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**Leadership, knowledge management capability (KMC) and  
process innovation in African SMEs during and after the  
crisis**

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**Leadership, knowledge management capability (KMC) and process innovation in African SMEs during and after the crisis**

**Abstract**

**Purpose:** This paper examines the relationships between leadership, knowledge management capability (KMC), and process innovation during (and after) the COVID-19 pandemic in Africa.

**Design/methodology/approach:** We adopted a qualitative method with an interpretivist approach. Our empirical data was collected via in-depth semi-structured interviews with 20 participants – 6 from Ghana and 14 from Nigeria. Our data analysis followed Gioia’s recommendations for qualitative rigour.

**Findings:** The study found that the capacity to manage knowledge and innovate are just as important to the success of organisations in turbulent times as are the qualities of its leaders. It further explores how middle managers may encourage knowledge sharing within an organisation and how an alignment between an organisation's internal resources and existing opportunities ties into innovative outcomes.

**Originality/value:** The paper highlights how the interplay between KMC, leadership, and organisational culture can result in process innovation, and how such a relationship can foster business performance in a crisis. This paper is a pioneering study focusing on the relationship between leadership effectiveness, organisational culture, KMC and process innovation in Africa.

**Keywords:** Leadership, knowledge management, process innovation, SMEs, and Africa.

## Introduction

Business innovation is one of the primary features called for from firms across the globe, especially during an emergency. Spurred by the COVID-19 pandemic, researchers, governments, policy makers, and organisations across the globe have realised the need to rethink how they create and deliver value to their target customers (Lee & Trimi 2021) and create a conducive climate for innovation (Kokt & Makumbe, 2020). Organisational culture of knowledge sharing and adhocracy, are fundamental to business innovation (Alegre et al., 2013) and due to the positive effect of leadership on organisational culture (Oh & Han, 2020), the role of leadership in fostering knowledge sharing and business innovation has also been highlighted (Kokt & Makumbe, 2020).

A recurrent theme in the business innovation literature is process innovation. Process innovation is the design and implementation of a significantly improved way of doing things, such as substantial changes in production techniques and delivery methods (Chatterjee *et al.*, 2022). Unlike product innovation, which aims at new product development or product improvement (Blichfeldt & Faullant, 2021), process innovation aims at enhancing the course of manufacturing or offering a product or service for efficiency – cost reduction, time-management, lean production, and customer satisfaction (Kamalaldin *et al.*, 2021). Yet, researchers have found some distinguishing features of process innovation in comparison to product innovation. For instance, unlike product innovation, which is less expensive but demands an increasing level of skills, process innovation is more expensive but allows firms to replace highly skilled workforce with lower-skilled workers since the main goal [of process innovation] is to simplify existing product technologies (Zhu, 2023). Despite the significant benefits of process innovation, the innovation literature has focused mainly on new product development, incremental innovation, technological innovation, marketing innovation, disruptive innovation, sustaining innovation, architectural innovation, radical innovation, and idea creation. Likewise, the innovation literature has focused mainly on Asia, Europe, and the USA, and on specific industries, e.g., manufacturing and pharmaceuticals (Ali, 2022; Breier *et al.*, 2021; Corvello *et al.*, 2022; Pearroya-Farell & Miralles, 2022).

Furthermore, the sudden rise in institutional technologies – those mechanisms and processes (e.g., blockchain, digital writing and planning systems) that enable economic exchange and governance by fostering innovation, sustainability and value creation in firms (Allen et al., 2020; Huq and Stevenson, 2020) – has sparked a growth in process innovation

(Agostini *et al.*, 2020). With an increasing investment in digital technologies, the way businesses serve their customers has been transformed (Gray *et al.*, 2013), as recent research on digitally enhanced process innovation has found that digitalization offers new opportunities for firms to build a sustained competitive advantage through process innovation (Kamalaldin *et al.*, 2021). For instance, artificial intelligence (AI) not only helps businesses to understand their changing customers' preferences (Filieri *et al.*, 2018) but aids in creating business models that maximize the newly found knowledge (about the changing customers' preferences). This helps firms to differentiate themselves from competitors (Franklin *et al.*, 2013; Galati & Galati, 2019; Pinna *et al.*, 2018), especially in a crisis. For instance, as a prompt response to the COVID-19 pandemic, "FarmFresh Kenya," an agricultural startup that is based in Kenya, quickly introduced an innovative technique to help them reconcile the disruptions in their agricultural supply chain and market demand. This involved a digital platform that connects farmers directly with buyers, thereby easing the process of product showcasing, pricing negotiation, and contactless pickups and deliveries. This highlights the role of the strategic leadership of FarmFresh Kenya in driving process innovation and resilience during an emergency (McNeely, 2021).

Moreover, the link between effective leadership, knowledge-sharing across multiple stakeholders, firms' absorptive capacity, organisational transformation, dynamic capabilities, process innovation, and competitiveness has been highlighted (Chatterjee *et al.*, 2022). Specifically, researchers link transformational leadership, knowledge sharing, collaborative culture, innovative behaviour, market performance, and sustainable competitive advantage (Anis *et al.*, 2021; Arsawan, *et al.*, 2022; Purwanto *et al.*, 2021; Ye *et al.*, 2022), especially, in developing countries (Al-Husseini *et al.*, 2021). The role of leadership in creating an organisational culture of information dissemination via publications, webinars, virtual conferences, and emails to help keep followers informed and to help them navigate crisis has been highlighted. One of the focal points in leadership literature is the transformational and transactional leadership styles. Bass *et al.* (2003) found that transformational leaders inspire and motivate followers by expressing a common vision, promoting creativity, and facilitating information interchange to enable innovation and adaptability. Transactional leaders, on the other hand, place an emphasis on incentives, performance goals, and the clarification of expectations to guarantee goal achievement (Bass, 1990). Although both are crucial for fostering organizational effectiveness during a pandemic (Christa & Kristinae, 2021), many small and medium-scale enterprises (SMEs) in emerging markets may lack the leadership

competence necessary to innovate and recover during a crisis (Caballero-Morales, 2021; Akpan *et al.*, 2022). Yet, SMEs in Africa are linked to sustainable development (Abisuga-Oyekunle *et al.*, 2020), industrial and technological development (Lawal *et al.*, 2014), talent retention (Njanike, 2019), nation building (Asunka, 2016), and as an important source of innovation in sub-Saharan Africa (Olawale & Garwe, 2010). Despite these benefits of SMEs in Africa, there is a lack of research examining how they performed during the pandemic, and the role of leadership in the context. This is an important gap in the theoretical development of the Africa-focused management literature, which our research is positioned to address in the unique context of SMEs in Nigeria and Ghana.

The researchers have selected leadership, knowledge management capability (KMC) and process innovation in African SMEs, due to a lack of research examining the interlinkages between these constructs in emerging economies contexts (Hashem & Aboelmaged, 2024; Shafique *et al.*, 2022), especially, in SMEs (Durst *et al.*, 2023). Therefore, our first effort is to examine the capacity of African SMEs to attain process innovation, especially, in time of crisis. This contributes to the organisational innovation literature, as previous studies examining the capacity of SMEs to innovate in crisis have focused mainly on Asia and the developed economies (Bernal-Torres *et al.*, 2023). Accordingly, we examine how our participants' KMC ties into process innovation. Ultimately, it comes down to the commitment and capacity of leadership to bring resources (including KMC) to bear to achieve process innovation. Therefore, the significance and novelty of this paper is that it significantly contributes to advancing the body of knowledge around KMC, leadership and process innovation by providing deeper insights into the correlation between these three, especially in the African SMEs' context. First, as one of the rare studies to utilise empirical data to examine how leaders can utilise KMC of their teams to help their teams attain process innovation in crisis, it will help leadership and knowledge management researchers, educators, and practitioners in Africa to understand how effective leadership can help their teams to innovate and thrive in a crisis, through effective KMC. Second, it will theoretically motivate future knowledge management research in Africa, as the theoretical ideas and themes in this study can be replicated and broadly applied to such research, which, therefore, contributes to the theoretical development of Africa focused management literature. Finally, given the lack of research in this domain in African context (Hashem & Aboelmaged, 2024), this study, therefore, adds significant value to the mainstream knowledge management, leadership and process innovation literature streams. The paper addresses the following research questions.

1. How did African SMEs adapt their production techniques to foster innovation in the delivery of values to their customers during (and after) the COVID-19 pandemic?
2. How does leadership of these firms maximise the KMC of their teams to attain process innovation and drive business performance during and after the pandemic?

The rest of this paper is structured as follows. The next section reviews the extant literature, while section three presents and justifies our methodology. Section four presents and analyses our findings, while section five concludes the paper with discussions, conclusion, implications, limitations and future research directions.

**2. Literature Review**

*2.1 Organisational Culture, knowledge management and business innovation.*

Business innovation has been linked to knowledge management capability (KMC) (Choo *et al.*, 2008), and successful knowledge management is built around knowledge sharing culture, collaborative working, innovative behaviour and openness to change (Chesbrough, 2010; Oliver & Kandadi, 2006; Rizzoni, 1991; Shahzad *et al.*, 2022). Due to the link between KMC and radical products and processes (Björkdahl *et al.*, 2022), KMC is key to avoiding business failure during a crisis (Cheah *et al.*, 2018). KMC is also linked to novel approaches to information processing, which is fundamental to survival and adaptation during turbulent times (Liao *et al.*, 2011). Researchers have found four interrelated activities of a successful KMC – knowledge creation, knowledge sharing, knowledge integration, and the upskilling of the knowledge-based pool (Chang *et al.*, 2015). Through new products and processes (Chang *et al.*, 2015), these four features of KMC help firms to identify, transform, and pursue innovative opportunities during a crisis (Pellegrini *et al.*, 2020), and thus, they are critical to building a sustained competitive advantage in an emergency (Liao *et al.*, 2011).

Furthermore, innovation literature has examined the role of senior management team (SMT) in business innovation. The upper echelons theory demonstrate that senior managers' cognitive and behavioural traits are crucial in determining organisational outcomes (Christofi *et al.*, 2019). Specifically, effective SMT emphasises inclusion, recognises others' viewpoints, and sets reasonable and objective goals for subordinates and teams (Nembhard & Edmondson, 2006). Consequently, SMT can cultivate a culture where staff feel valued and satisfied, and thus will be keen to share knowledge (Choo *et al.*, 2008). By fostering open communication



and cooperation (Choo *et al.*, 2008; Oliver & Kandadi, 2006), which are essential for driving change during a crisis (Heyden *et al.*, 2020), effective SMT has been linked to supportive KMC.

The role of middle managers in building an effective KMC is also emphasised. For instance, due to their knowledge-sharing role, middle managers oversee the implementation of innovative ideas, which is fundamental for survival in crisis (Heyden *et al.*, 2020). Furthermore, due to their capacity to observe events on the shop floor, to question, and spread knowledge, middle managers are powerful advocates for radical innovation (Browne *et al.*, 2014). Due to their willingness to work closely with SMT, to mentor, to share information, and encourage subordinates to remain steadfast in uncertainties, middle managers inject energy into teams and help staff to see change as an opportunity rather than a threat (Stojanovi-Aleksi *et al.*, 2019). Also, due to their roles as change implementers, middle managers are more likely to identify their subordinates' skill gaps and developmental needs.

### *2.1 Leadership and Organisation Innovation in Crisis Situation.*

In crisis, the need for a regular review of the strategic direction of an enterprise and to act as a liaison between the organisation and its most important clients is a critical role of leadership, as the capacity to pick up on early warning signs epitomises effective leadership. Charged with the responsibility of being the first responders in crisis (Huy, 2001), the role of leadership in crisis includes (re)designing and implementing improved ways of doing things (Chatterjee *et al.*, 2022). To achieve this purpose, a leader must rethink the prevailing organisational culture (OC) to ensure that it is fit for purpose, as a supportive KMC that fosters flexible operational processes is key to leading in crisis (Abdalla *et al.*, 2022)

As leadership is at the intersection of the company and its environment (Randhawa *et al.*, 2019), regularly re-examining the external environment and updating the functional teams is an exclusive role of senior leadership team, especially during crisis. This requires nurturing a knowledge-sharing culture and encouraging employees to regularly share information at work (McDermott & O'Dell, 2001). As the capacity to sense and address the rapidly changing business needs requires effective KMC (Jain & Jeppesen, 2013; Kushner, 2019), effective KMC is key to innovation and competitiveness during emergency (Oh & Han, 2020; Kokt & Makumbe, 2020). Yet, the capacity to understand the existing strategic requirements and how they can be adapted in emergency to enable efficiency – cost reduction, time management, lean production, and customers satisfaction (Kamalaldin *et al.*, 2021) – highlights how the



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interaction effect between effective leadership and KMC fosters flexible operational processes (Abdalla *et al.*, 2022).

Furthermore, by inspiring a change in individuals’ attitudes and behaviours, and encouraging interactions between groups, leadership significantly affects innovative behaviours in teams (Huang *et al.*, 2022, p. 1). Also, effective leadership sets the strategic direction, allocate resources and eliminate barriers that hinder the exploration of new ideas and exploitation of existing resources (Alo, 2023). Likewise, through their commitment to rewarding creativity, leadership encourages innovative behaviours (Hallonsten, 2023). Drawing upon a dynamic capability perspective and upper echelon theory, researchers have also found that both the transactional and transformational-charismatic (TC) leadership styles have a stronger effect on process innovation than other leadership styles. Researchers also found that such a relationship is moderated by the KMC (Chang *et al.*, 2015; Gui *et al.*, 2024) and employee voice behaviours (Rasheed *et al.*, 2021).

In the specific context of process innovation, researchers have found a link between market leaders and the capacity to adopt process innovation. Due to their superior financial capacity, cost leaders, specifically, adopt process innovation before competitors, and consequently, they are rewarded with superior organisational performance and competitive advantage (Hilman & Kaliappen, 2014). Yet, they could soon realise that the adjustment cost could skyrocket, mainly due to the misalignment between internal capabilities and new technologies (McElheran, 2015). This highlights the strategic impact of a misalignment between internal capabilities, external opportunities, and technological change (McElheran, 2015). Furthermore, apart from the influence of a firm’s KMC on its innovation capacity, researchers have also found that the capacity to instigate process innovation is influenced by the intensity of a firm’s innovative climate (Hussain *et al.*, 2014), which also depends on leadership capability (Gui *et al.*, 2024).

This section has examined the role of leadership in steering organisations through turbulence, by fostering innovative behaviours. The section also reviewed the mediating role of KMC, supported by organisational culture and new technology. Although the section also highlights the benefits of business innovation during an emergency, there is a lack of research focusing on process innovation, especially in emerging markets. We view this as a significant omission in the theoretical development of the innovation literature, and which our research is set to address in the unique context of SMEs in Nigeria and Ghana.

### 3. Research Methodology

Researchers have found that individuals approach innovation in an idiosyncratic fashion – influenced by the entrepreneur's values, attitudes, level of education and institutional contexts (Heunks, 1998). Prior research examining such an individual approach to innovation (e.g., Ligita *et al.*, 2020; Mohajan, 2018) have adopted a qualitative approach. Consistent with such previous research, this research adopts an in-depth semi-structured interview approach to examine how the interaction between leadership, KMC and process innovation has helped emerging market firms (of Africa) to thrive during a pandemic. Furthermore, due to border closures, domestic lockdowns, and threats to life (Piccoli *et al.*, 2021), most innovation research during the COVID-19 pandemic adopted either online surveys (e.g., Ali, 2022; Al-Omoush *et al.*, 2020) or a systematic literature review (e.g., Castro & Zermeño, 2020; Eggers, 2020; Kuckertz & Brändle, 2022; Liu *et al.*, 2020). Given that most COVID-19 restrictions were already relaxed, and freedom of movement restored at the time of our data collection (Bauer *et al.*, 2021; Nordin *et al.*, 2022; Xavier *et al.*, 2022), qualitative research was not only timely, but worthwhile. For instance, the crucial role of qualitative research in exploring complex phenomena – individuals' cultures, beliefs, values, human experiences, and situations that facilitate/limit innovation – which are difficult to measure with quantitative studies (Kalu & Bwalya, 2017) have also been emphasised.

Furthermore, considering that the institutional approach to innovation could also be industry-specific, we adopt a broader approach to sampling, drawing our participants from a range of industries – importers and distributors, tourism and hospitality, oil and gas, transportation/haulage, logistics, construction, retail supermarkets (groceries), exporters of locally made products, real estate, and event management. Participants were drawn from 20 small and medium-scale (SMEs) entrepreneurial firms from the above-named sectors in Africa – 14 from Nigeria and 6 from Ghana. Both consent and access were sought/obtained via the lead author, who had worked with two participants (i.e., one from both countries) prior to this research. Through snowballing method, these two initial contacts helped us to reach the rest of the participants (Harvey, 2011; Knight & Jarzabkowski, 2022).

#### Justification for the sampling strategy.

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As our introductory section has justified our focus on SMEs in Africa, this section explains why Ghana and Nigeria are suitable for this research. Focusing on SMEs in Africa, we adopted purposive sampling due to some unique characteristics shared by our participants (Saunders, Lewis, & Thornhill, 2012; White et al., 2018). As the data collection occurred when some COVID-19 restrictions were still in place in the region, a convenient sampling was used to narrow our sample down to Accra (Ghana) and Lagos (Nigeria), as it was relatively easy for us to access raw interview data in these two big cities, compared to the rest of the continent. Originally, we planned to interview 40 leaders of SMEs, but we had to stop the interviews at the 20<sup>th</sup> participant, as data saturation was observed at this point. Based on a proportional representation of SMEs in both cities – 34,093 SMEs in Accra (Ghana Statistical Service, 2020) and 73,081 SMEs in Nigeria (Kale, 2019; National Bureau of Statistics, 2017) – this equates to a ratio of 0.3:0.7 → 6:14 SMEs in Ghana and Nigeria, respectively, hence our sample size of 20.

**3.1 Data Collection**

Given the focus of the paper – to examine how the interaction between leadership and KMC can foster process innovation and help emerging market firms (of Africa) thrive in an era of a pandemic – participants were organisational leaders. Three empirical considerations were crucial in both the positioning of the paper and in conducting the interviews. First, we asked each participant to compare the rates of innovation in both their business and their entire sectors between the Covid-19 era and the pre Covid-19 business landscape. Second, we asked questions around how each participant's leadership style, mindset, and actions impact process innovation in their organisations during the pandemic. Finally, we also examined the effectiveness of their organisational cultures, structures, processes, and procedures in triggering and enhancing process innovation in these firms in the age of a pandemic. Given that interviews should capture both the narratives and the actors' interpretations of each situation as they occur (Liu & Fan, 2023; Silverman, 2000; Ybema *et al.*, 2009), we, therefore, asked each participant to provide (at least) a storyline as an example to illustrate each of their responses. The interviews were conducted between the months of December 2021 and March 2022 – a period when the Covid-19 restrictions were still in place in some parts of both countries. Accordingly, the conversations were held via video conferencing, each lasting approximately

55 minutes. The interviews were recorded and transcribed afterwards. Table 1 shows the participants' information.

**Table 1: Participants' Information**

S/N	Firm Characteristics	No of years of relevant experience	Interview Duration	Participant Gender	Age
1	Export	9	55	M	41
2	Real Estate	15	54	M	50
3	Groceries	12	52	F	54
4	Transportation	16	56	M	46
5	Import and Distribution.	11	52	F	58
6	Construction	10	59	M	42
7	Logistics	7	57	F	40
8	Transportation	14	61	M	56
9	Import and Distribution.	17	53	F	50
10	Construction	15	55	F	51
11	Export	10	54	M	39
12	Oil and Gas	12	57	M	52
13	Real Estate	14	52	M	44
14	Groceries	19	64	M	58
15	Logistics	12	54	F	49
16	Oil and Gas	10	56	M	47
17	Construction	15	53	M	45
18	Event Management.	20	52	F	54
19	Groceries	13	51	M	40
20	Tourism and Hospitality.	15	53	M	59
<b>Total = 20 participants</b>			<b>Total = 1100 minutes</b>		

### 3.2 Data Analysis

Given the scope of the interviews (i.e., 20 interviews x 55minutes), we identified quite a few emerging themes in the conversations, and we followed Gioia (2021) methodology to identify the various categories from the interviews. Prior studies (e.g., Pas *et al.*, 2023) involving a similar amount of rich qualitative data have adopted a thematic data analysis approach, and which took a few steps. First, we listened to the recorded audio interviews a few times to develop familiarity (and for meaning making) with their transcripts. Second, we transcribed the recorded audio interviews into written files. Third, we adopted open coding (Strauss & Corbin, 1998) to help us generate our 1<sup>st</sup> order concepts (Gioia *et al.*, 2010). These concepts

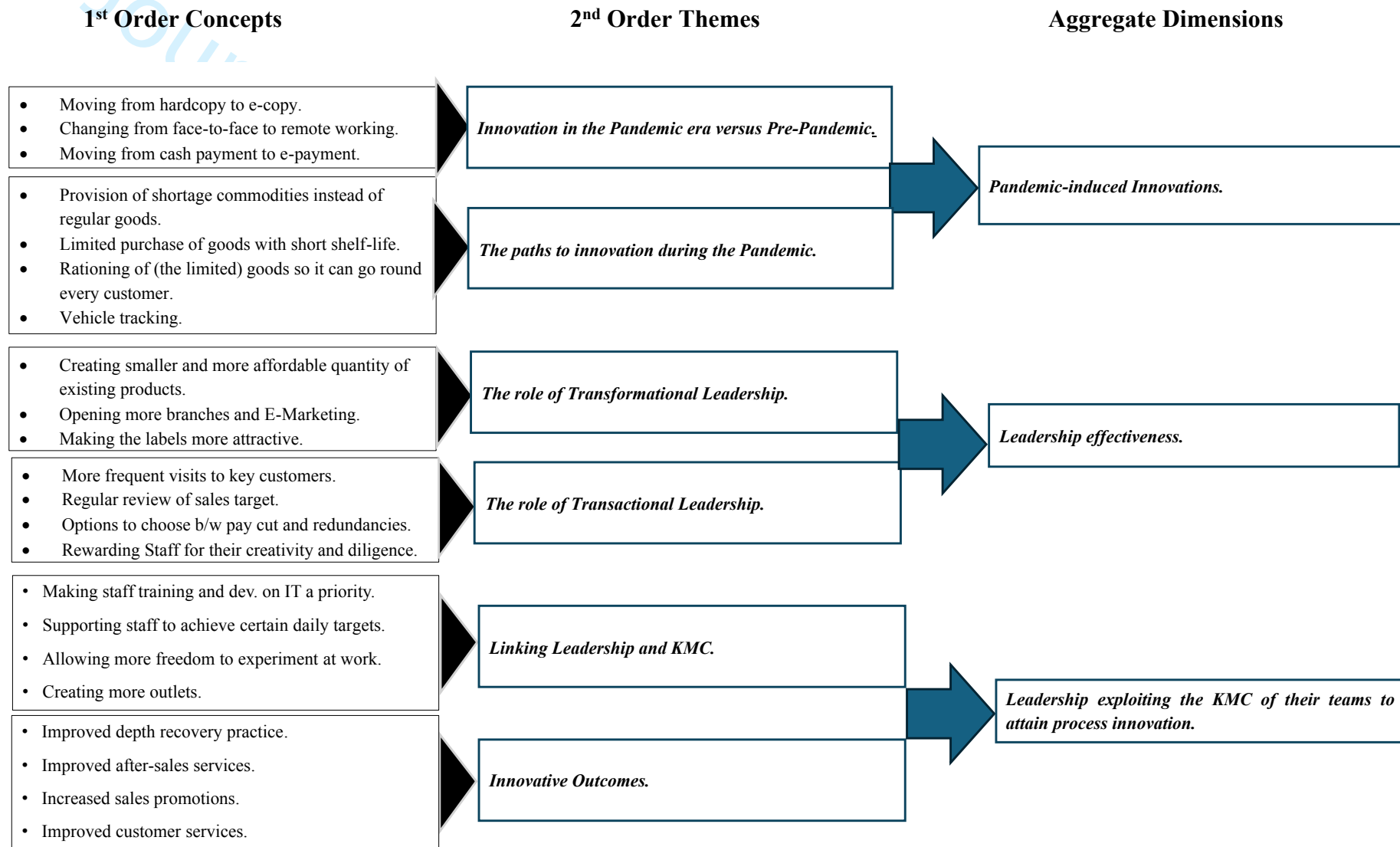
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helped us understand all our data sets that originally did not make sense together (Gioia, *et al.* 2013). We adopted axial coding to help us make adequate connections between our 1<sup>st</sup> order concepts and the extant academic theories (Strauss & Corbin, 1998) which helped us tie up as many 1<sup>st</sup> order concepts as possible, based on their similarities and differences. This step resulted in generating our 2<sup>nd</sup> order themes (Corley & Gioia, 2004; Gioia, *et al.* 2013), and the process was incessant till we achieved theoretical saturation in our *second order themes* (Glaser & Strauss, 1967; Strauss & Corbin, 1998). Fourthly, to make more sense of the data sets, we further compressed the emergent 2nd-order themes into “*aggregate dimensions*” (Gioia *et al.* 2013). Finally, to examine the validity of our findings, we sent each participant their own response for validation before we concluded our paper development.

**Justifications for adopting the Gioia’s methodology**

As *one size does not fit all* when analysing and presenting qualitative data (Reay et al., 2019), researchers are encouraged to choose a methodological approach that is the best fit for integrating the range of core theoretical constructs involved in their study, and in a manner that will help to establish a relationship between the raw data and such theoretical constructs (Murphy et al., 2017). Researchers examining the different approaches to theory building in qualitative research (e.g., Gehman et al., 2018) have also highlighted the importance of theory–method “fit” in qualitative research. Due to the number of theories involved in this research, our data analysis requires a template that will not only help us to integrate these theories but also add rigour to the procedures for executing such a template (Gioia et al., 2022). Furthermore, in qualitative research, inductive reasoning is required to help researchers attain a credible interpretation of the data set, and in a convincing manner to the readers. Hence, adopting the first order analysis, second order themes, and aggregate dimensions has not only helped us to achieve a systematic conceptual and analytical interpretation of our data sets (Gioia et al., 2013, p. 15), but has also helped us to establish some theoretical ideas that are grounded in our data set (Corley & Gioia, 2011; Strauss & Corbin, 1998). Figure 1 below shows our data structure.

**Figure 1: 1<sup>st</sup> Order Concepts, 2<sup>nd</sup> Order Themes and Aggregate Dimensions.**



4. Findings

This section utilises our aggregate dimensions to connect our raw interview data with relevant theoretical concepts to show how the interaction between leadership, KMC and process innovation can foster business performance in a crisis (Wijngaarden, 2022). This provides renewed insights into the interaction effectiveness of leadership, KMC, and process innovation as a strategy in enhancing business performance in a turbulent time.

4.1 Pandemic-induced innovations.

Participants highlighted the differences in innovation before and during the Covid-19 pandemic. Participants specifically revealed that they have adopted a range of practices only for the first time since the pandemic, and which have now become both the norm and a routine in their various organisations. For instance, they revealed that they now use e-copy for their business transactions and documentation, that they now work remotely instead of the traditional face-to-face, and for haulage companies, due to advancements in technology, they have also learnt how to track the locations of their trucks, unlike before the pandemic:

*“Before the pandemic we didn’t know what is tracking, or that you can track your vehicles to know where they are...”* (Nigerian participant 1).

*“From time to time, we communicate with the drivers to know their locations, and they keep updating us on their experiences on the road until they deliver the goods to their various destinations and back to the site...We have to do this also because most of our deliveries have been the shortage goods, instead of our regular goods* (Nigerian participant 7).

*“Tracking helps us to determine the dangerous spots on the highway, example, the spots where armed robbers are likely to attack our trucks, the spots where the vehicles are likely to break down due to bad road conditions, etc. Tracking also helps us identify the routes that most truckers will always want to take. This also helps us in our business model, such as in training our drivers”* (Ghanaian participant 4).

The above quotes show the effectiveness of leadership in crisis situations. As can be seen in the above quotes, leadership drives organisational agility in response to Covid-19 systematic shocks. The literature (e.g., Denning, 2018) also highlights the role of effective leadership strategy in enhancing business performance during crisis business situations, through agile transformations. The next set of quotes also shows how the Covid-19 pandemic has challenged leadership and their teams in emerging market firms to learn new and innovative working



practices. Specifically, our participants revealed that they (and their teams) learnt how to use e-documents for the first time during the pandemic:

*"We only learnt to use the E-copies during the pandemic. Before the pandemic, all our invoices and receipts were done hard copies"* (Nigerian participant 8).

*"To minimise the risk of Covid-19 infection, we now do all our transactions online, unlike before the pandemic"* (Nigerian participant 9).

*"Unlike the hard copies that take about 14 days to get processed and paid, with the electronic copies, the person can be paid same day or just within a few days"* (Ghanaian participant 5).

Another form of innovative working practice that only emerged in emerging market firms during the pandemic was remote working. Earlier studies highlight the crucial role of top management team's functional diversity in knowledge generation, knowledge sharing, in minimising lead time and in exploring new and innovative opportunities to expand the market share in a fast-changing crisis (Buyl *et al.*, 2011). Similarly, our participants not only revealed the benefits of remote working in helping their businesses stay afloat during the pandemic, but they also highlighted the role of leadership in the process. For instance, in the following quotes participant 4 from Nigeria was on a business trip to the UK and was unable to return to Nigeria as scheduled as the UK went into lockdown while he was still in the UK, and which lasted for several months. Also, participant 1 from Ghana who was on a similar trip to Germany experienced the same fate, as he was unable to return home to Ghana as scheduled due to the lockdown which occurred in Germany. This was a learning curve for the two and their teams, as they empowered their teams to work semi-autonomously for the first time without their routine face-to-face supervision, even though both participants were sometimes coordinating the activities of their teams online:

*"...Since the pandemic, I have realised that more people are now working online and doing a lot of things online than they did prior to the pandemic... I have also become computer literate since the pandemic... My team has also learnt how to work online..."* (Nigerian participant 4).

*"...We did not know we could run our business without the CEO being physically present on site on a regular basis and that we can actually reduce the amount of time that each person spends in the office, as things like meetings can now be ran remotely..."* (Ghanaian participant 1).

Apart from encouraging staff to be computer literate and innovative in the face of a pandemic, business leaders also reward staff for being innovative. The next set of quotes show how

participants reward their staff through salary increase, promotion and gifts, and as an appreciation for being innovative:

*"I give employees bonus for being innovative"* (Ghanaian participant 4).

*"When an employee discovers an innovative way of doing things, I make sure I reward them financially, or sometimes, I promote the staff"* (Nigerian participant 10).

*"If a staff discovers a creative or innovative way of doing things, I give the staff a price. For example, every month we have the best staff of the month award"* (Ghanaian participant 1).

One common theme running through what our participants are saying is the integrated roles of transformational and transactional leadership, KMC and process innovation in helping emerging market firms to navigate through a crisis. Researchers (e.g., Bama *et al.*, 2022; Snell & Yemen, 2017) have also highlighted the roles of leadership in triggering and enhancing individual innovation in a crisis. Similarly, researchers have examined the crucial roles of leadership and organisational culture in knowledge generation, knowledge transformation and knowledge sharing (Jain & Jeppesen, 2013; Kokt & Makumbe, 2020; Oh & Han, 2020), and which provides value to both staff and customers (Kushner, 2019).

#### ***4.2 The effectiveness of leadership in fostering process innovation in crisis, through KMC.***

Like the rest of the world, emerging markets also introduced strict Covid-19 rules to help safeguard society against the spread of the Coronavirus. For instance, there were lockdowns, social distancing, restrictions on movement, border closures, etc. Consequently, businesses were forced to either adopt safe working practices or remain closed. The next set of quotes reveal how our participants utilise their KMC to foster innovative ways of working to stay connected with their customers during these periods, and thus to help their businesses stay afloat:

*"Due to the border closures, there have been scarcity of goods to distribute. So, [as a distributor] we have been rationing the goods we distribute, so it can go round every customer... This idea is also quite innovative because it is the key for price control and for minimising monopoly. You may be aware that selling the goods to just one rich customer or to a few customers could encourage monopoly"* (Nigerian participant 6).

*"As a leader, I had to adjust the way we meet, such as switching from the traditional face-to-face to online meeting"* (Ghanaian participant 4).

Furthermore, to reduce the impact of Covid-19 pandemic on customers and businesses, participants also explained how they invented new versions of existing products. Specifically, businesses revenue dropped due to a reduced customer spending, as many people were out of work or on a reduced wage. Consequently, businesses needed to strategize how to provide more affordable versions of existing products:

*“Due to cash shortage during the lockdown and coupled with the fact that more people were staying or working from home, we created smaller bottles of our wine, and which are more affordable than the big ones. We have also been opening more offices and shops at different locations to promote and distribute these new versions of our products”* (Nigerian participant 6).

*During the lock down, movements were restricted and coupled with a scarcity of petrol, so we decided to utilise fuel-economic motor bikes [instead of the usual delivery vans] to dispatch our goods to our customers”* (Nigerian participant 12).

Apart from using innovative ways to stay connected to their customers, leaders also encouraged knowledge generation and knowledge sharing to enhance team cohesion in the face of a crisis. For instance, our participants revealed that they utilise various strategies – employees voice system, open door policy, trust, high quality leader-member exchange (LMX) relationships, employee training and a culture of trial and error – to encourage new working practices:

*“I try to be as open to ideas as possible, so they [i.e., staff] don’t shut down their creative mindsets... If any idea fails during implementation, it is always viewed as a collective responsibility, so, no one is penalised”* (Ghanaian participant 4).

*“We train and retrain our staff to be creative and innovative. We also try to give them the freedom to try out new things at work on daily basis”* (Nigerian participant 11).

*“Yes, I have witnessed when a new way of doing things invented by my staff has failed in the past, and I encouraged the staff to rise up and try again”* (Ghanaian participant 4).

*“Since we normally examine all ideas before they are implemented, when an idea fails, it is the company’s fault, but when it works the credit goes to the individual staff who invented it”* (Nigerian participant 2).

Despite such concerted efforts by leadership to facilitate staff creativity and innovation in time of crisis, creativity and innovation were still limited in some industries. For instance, participants stressed that during the lockdown, that creativity and innovation were slowed in the manufacturing sector or other establishments where you can only work on-site:

*“No, there is nothing I can do to make them to be creative unless they are back to site. This is because our style of business is practical. So, you need to see what they are doing*

onsite so you can support them to be more creative or innovative” (Nigerian participant 5).

Other factors impacting the rate of innovation in crisis is social-distancing and the reductions in pays. Specifically, participants revealed that, for transactions to complete, some businesses require staff and customers to be on site, to demonstrate, touch and feel the samples on display. But none of these were possible during the lockdown. Also, there was a lack of conferences (meetings) and coupled with reductions in staff salaries, especially in the early stages of the COVID-19 pandemic. These situations resulted in a decline in staff confidence level (due to inactivity) and a lack of motivation, and thus a reduction in the rate of organisational innovation, although effective leadership devised some coping strategies:

*“As a supplier of roofing materials, in the past, customers would normally visit the site to see and feel the goods in store before they can make a decision, but this has not been possible for a while now, especially, for the more vulnerable customers. As a result, I have taught my staff to store all the roofing materials on their phones to serve as a sample to display on WhatsApp, Facebook, and on other social media”* (Nigerian participant 8).

*“The lockdown has affected my employee's ability to be creative or innovative. The lack of conferences, workshops and seminars during the pandemic has hindered our staff ability to be innovative, as, sometimes, it is in those sponsored formal training programmes that they learn new and improved ways of working. Consequently, their confidence level has been declining since the pandemic”* (Ghanaian participant 1).

*“The rate of innovation by my staff has been reducing since the pandemic. The reason for this could probably be due the lack of salary increases during the pandemic”* (Nigerian participant 3).

Researchers have also found that by rewarding followers effectively in a crisis, transactional leadership facilitates followers' innovation, organisational resilience, and the value offering to customers (Mitra & Ranjith, 2018). Although previous studies (e.g., Björkdahl *et al.*, 2022) have examined the effectiveness of organisational culture and trust in triggering and enhancing innovation across a variety of firm types, sizes and categories in the age of a pandemic, we lack insight on the capacity of emerging market firms to survive the pandemic through innovative working practices, and the role of leadership in the process. This study contributes to addressing this research gap.

#### **4.3 Linking leadership, KMC, process innovation and business performance in a crisis.**

Knowledge sharing is crucial for organisational survival, especially, in an uncertain environment. Accordingly, our interview quotes show how our participants supported and encouraged their staff to generate and share knowledge on improved working practices continuously. The next set of quotes also revealed that our participants had to adjust their leadership styles during this period to encourage knowledge creation and knowledge sharing, and how this impacted on process innovation and business performance:

*"There were many adjustments because during the lockdown, knowing that our workers were panicking, we tried to be more friendly with them, and interacting with them more"* (Nigerian participant 1).

*"I also had to minimise the pressures I placed on them to achieve certain targets, as I have been telling them that everyone now needs to be talking to each other the more and to constantly share knowledge about the current state of affairs, so we can be on the same boat"* (Nigerian participant 13).

Researchers (e.g., Chang *et al.*, 2015; Liao *et al.*, 2011; Pellegrini, *et al.*, 2020) also argue that organisational innovation (both products and process) and resilience during a crisis are dependent on warm relationships (between team members), leadership style, and KMC. Furthermore, participants also revealed that they have been encouraging staff to keep sourcing and sharing new knowledge on improved ways of working under the Covid-19 environment. One common theme running through what participants were saying is that they utilise a range of incentive to reward staff who share knowledge on new and innovative ways of working:

*"When a staff discovers a creative and innovative way of doing things, we encourage the staff, and we also reward financially. For instance, we have increased the salary of a particular middle manager three times in the last few years due to their creative and innovative mindset"* (Ghanaian participant 1).

*"Since the pandemic, I have been challenging my staff to keep coming up with innovative and creative ways of doing things that will help the business to grow, and that when you do this, this is what you get in return. I have rewarded two of my sales reps with brand new tricycles, that is, one for each"* (Nigerian participant 8).

*"Because employees are very happy to be given the opportunity to showcase their skills, staff are encouraged to invent new projects, and that they will lead such project during implementation"* (Ghanaian participant 6).

*"To encourage staff to be innovative, I see failure as a learning curve. Although I have a room for people to try and fail, but I also let them know that there is a board that they must not go over. In fact, we have a tolerance level of failure. 1,2,3,4 failures then it cannot be business as usual again"* (Nigerian participant 14).



The above quotes reveal that despite increasing individual autonomy at work and a growing managerial support for staff innovation, managerial supervision is still strongly emphasised. Furthermore, participants also reveal that they encourage and facilitate collective decision making and knowledge sharing between staff and management, and which is also crucial for survival in an uncertain environment:

*"I call them [i.e., the staff] for a meeting to discuss the drop in sales revenue. As I put the problem on the table, I asked that everyone deliberate on it, and each person was encouraged to say what they feel about the whole situation and what they think we have to do...and I pleaded that we should try and find a collective solution. Eventually, they [i.e., the staff] were the ones who suggested a pay cut as the solution. After several percentages were thrown around the table, we agreed on a certain percentage for the pay cut. Then they suggested that this should be reviewed after every three months, depending on the state of things"* (Ghanaian participant 2).

*"I had a meeting with a staff who suggested that we should start tracking our truckers. During the meeting the staff highlighted that tracking helps to minimise the risks involved and to control the transportation of our consignments from the sites to the seaports"* (Ghanaian participant 6).

Researchers have linked both the transformational and transactional leadership and organisational culture to high-level of knowledge sharing to leverage operational effectiveness (Kalev, 2020; Lloria and Peris-Ortiz, 2014). Similarly, Tholath and Thattil (2016) argue that effective KMC is key to organisational innovation in a volatile and competitive business environment, although it is mainly the middle managers that support innovation performance in a crisis (Heyden *et al.*, 2020). Furthermore, given the importance of knowledge sharing in a crisis, especially, where the internet is now at the heart of organisational communication, participants also revealed that each staff received adequate training on online communication, and then a guaranteed access to information communication technology (ICT):

*"Since we can only work online during lockdown, I have become computer literate since the pandemic. I have also learnt how to work online, and I have paid for online computer lessons for my staff so they can work in this new world of work"* (Nigerian participant 4).

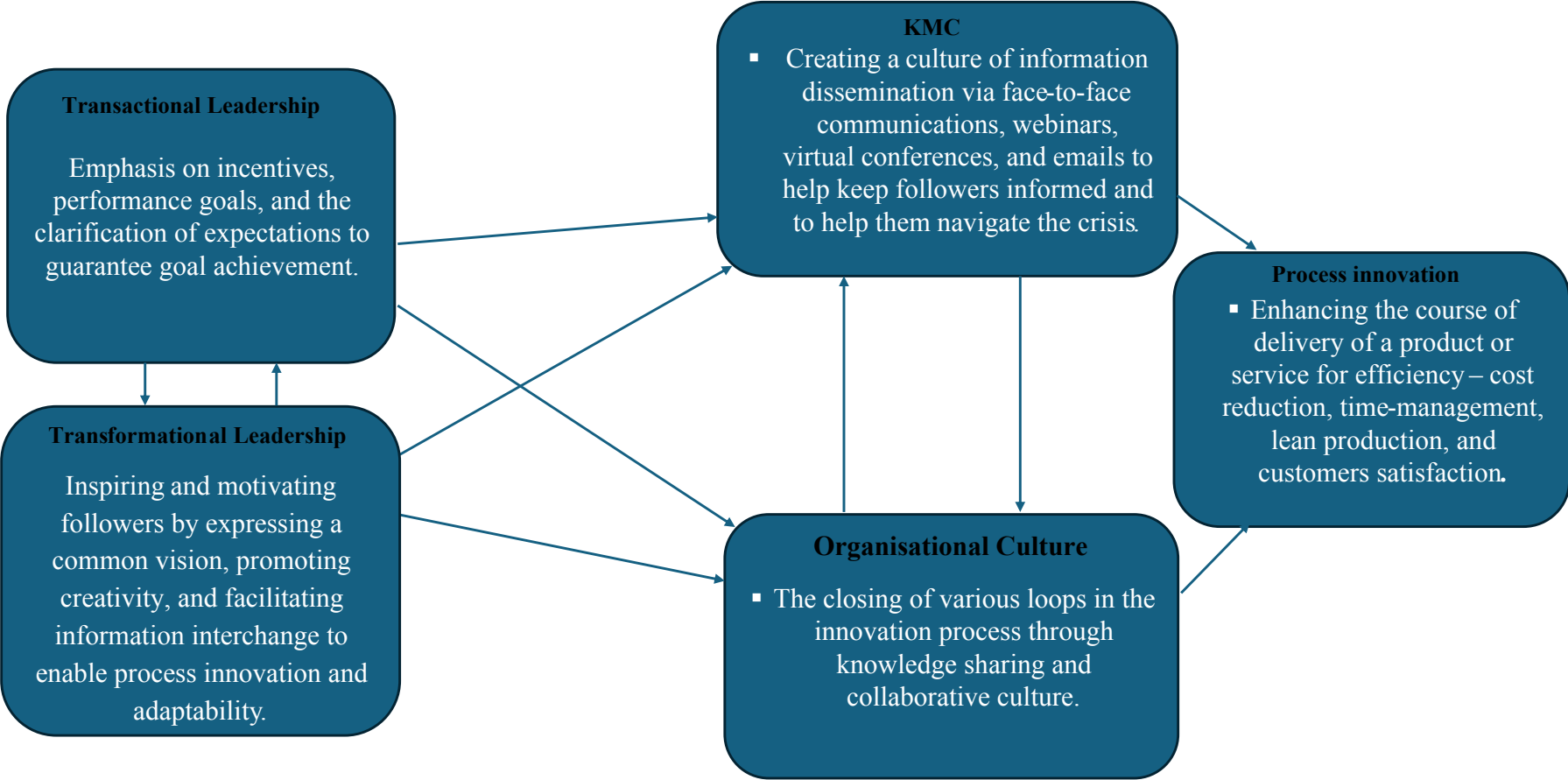
*"Generally, I encourage my staff to use the technology to try and enhance the [production] process, and I appreciate them when they achieve success in this area...My business is people oriented. Businesses die or survive because of people"* (Ghanaian participant 3).

*"To support my staff to be creative and innovative, I have given each staff an Android phone and subscribe data for them"* (Nigerian participant 1).

This section has shown a range of adjustments that our participants and their teams have had to make to ensure that they remain innovative, and thus to survive in the face of the Covid-19 pandemic. For instance, they introduced the e-copy for their business transactions and documentation, they started working remotely for the first time during the lockdown, and for haulage companies, they learnt how to track the locations of their trucks for the first time. To encourage knowledge generation and knowledge sharing in this new world of work, participants also revealed that they had to train their employees, reward them and provide them access to ICT. Furthermore, to minimise the impact of the pandemic on their businesses, participants also revealed that they had to take some bold steps, including adjusting their leadership styles, organisational culture, procedures and processes, for improved relationships with staff and customers. Due to the economic hardship facing businesses and their customers during the pandemic, our participants also had to introduce more affordable versions of their existing products. Our analysis also shows that participants ensured a warm relationship between leadership, subordinates and customers – a measure which not only encouraged knowledge sharing, but helped to fasten the bonds between leaders, staff and customers, and thus helping their businesses to remain afloat in the face of a crisis event. Figure 2 below is a model that clearly shows the relationships between the key concepts in our paper.



Figure 2: A visual presentation of the relationship between the key concepts.



## 5. Discussion and Conclusion:

This research sought to explore how the interaction between leadership, knowledge management capability, and innovative behaviours helped African SMEs to succeed during a pandemic. Based on empirical data from in-depth qualitative interviews with 20 participants – 6 from Ghana and 14 from Nigeria – the study found that the need for innovation is higher in a crisis. Consequently, our participants had to adjust their leadership styles, business policies, procedures, processes, structures and organisational cultures to accommodate innovation and thus to thrive in an age of a pandemic. For instance, to reduce the spread of the Coronavirus while allowing their businesses to remain afloat, these organisations had to introduce e-copies and remote working for the first time during the pandemic. Our study also found that, given the disruptions in the global logistics and supply chain sector, to remain resilient, haulage companies have exploited disruptive technologies and AI to track their trucks for the first time during this period. Moreover, some truck drivers were using their companies' truck to supply foods and medicines during the lock down, and without their employers' approval. Therefore, tracking was key in controlling the activities of the truckers. Researchers link these strategic behaviours to organisational agility, resilience and innovation in response to the pandemic (Arslan *et al.*, 2021; McNeely, 2021).

Furthermore, to balance the need for survival (Kear & Ulrich, 2021) and the guarding of public safety (Christa & Kristinae, 2021), participants had to train and retrain their employees on knowledge management, while rewarding them for knowledge creation and knowledge sharing. To facilitate knowledge creation and knowledge sharing, our participants also adjusted their leadership styles and organisational culture, improved their relationships with staff and provided employees with a 24-hour access to ICT. Given the economic hardship facing businesses and their customers, these organisations also introduced more affordable versions of their existing products to boost customers' satisfaction and revenue generation. Researchers have also found leadership's capacity to detect challenging situations and devise radical paths to innovation as key to organisation's capacity to navigate through a crisis (Browne *et al.*, 2014). As participants foresaw upcoming changes, with a blend of their innovative behaviours and their agility in responding to the crisis, their firms avoided catastrophe during an emergency.

Moreover, fostering an open culture and inspiring subordinates to engage in shared decision-making highlights the role of leadership as key to survival in crisis (Carmeli *et al.*,

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2010). Additionally, apart from a facilitated supportive organisational culture, our participants advocated knowledge generation, knowledge-sharing and a review of their organisational priorities. Recent research found such innovative behaviours as key recovery strategies for SMEs in emerging economies during the COVID-19 pandemic (Caballero-Morales, 2021). These findings have significant implications for researchers and practitioners.

**5.1 Theoretical Contribution:**

By examining the link between leadership, process innovation, KMC and organisation’s capacity to thrive in crisis situations, this study makes significant theoretical contributions to the extant leadership, innovation, resource management, and crisis management literature streams. By investigating the usefulness of two specific styles of leadership in crisis – transformational and transactional – it broadens our understanding of the role of leadership in steering organisations through a crisis. By illustrating how organisations prioritise employee welfare and customer satisfaction while implementing key changes that will drive innovation during crisis, it offers a fresh viewpoint that might be useful to scholars who are interested in business innovation when organisations are under pressure.

Specifically, this research contributes to Hao *et al.*'s (2017) work on network orchestration and resource alignment, as it draws attention to resources orchestration theory (ROT) to investigate the significance of leadership qualities and process innovation in the context of intra-network knowledge-sharing culture. Drawing on the resource orchestration theory, researchers have found that in challenging times, emerging market firms often face a scarcity of innovation resources (i.e., both tangible and intangible resources that drive innovation) (Song & Xiang, 2023). The resource orchestration literature also examines how best to orchestrate digital resources, intellectual capital and KMC to improve competitiveness and corporate performance (Asiaei et al., 2021; Rehman et al., 2022; Yu et al., 2021). By highlighting the importance of two main leadership styles (transformational and transactional) in fostering the alignment and utilization of network resources, we add to this theoretical knowledge. Specifically, our research is based on the idea that an organisation's actions with its resources (including leadership and KMC) to attain innovative outcomes during crisis are just as important as the resources themselves. This is further illustrated in figure 1 and 2 above. This study also acknowledges that the success of process innovation in crisis is based on the efficient deployment of internal resources and skills through effective KMC. For instance, focusing on the value of information flow between the SMT, middle management and

subordinates, our paper exemplifies the role of vertical knowledge sharing in fostering process innovation and safety in crisis. While middle managers play a vital role in putting plans into action within their functional business units, it requires SMT to scan environments regularly and to communicate the findings, their ideas, skills, and information to the middle managers. However, collaboration between functional areas is also critical for process innovation to occur. This also enhances our understanding of Belitski and Mariani's (2023) findings on the role of knowledge sharing culture as a driver of radical improvement and the effectiveness of knowledge collaboration on business model reconfiguration.

### ***5.1.2: Managerial Implications***

Based on our findings, our study's managerial implications include that an organisation's ability to survive a crisis through process innovation depends on leadership's ability to sense business opportunities/risks and their agility in adapting their behaviours and the organisational cultures. For instance, our participants adjusted their business processes and procedures to facilitate knowledge creation and knowledge sharing, and with demonstrable organisational resilience they thrived in a crisis. Another managerial implication of our findings is the need to train, encourage and reward employees for their involvement in knowledge creation, knowledge sharing, creativity and innovation. This typifies the role of transactional and transformational leadership in responding to Covid-19 regulations by devising innovative approaches to customer service, and thus helping their organisations to thrive in a crisis.

Furthermore, our findings are consistent with prior research that links innovation with improved managerial practices – job security, investments, and economic growth (Einiö, 2014; Peñarroya-Farell & Miralles, 2022). Unlike previous innovative research during the pandemic, we have established strong linkages between managerial thinking, resource utilisation, creative solutions to managing a crisis, digital technology, and innovative performance beyond the crisis. As these findings have shown that innovation capabilities are key to the survival and success of a firm, especially in a crisis, organisations are therefore advised to nurture high levels of innovative capabilities in teams through training and development, research and development, and effective reward system. Finally, by offering both theoretical and managerial implications, our findings are crucial for both leadership development and organisational innovation research, especially in an under-researched context of Africa.

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**5.2 Limitations and future research directions**

Like any other paper, our paper has some limitations. For instance, our study has drawn on a limited number of case studies from Ghana and Nigeria. Hence, our study findings cannot be easily generalised. Notwithstanding this limitation, this paper is one of the pioneering studies highlighting the effectiveness of the interaction between leadership, organisational culture and KMC in fostering process innovation and organisational performance during Covid-19, in African context; thereby opening numerous avenues for the future researchers. We recommend that such future researchers should utilise a mixed method approach to examine the factors that limit the effectiveness of managerial and organisational support systems in fostering organisational innovation performance of emerging market firms during crisis. Further studies can also utilise our theoretical ideas and replicate our findings in other continents. This will provide the much-needed data for comparing the effectiveness of leadership and organisational support for innovation performance during crisis in various settings; thereby improving both the individual's and organisation's ability to innovate and thrive in crisis.

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Reviewer #1 Comments	Authors' Response
I find that the updated version of the paper has been greatly improved. The modifications on justification for the study, goal setting, clarity of data structure and overall consistency of the paper are now on adequate level. In addition, the added visual presentation of a model, clarifies the interrelationships between the concepts. I have a couple of minor points you could still take into account.	Thank you so much for your constructive feedback. They are very much appreciated.
In figure 1. you could reconsider labeling one dimension (Leadership, KMC, and process innovation) so that they clearly represent a specific concept instead of list of three separate concepts.	This dimension has now been renamed as: <b><i>“Leadership exploiting the KMC of their teams to attain process innovation.”</i></b>
The presentation style of figure 2. could still be finetuned so that the concepts are also included in the boxes as headings.	The presentation of figure 2 has also been finetuned and the concepts have now been included in the boxes as headings. Thank you so much for these comments. They have really helped us to enhance our paper.
I did not find definition on institutional technologies (p.2.). Even though this is not the main concept in your paper, it would be nice to see the definition for it.	In the revised MS, we have now provided a definition of institutional technologies. Please see page 2.