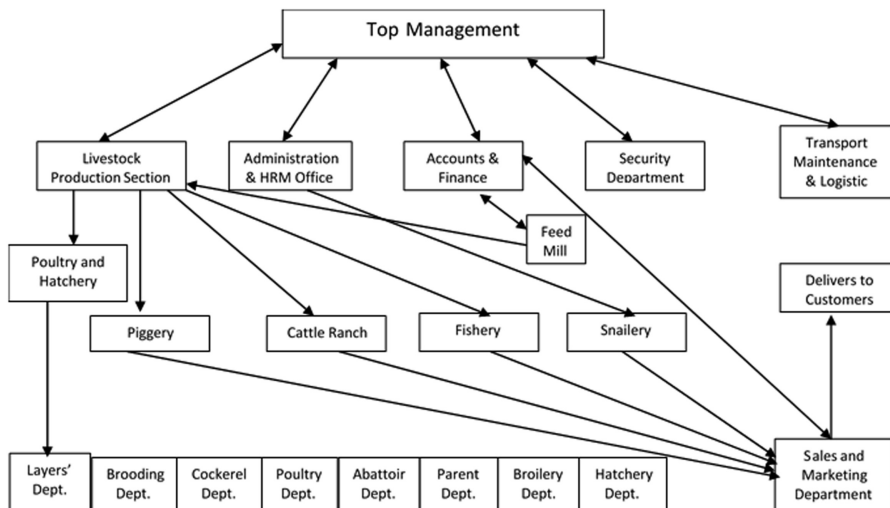
This research used a commercial livestock farm in Southern Nigeria as a case study. The decision to establish the farm followed the Nigerian government's appeal for investment in the food production sector of the economy. While the farm was registered in 2000, it moved its operation from its initial location to a new base because of its expansionary drive. Part of the farm's aim was to contribute to the development of the food production sector of the Nigerian economy. The Nigerian government has continued to put a premium on the development of the food production sector as a key shock absorber that needs continuous transformation to facilitate food security (see Osabohien *et al.*, 2022a, b). The underpins this study on contributing to the continuous improvement of operational activities that can support business sustainability in the Nigerian livestock production sector.

Key stakeholders to the organisation included the suppliers who provided input materials for its operations (e.g. Maize, Limestone, Sawdust and Charcoal) required for livestock management. The host community and the customers who bought the company's products on either a wholesale or retail basis were identified as stakeholders. The top management and members of the organisation, including the supervisors and middle managers, who manage the different sections of the farm, are stakeholders. Others are the junior staff working as shop floor staff on the farm's daily operations and the general manager who oversees the farm's operations (see Figure 1). The organisation turns out products in batches and high quantities from all the sections. The structure of the case study organisational structure shows that a successful implementation of kaizen practice in commercial livestock farming will create proper strategies for continuous improvement and sustainable performance.

9. Key kaizen issues and further discussion

9.1 Issue with livestock production process

From the interviews conducted with the top management and middle managers in the case study organisation, it was learned that the case study organisation practices a participatory management style across the middle management team, who work together on a



Source(s): Adopted from Ufua *et al* (2018)

Figure 1.
Structure of the case
study organisation

complimentary basis, providing support where necessary between the various departments operated in the organisation.

The current case study in this research has a system of reporting on the entire operations. A middle manager and supervisor are appointed to manage each department and work with the junior staff in making contributions to the organisation's objectives (see [Figure 1](#)). These managers give reports directly to the top management. Similarly, [Kumar et al. \(2018\)](#) engaged a participatory kaizen operational research on selected organisations in India, using tools such as the "5-why" method to identify root causes of kaizen challenges and adopting a participatory approach such as the brainstorming technique in a joint process to address the identified challenges and achieve operational process improvement in the forms of reduced cycle time, reduced inventory level, reduced lead time and, rework elimination and product quality.

Awareness of the operational value stream process helps to keep up the need for continuous improvement on the operational standards at all levels of our operations (Manager at the Broilers Department).

Kaizen practice supports the operations of the case study organisation in monitoring activities at each section of the farm in the development of their livestock products. Interview respondents explained, noting all parts of their operational structure complement each other as they pursue the set objectives and goals to meet stakeholders' expectations. For example, "keeping effective hygienic practice at the Parents-stock pen houses in the Poultry guarantees the production of quality day-old chicks at the hatchery that meets the changes in market demands and the business environment. This connectivity is very important in modern farming" (Manager, Layers Department) and it aligns with the observation of [Bresciani et al. \(2020\)](#), who note that effective kaizen practice in the livestock sector can result to high product quality turn out and efficient process management that is anchored on continuous engagement with the organisation members in a process of productive use of available resources with the broad intention to continuously adjust the operational process to suit the business environment changes and optimum effectiveness. In the current research, the concept of kaizen practices tends to continuously require an emphatic commitment to an unending process of learning and improvement that meets the operational tradition of continuous kaizen practices. Similarly, [Desta et al. \(2014\)](#) highlight the use of kaizen operational practices such as teamwork and top management support as fundamental tools for sustainable kaizen practice. These are entrenched in systems theory underpinning this study.

However, the respondents in the current study pointed out that the kaizen practices in the case study organisation have critical challenges. Among the fundamental challenges to their operations is inadequate power. They also highlighted the need for timely circulation of information that can facilitate easier better understanding and trigger necessary actions at the right time to prevent breaches in their production problems. This is arguably necessary as the core aim of the case study organisation tends to maintain a constant strive for minimal human error operational practices that can support effective kaizen practices. This can also enhance their operational resilience to maintain their identity in the broad business environment (see [Gregoire, 2017](#); [Ufua et al., 2022b](#)). Upon approval from the top management of the case study organisation, a workshop was scheduled to deliberate further on kaizen practices and security coverage. At the workshop, the researchers assumed the position of facilitator. Among the attendees are the Assistant general manager, the Chief security officers (CSO), the Managers in the Broiler, Marketing and Sales, Fishery and four senior staff from the security department. The session lasted for 112 min. The participants raised a critical issue at the workshop, citing the strict work schedules that were conspicuously unfair to the staff in the security department. They further noted that some staff members from the

department have been made to become alienated, not being carried along in the preparation and the rota presenting an “overloaded” schedule for them to comply with.

A further issue raised in response to this challenge was the need to employ more qualified hands and train the current security staff so they can provide more effective security services in the organisation. They noted that this was necessary to meet the challenge of criminalities in the case study organisation’s environment. While the use of kaizen among organisations has been effective in the identification and addressing of critical operations management challenges leading to continuous improvements (Junker, 2010), a key question raised in the current study is to what extent does the practice of kaizen has been propagated in line with effective rewards and motivation for the participant kaizen organisational members? This seems to be an underpinning issue embedded in the security challenges raised in the case study of this research.

We do not get any off-duty days due to shortage of manpower in our department. We are made to work from Monday to Sunday, which is not same for other departments (Security Staff).

The stance of this study is that inadequate reward for kaizen can result in undue exploitation of the committed organisational members who make the necessary sacrifices in terms of learning and improvements required for the effective and resilient practice of kaizen in an operational system.

9.2 The issue of livestock mortality

Another kaizen issue highlighted by the respondents was the issue of mortality of livestock on the farm, especially in the Poultry section. According to a respondent in an interview, livestock mortality challenges are at the core of the organisation which affects the level of out-products from their operational process. Although this issue has been known to the top management, whom they explained has done quite a lot to address the concerns of the junior staff, respondents explained that livestock mortality is a major obstacle to meeting downstream customers’ expectations. They expressed the feeling that this challenge requires further attention from the management. “This is a critical issue being part of the main operations of our farm” (Junior staff at the Broiler Department).

Some middle managers (e.g. Brooding, Layers and Broilers departments), were engaged for further comment on the claims of these junior staff. While they acknowledged the problem, they explained that the causes of mortality are complicated and said it would require continuous effort to address them. They also suggested that I contact the top management to inform them that mortality is a company-wide challenge to their operations.

While Bhadu *et al.* (2021), affirm the importance of stakeholders’ commitment to set kaizen objectives such as livestock mortality issues, it is also relevant to key kaizen practice in the case study organisation as it features in the core operation of the organisation, which can also determine the profitability levels of the case study organisation (Ikpefan, 2012). The suggestion from these middle managers prompted a meeting of the researcher with the Assistant General Manager, who later granted permission for a workshop on the issue of livestock mortality. Among those who honoured the invitation to participate were the middle managers from the production section (Layers, Brooding and Broilers departments). Others included the supervisors at Pullet, Abattoir, Parent stock and departments). The top management members present were the Assistant General Manager, The Administrative Manager, the Secretary to the General Manager and the Veterinary Consultant.

During the session, which lasted two and a half hours, participants were allowed to express their opinions and contribute to deliberations on how to effectively address the identified challenge. This was followed by further deliberation on the issue of mortality. They pointed out that the organisation has a livestock mortality allowance of 5% (i.e. the acceptable

level of mortality in the farm, beyond which it becomes a concern to the organisation, and below which it would not be held as a challenge to the organisation).

Omotayo *et al.* (2020) highlight the use of various kaizen tools to improve an operational process and the engagement of key stakeholders, as witnessed in the case under this study, showing a critical relevance to effective kaizen practice, especially the task of waste elimination. This is a vital element in the kaizen project as these participants also assume the task of defining what constitutes waste (e.g. livestock mortality) and how it can be effectively addressed (see, Ufua *et al.*, 2014).

Furthermore, the participants reckoned that these issues had happened repeatedly in the past, despite their efforts to address the situation through laboratory analysis of disease samples and medication administration. This issue had adverse effects on the strive to meet stakeholders' requirements, especially the downstream customers who patronised the Broilers and Layers sections of the farm. The top management explained that trying to address the mortality issues had consumed many resources, ranging from a series of laboratory tests, investment in the different structural adjustments of Poultry and changing the livestock pen preparatory materials, yet they persisted.

The middle managers (e.g. Layers and Broilers Departments) noted that the persistent mortality problems could be because of the use of external livestock feed, which they claimed could not be trusted to meet the nutritional needs of the livestock. In addition, they said that mortality occurs because of neglect of daily operational routine practices such as using disinfectant foot dip at the pens by all staff and visitors and uncontrollable changes in the weather conditions. The latter prevents the quick spread of diseases to livestock, especially chicks at the brooding stage, with a low resistance to epidemic outbreaks. This is in tandem with systems theory that embraces setting boundaries within a complex organisational operation to enable accountability and possible identification of required improvement, which is the hallmark of kaizen and resilience-focused in this study (Turner and Baker, 2019).

Some participants (e.g. the supervisor at the Parent stock department and the middle managers at the Layers and Broilers departments) suggested that the Veterinary Consultants should seek some on-the-spot explanations when a mortality incident occurs the junior staff on duty concerning when and how it came about. This suggestion was responded to with a counter-argument from the Veterinary Consultants, who said they were not interested in sourcing any information from junior staff (pen attendants). They explained that most of the junior staff working at the affected pen houses are not literate and informed enough to explain mortality. For instance, some of these junior staff cannot document events if there is no senior staff on the ground. Therefore, training them is also challenging as they could learn on-the-job coaching and experiences while taking instructions from their superior staff. This makes the possibility of conducting a formal learning section difficult and presents a challenge to other on-the-job learning approaches due to issues such as differences in language. Instead, the consultants suggested the need for enhancement to the farm laboratory to have better equipment to conduct post-mortem analyses. They claimed that this would make diagnoses more reliable and should be implemented in addition to precautionary practices (e.g. improved hygiene) to prevent livestock mortality.

Discussing this issue of mortality further, the Assistant General Manager commented that, in addition to the continuous fight against mortality on the farm, a plan to develop some critical input materials internally (e.g. concentrate for livestock feed) had been approved. He explained further, saying this would help address mortality issues on the farm to the extent that they can gain absolute control over the processing of feed for the livestock.

To solve these issues, the top management participants agreed to review the current employment policies of the organisation to pay special attention to raising the current academic qualification standards for the employment of junior staff (e.g. pen house attendants), which had become necessary anyway for better performance on the job. They

identified the need for an additional staff member in the Veterinary and Hygiene department who could assist the efforts of the consultants in the fight against livestock mortality. These suggestions were also agreed upon by the middle management, who pledged their support.

While kaizen practices will tend to improve, extant literature has pointed to the relevance of compliance of kaizen operations with institutional standards such as government regulations and safety standards, especially in the food production sector, where the current study is based. This is both necessary to the legitimacy of kaizen practices in an operational process and capable of facilitating advantageous effects such as customer loyalty and organisational goodwill in the business environments (Hill, 2014).

9.3 The issue of aggressive leadership

From personal observations, it was noticed that some staff was using aggressive communication on a routine basis while they conducted their duties. It was observed on a few occasions in the case study organisation that the subordinates reacted with obvious fear, and my interpretation was that they felt threatened. When the researchers raised this in an interview with a senior officer in the marketing and sales department, he simply replied, “we don’t pet anyone here!” While the practice of kaizen requires leadership input for effective implementation, what remains a critical question is how can the combination of aggressive leadership disposition align with kaizen, as witnessed in the case study? Effective leadership practice can enhance optimum commitment across cadres in an organisation (Sejts and Gandz, 2018). However, this contradicts the emergence in the case study of this research, where aggressive leadership is a common factor. A key responsibility for the leadership approach is the contextual assumption and practices, both within the organisation and the host environment is extended to organisation members (Imhonde *et al.*(2009), Onukwufor (2013), Ekhaese *et al.* (2021).

Interviews with a selection of junior staff, drawn from the Sales and Marketing unit, the Production section and the feed mill reveal that the level of aggression was widely criticised by the interviewees. In addition to making them fearful at work, they observed that it had adversely affected their productivity. They said it was partly responsible for the frequent occurrence of accidents and damages to the products (e.g. eggs) and tools used at work. Some respondents noted that, in some recent severe cases, it has led to harm to the staff involved or the livestock.

The view of this research is that kaizen as an organisation-wide practice requires the engagement of stakeholders, both the affected and involved (Omotayo *et al.*, 2019). Therefore, it is relevant for practicing kaizen managers to engage in recognition of these stakeholders’ interests as well as provide a fair platform for participation based on kaizen objectives in an operational process.

Interviewees also pointed out that the aggression of managers commonly created problems in teamwork, as workers were constantly nervous and would blame each other for errors. This meant that everyone felt insecure, and trust-building in teams was difficult. They pointed out that, in such an environment, few junior staff dared to participate freely in team practices in the operational system. According to Berhe (2022), certain factors such as aggressive leadership can result in challenges such as less commitment of organisational members (e.g. Junior staff in the current study) to the course of kaizen implementation, which can, in turn, lead to poor performances in an operational process.

On the other hand, kaizen managers have positive mindsets, as they maintain an open leadership approach to assist the organisation’s members in having optimum participation in a kaizen operational process. However, elements of aggressive leadership have been found helpful for controlling and preserving organisational principles and engagement, leading to improved processes and more innovative solutions. It can also be used as a vital precaution

for adherence and conflict management among organisational members (Larson, 2008). The stance of this study on the issue of aggressive leadership and the implementation of kaizen leaves the practicing kaizen managers and leaders with the responsibility to engage their skills and experiences in drawing relevant boundaries between the two concepts, based on existing contexts, to engage the organisation members in a joint process of kaizen practices that lead to optimum results in an operational system. This can enhance creativity and innovation through a joint process of engagement that embraces learning and improvement across the structure of a kaizen organisation, in which information and communication technology have been found to play a key role (Ejemeyovwi *et al.*, 2019). It can also point out areas for further improvement and possible restructuring of the operational structure to enhance the continuous achievement of set kaizen objectives (Ufua *et al.*, 2020a). However, such contextual variabilities tend to hamper the universal application of kaizen, leaving managers and stakeholders with the task of developing an acceptable justification for its implementation in an operational system (see, Adeniji and Osibanjo, 2012).

10. Theoretical implication

The practice of Kaizen and the drive for operational resilience in the Nigerian commercial livestock sector provides a platform for a consolidated understanding of the usefulness of critical organisation-wide practices. Kaizen and operational resilience are operational practices that require the engagement of stakeholders who are ready to embrace changes and commit to adaptation. However, a conspicuous precaution is the need to be attentive to the end-to-end effects of such practices between parts of an organisational structure to address emerging adverse effects of decisions and actions taken in the direction of adopted operational practices such as kaizen. It justified the use of systems theory in this study to achieve proper application across the operational structure. This is because the drive for kaizen most likely results in a departure from existing operational traditions to new practices. And, as witnessed in this study, adopting systems theory would affect and connect with the various parts of an organisational structure that function towards achieving set objectives through the engagement of relevant stakeholders. It also, requires proper alignment with adopted operational principles such as kaizen and resilience, focused in this study.

11. Managerial implication

Practicing organisations in the Nigerian commercial livestock sector focused in this study must embrace systems as tools to maintain support to adopting kaizen in their drive for resilience. This is relevant due to the volatile business environment, subject to changes that may result in disruptive effects on their operational practices. Therefore, the systems approach can refocus the managers' attention on the connected effects of adopted organisational practices such as kaizen and ensure proper alignment of operational decisions and actions in line with set objectives and various parts that function within the ambience of the organisation. They also need to ensure that various stakeholders' interests are duly considered in the process of kaizen and resilience practices that may require awareness and commitment to adopted operational directions.

The data collected and discussion also showed that kaizen and resilient operational practitioners would need to develop an understanding of the base operational culture practiced in their sector, such as the Nigerian commercial livestock sector. These would enhance long term broad positive effects such as customer trust and to the brand offers. It can also facilitate adequate adaptation of chosen kaizen principles while driving to achieve extant resilience which can in turn yield enhance competitive advantage among competitors and long run efficiency amidst business environmental disruptions (see Papadopoulos *et al.*, 2011). Arguably, kaizen

practice and the drive for operational resilience can emerge as a veritable tool for effective resource management especially in contexts of scarcity and other environmental disruptions.

However, while these concepts require changes in management and quick decision-making, practicing managers need to develop a balance between the stakeholder engagement process which may slow down decisions and the drive for successful implementation of kaizen and operational resilience (see Ufua *et al.*, 2018). The stance of this study is that the manager can address decision timing challenges through productive engagement with the affected stakeholders and skillful decision making process.

12. Conclusion

This study explored operational resilience and kaizen practices in a commercial Livestock farm in Nigeria. The study applied systems theory and affirmed the usefulness of engaging, relevant stakeholders in kaizen implementation. The study demonstrated that this could lead to the development of acceptable and productive approaches for better operational practices, that can keep an organisation on track for reliance to respond to environmental challenges. The result aligns with past studies on kaizen implementation across different sectors and significantly benefits relevant organisations, including those in the commercial livestock sector. However, the study highlights the need to align kaizen practices with relevant organisational practices, such as reward systems and contextual requirements for its implementation in an operational process.

13. Limitation

The study focused on operational resilience and kaizen practices in a commercial livestock farm. An identified limitation is the failure to consider other environmental elements such as the legal system requirements for effective practices of these concepts. This is fundamental to the legitimacy of kaizen and operational resilience focused in this study. It is suggested for further studies to focus on the dynamics of the legal system on the implementation of kaizen and the pursuit of operational resilience, especially from a developing economic background. Thus, the suggestion for further studies to consider the impact of the legal systems on these concepts can project learning on the spatial, legal factors affecting kaizen and the drive for operational resilience in critical sectors such as livestock management focused in this study.

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Corresponding author

Daniel E. Ufua can be contacted at: daniufua@gmail.com

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