

RESEARCH ARTICLE

Business environment and adoption of AI: Navigation for internationalization by new ventures in emerging markets

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Abstract

This study explores the intersection of international business and artificial intelligence (AI), focusing on how new ventures navigate environmental challenges for international expansion within Africa's transportation sector. Despite a wealth of literature on AI in developed countries, a notable gap exists in the understanding of the challenges emerging economies face in implementing AI practices, particularly in the context of Africa-to-Africa internationalization. The current study delved into the transformative potential of AI, identifying institutional voids as opportunities for innovation on the continent. Employing the Technology Organization and Environment framework, the study investigated the adoption of AI technology in the African business environment. Qualitative data gathered through interviews with transport tech startup founders across Africa provided insights into technological innovation, institutional dynamics, and market peculiarities. The founders recognized hurdles such as data scarcity, human resource constraints, and regulatory obstacles amid institutional voids. The study underscores the importance of understanding expectations, balancing possibilities and realities, and fostering collaboration. It offers valuable insights into the complexities faced by and opportunities for new ventures leveraging AI in internationalization, with practical implications for strategic AI implementation, policy development, market expansion, technology solutions, and cross-border transportation within Africa's unique business landscape.

KEYWORDS

Africa, artificial intelligence, international business, technology adoption, transportation

1 | INTRODUCTION

In the ever-evolving landscape of international business, the integration of artificial intelligence (AI) into business practices has become a pivotal force, reshaping the dynamics of market expansion and competition (Di Vaio et al., 2020; Wei & Pardo, 2022). The intersection of international businesses and digital technologies has been extensively researched, shedding light on the transformative potential of AI (Cas-setta et al., 2020; Shree et al., 2021; Strange & Zucchella, 2017).

However, despite the growing body of literature in this domain, a discernible gap remains in our comprehension of how new ventures, particularly those in emerging markets, navigate environmental challenges while integrating AI for international expansion (Abdulquadi et al., 2021; Glikson & Woolley, 2020).

The present research was prompted by a recognition of both the increasing attention devoted to global business strategies and the digital revolution sweeping across industries (Chalmers et al., 2021; Dwivedi et al., 2021; Loureiro et al., 2021) and playing an increasingly

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integral role in international business by enhancing efficiency and introducing complexity in business simultaneously (Chen et al., 2022). Notably, the majority of studies in this realm have predominantly centred on developed countries, leaving a critical void in our understanding of the unique challenges faced by emerging economies in implementing AI practices (Kamoche & Wood, 2023) and the call for exploring more of Africa-to-Africa Internationalization (Owusu-Yirenkyi et al., 2023). Moreover, in the African context, while an increasing body of research has been focusing on digital technologies within the informal market (Boafo et al., 2022; Boafo et al., 2023; Dana & Ratten, 2017), there is a notable scarcity of comprehensive studies addressing the formal sectors (Mogaji & Nguyen, 2022).

As a continent, Africa is witnessing a surge in technological innovation, with a growing number of tech startups spearheading transformative solutions to address local challenges (Abdulquadri et al., 2021; Balakrishnan et al., 2021). While the informal market in the continent remains robust (Boafo et al., 2022; Boafo et al., 2023; Dana & Ratten, 2017), formal sectors are increasingly being shaped by the endeavors of these tech startups (Mogaji & Nguyen, 2022). It is within this dichotomy that the present study positions itself, seeking to explore how new ventures, driven by technological innovation, navigate the intricate environmental challenges posed by the integration of AI for international expansion.

Furthermore, the study takes cognizance of the substantial insights into institutional voids in Africa (Chipp et al., 2019; Murithi et al., 2020). While these voids may traditionally be perceived as a disadvantage, they concurrently present unique opportunities for innovations, technology adoption, and the proliferation of automated services facilitated by AI (Lashitew et al., 2022; Sydow et al., 2022). This perspective formed the foundation for our inquiry into the strategies new ventures employ in leveraging AI to overcome environmental challenges and seize international expansion opportunities. Recent years have witnessed notable advancements in the application of AI in various business domains, spanning finance (Abdulquadri et al., 2021; Mogaji & Nguyen, 2022), healthcare (Damoah et al., 2021), and agriculture, propelled by innovations in the internet of things and big data (Drydakis, 2022). The transformative impact of AI on international business is particularly pronounced in the transportation sector, where AI brings significant benefits such as increased personalisation and enhanced customer experiences, fostering rapid innovation cycles (Olan et al., 2022). In the context of Africa, where unique challenges often impede seamless cross-border transportation (Mogaji, 2022; Mogaji & Nguyen, 2021), AI emerges as a distinctive opportunity for transport operators to bolster efficiency, cut costs, and streamline international business operations (Amankwah-Amoah & Lu, 2022).

Against this backdrop, the primary objective of this study was to address the following question: How do new ventures navigate environmental challenges in integrating AI for international expansion? By delving into the intricacies of technological adoption, institutional dynamics, market peculiarities, and AI-entrepreneurship scholarship (Chalmers et al., 2021), this study endeavors to contribute to the evolving discourse on the role of AI in shaping the global landscape of business, particularly in the context of emerging markets such as

Africa. To achieve this research aim, the study adopted the Technology Organization and Environment (TOE) model (Tornatzky & Fleischer, 1990) as the theoretical framework for the study, exploring how organizations are adopting AI technologies amidst the inherent challenges of the business environment in Africa (Arakpogun et al., 2021; Asongu & Odhiambo, 2020). Moreover, the study employed a qualitative data collection approach through semi-structured interviews with transport tech startup founders across Africa, engaging with them to understand how they navigate environmental challenges in integrating AI for their international expansion.

Insights from this study offer significant theoretical contributions to the body of work on emerging markets and AI integration. First, the study addresses the gap in the existing literature on AI in business internationalization by shedding light on how new ventures in Africa navigate the challenges of integrating AI for international expansion, emphasizing the interplay between technological innovation, institutional dynamics, and market peculiarities (Abdulquadri et al., 2021; Balakrishnan et al., 2021). Second, it responds to the call for increased research on Africa-to-Africa Internationalization, providing insights into how AI influences the expansion strategies of new ventures on the continent (Murithi et al., 2020; Owusu-Yirenkyi et al., 2023). Lastly, the study redefines institutional voids in Africa as opportunities for innovation and technology adoption, contributing to a nuanced understanding of how new ventures strategically leverage AI amidst institutional challenges (Chipp et al., 2019; Murithi et al., 2020; Sydow et al., 2022) and pursuing AI-entrepreneurship agenda (Chalmers et al., 2021; Glikson & Woolley, 2020). Overall, these contributions enhance our theoretical understanding of AI integration in emerging markets, with a focus on Africa's unique business landscape and stakeholders, including transport operators, governments, entrepreneurs, technology providers, consumers, and international business consultants, who stand to benefit significantly from the study's findings. Our findings offer insights for strategic AI implementation, informed policy development, market expansion, tailored technology solutions, improved cross-border transportation, and expert guidance in navigating complexities and integrating AI strategies.

2 | LITERATURE REVIEW

2.1 | Industry-specific exploration in the context of AI adoption

Internationalization has been a significant area of research in the business domain, particularly in the context of emerging markets such as those in Africa. Adams et al. (2023) delved into the managerial competence and entrepreneurial behaviors of African firms across 17 countries, highlighting the potential success of African emerging market multinational enterprises through the strategic utilization of foreign executive expertise. Boafo et al. (2022) conducted a comprehensive analysis of the internationalization of informal African firms (IAFs) from a network perspective. Through in-depth case studies involving 14 smaller IAFs, their research provided valuable insights into the triggers that initiate international business activities by IAFs, contributing

to a thorough understanding of this phenomenon. Pindado et al. (2023) employed Global Entrepreneurship Monitor data from 17 African countries to investigate the influence of institutional voids, including corruption and regulations that are not market-friendly, on the degree of internationalization of early-stage entrepreneurs in Africa. Their findings indicated that regulations that are not market-friendly negatively impact entrepreneurs' degree of internationalization, while corruption, in line with the escapism view, has a positive effect. Although these and many other studies have contributed to a broad understanding of internationalization dynamics, a critical gap remains in the industry-specific exploration of this phenomenon, particularly in the intricate and nuanced experiences within specific sectors.

The need for a more targeted examination is evident, especially in industries such as transportation, where the impact of AI adoption on international expansion activities in emerging markets is not well-explored (Arakpogun et al., 2021; Olan et al., 2022). The existing body of literature on internationalization in Africa has often taken a broad approach, sampling large groups without delving into the detailed and context-specific experiences within particular industries. In the realm of AI adoption, its integration into the domain of international business, particularly within the transportation sector, represents a crucial area of exploration. Yet, research on the practical implementation of AI and its theoretical landscape is still limited, and there is a scarcity of studies that delve into the intricacies of AI adoption within the transportation sector. A notable exception is the study on AI-enhanced medical drones in Ghana's healthcare supply chain (Damoah et al., 2021). While this study shed light on the applications of AI in a specific industry, it did not directly address the transportation sector, leaving a critical gap in our understanding of how AI adoption influences international expansion activities, particularly in the dynamic context of emerging markets.

A key driving force behind the utilization of AI for business expansion is the unprecedented availability of data. Big data, characterized by its large volume, variety, velocity, variability, veracity, and value, has attracted considerable attention in the realm of AI applications (Ebner et al., 2014; Khan et al., 2018; McAfee et al., 2012). The digital era has facilitated the accumulation of vast datasets, and AI techniques, particularly machine learning, leverage this wealth of information. Within the transportation sector, AI adoption presents significant benefits, as noted by Tizghadam et al. (2019), who view roads not only as highways for vehicles but also as information highways. The applications of AI in the transportation industry encompass various domains, including ride-hailing, logistics, freight forwarding, and fleet management. In the context of international business, AI contributes to optimizing supply chain logistics, enhancing route planning, and improving overall operational efficiency (Iyer, 2021). Additionally, the predictive analytics capabilities of AI technologies enable businesses to anticipate market trends, identify growth opportunities, and make strategic decisions to navigate the complexities of cross-border trade (Gangwani & Gangwani, 2021; Herath & Mittal, 2022). Despite the large body of work on AI in various business domains and even across transport services provision and design, noticeable gaps exist concerning its specific application in the context of international business within the transportation sector in Africa.

Previous studies in the realm of AI in transportation business have primarily focused on AI applications in transport engineering,

smart home design, or general reviews. For instance, Gangwani and Gangwani (2021) conducted a comprehensive review of machine learning and AI applications in intelligent transportation systems, emphasizing a growing interest in AI for transport service design. Similarly, Gomes Correia et al. (2013) provided an overview of AI applications in transportation geotechnics, highlighting new approaches and current research directions, particularly in data mining interpretability and prediction capacities. Iyer (2021) expanded on AI applications in the transportation sector for building a sustainable society, compiling various examples across cities and corporations. Besides these reviews, Herath and Mittal (2022) delved into the adoption of AI in smart cities, shedding light on its implications for enhancing users' engagement with digital technologies. Kim et al. (2023) brought attention to the impact of AI and smart apps on the utilization of public transport by tourists, uncovering insights into how travelers interact with digital technology and leave digital footprints that can be harnessed for transport analytics. Similarly, Ushakov et al. (2022) provided valuable insights into the role of AI in the development of public transportation systems.

In light of the research gap identified previously, this study aims to provide a comprehensive understanding of how organizations navigate environmental challenges to adopt AI into their international expansion activities, with a specific focus on the transportation sector in emerging markets, particularly in Africa. By addressing this gap, the study seeks to unravel the intricacies of AI adoption within the transportation industry and its implications for international expansion. Through an in-depth exploration of industry-specific experiences, the research aims to contribute valuable insights that can inform both academic discourse and practical strategies for organizations looking to leverage AI technologies in the dynamic landscape of emerging markets.

2.2 | Unlocking the potential of AI amid institutional void for internationalization

The African landscape of internationalization is distinctly shaped by institutional voids, recognized for their profound impact on business practices across the continent. These voids are characterized by regulatory gaps and limited formal structures, presenting formidable challenges for organizations aspiring to expand globally. Pindado et al. (2023) delved into this complex terrain, investigating how institutional voids—specifically, corruption and regulations that are not market friendly—in the home country impact the internationalization efforts of early-stage entrepreneurs in Africa. The findings of Pindado et al. revealed that entrepreneurs strategically utilize networking bricolage to internationalize ventures, adeptly navigating contextual limitations. This resonates with Khayesi et al.'s (2017) insight into Africa's distinctive institutional voids, acknowledging their dual role as potential constraints or facilitators of internationalization. Additionally, Adomako et al. (2019) underscored the pivotal role of institutional voids in Africa as enablers of new venture internationalization.

While prevailing discourse often emphasizes concerns about institutional voids, particularly from a challenging perspective (Gao et al., 2017; Hajer, 2003; Stephan et al., 2015), Balakrishnan et al. (2021) offered a unique perspective by exploring the dynamics of consumer interactions with chatbots in Africa's emerging markets. They shed light on the challenges arising from limited data access, a theme echoed by Oubibi et al. (2022) in their research conducted in other African regions, such as Morocco in North Africa. These findings underscore a broader regional pattern of grappling with data-related challenges that extend beyond the business sector, often overlooking the transformative potential of digital technologies, especially AI. In the context of emerging markets, including Africa, there is a critical need to understand how organizations navigate environmental challenges, especially institutional voids, as they embark on the adoption of AI for international expansion.

Recognizing some positive strides, Abdulquadri et al. (2021) highlighted how banks developed AI-driven chatbots to meet growing consumer demands. Mogaji and Nguyen (2022) delved into the perspectives of managers in Nigeria who engaged with AI in their business operations. The acknowledgement of institutional voids in Africa aligns seamlessly with the research objective of understanding how organizations navigate environmental challenges during the adoption of AI for international expansion. Contrary to the common perception that limited regulatory requirements may serve as excuses, the literature suggests that a more profound exploration is essential to unveil the transformative power of digital technologies amidst the inherent challenges posed by institutional voids in Africa (Adomako et al. 2019; Khayesi et al., 2017).

The existing body of literature highlights a research gap in the understanding of how organizations strategically deploy AI to overcome institutional voids and regulatory challenges during international expansion in emerging markets. This evolving narrative offers a distinctive window of opportunity for international business, with the transportation sector assuming a pivotal role in fostering connectivity (Mogaji & Nguyen, 2021, 2022; Uzundu & Etika, 2022). Beyond physical linkages, transportation becomes an integral conduit for data exchange, manifesting as a critical component in the modern international business ecosystem (Uzundu, 2022). While there are multifaceted challenges associated with conducting business in Africa, further complicated by the intricate data access landscape predominantly managed by informal traders and service providers (Abdulquadri et al., 2021; Soetan et al., 2021), it is imperative to recognize the huge potential of AI and digital transformation in addressing institutional voids. Moreover, evidence suggests that AI is effective in dealing with these challenges (Amankwah-Amoah & Lu, 2022; Dwivedi et al., 2021; Olan et al., 2022). Consequently, the current study endeavors to address a conspicuous gap in our understanding of how organizations navigate the environmental challenges to adopt AI into their international expansion activities (Barnard, 2020; Mol et al., 2017; Nachum et al., 2023) and provide a better understanding of the inherent challenges, by scrutinizing the potential of AI to augment international business (Amankwah-Amoah & Lu, 2022; Arakpogun et al., 2021), especially, to transport business across Africa.

2.3 | AI-driven formalization of emerging market trade

As iterated in the previous section, the recognition of institutional voids has been particularly evident in studies highlighting the thriving nature of informal business operations, showcasing the resilience and adaptability of businesses in navigating regulatory gaps (Stekelorum et al., 2020; Zahoor et al., 2023). The informal economy, constituting a substantial portion of businesses in Africa, has been a focal point in academic research, highlighting the unique characteristics that set it apart from formal economies. In this context, a growing body of literature is filling the gap in understanding the dynamics of the informal economy, which is distinctive and pervasive in Africa. Nachum et al. (2023) brought attention to opportunities for advancing theory in international business, particularly concerning people, institutions, and the nation-state within the informal economy in Africa. Building on this, Boafo et al. (2022) conducted a study on smaller informal firms in Ghana, emphasizing the significant contribution of these informal firms to the national income. They highlighted the potential for internationalization among these informal firms, contingent upon intermittent institutional support provided to enterprise clusters. Additionally, Boafo et al. (2023) extended their exploration by delving into interfirm coordination and local economic dynamics within the informal economy. Drawing evidence from 125 randomly selected informal enterprises, their research provided insights into the prospects of geographic colocation and the entrepreneurial internationalization process.

Despite the prevailing dominance of informal business operations in the African economy, a significant shift is underway, marked by a growing number of startups in Africa strategically harnessing technology. This transformative trend aims to explore the vast opportunities available for reshaping the economic narrative across the continent. In the realm of international business, Africa is experiencing substantial activity within the financial services sector. This is evident in the cross-border ventures undertaken by prominent banks such as GTB, UBA, and Access Bank (Boso et al., 2019). Moreover, FinTech entities are adopting a robust internationalization approach, as exemplified by companies like Flutterwave, transcending national borders by extending their operations from Nigeria to Kenya (Genga, 2022). Similarly, telecom giants such as MTN from South Africa and Econet Wireless of Zimbabwe to Nigeria are making significant strides in international markets across Africa (Hoff, 2006; Madichie et al., 2017; Sutherland, 2015). These instances vividly highlight the vast and promising opportunities associated with the internationalization of formal firms. The demonstrated success of these companies showcases the potential for formal enterprises to thrive beyond national borders, indicating a growing trend of businesses leveraging global markets and cross-border operations.

However, the overwhelming emphasis on the informal market has cast a shadow over the potential of businesses operating within the formal economy. While informal firms undeniably constitute a substantial majority, accounting for approximately 80% of businesses in sub-Saharan Africa (Boafo et al., 2023), it is imperative to redirect

attention to the formal economy and explore its prospects for internationalization. This shift in focus becomes particularly crucial considering the increasing reliance on technology by tech startups and businesses in the formal sector, presenting a burgeoning potential for these enterprises to wield influence in shaping trade dynamics.

The oversight of the formal economy gains heightened significance in the context of Intra Africa internationalization (Owusu-Yirenykyi et al., 2023). This setting offers a ripe opportunity to delve into and recognize the potential for formal African-to-African trade. A pivotal catalyst in driving this transformative change is the shifting consumer behavior, spurred by a burgeoning and dynamic young population eager to engage with novel economic landscapes (Abdulquadri et al., 2021; Balakrishnan et al., 2021). This demographic shift, coupled with influential initiatives like visa-free entry agreements among African nations (Vhumbunu & Rudigi, 2020) and the establishment of the Africa Free Trade Zone (Babić, 2020; Muresan, 2023), firmly establishes Africa as an emerging focal point of global interest (Mogaji et al., 2023).

In alignment with the overarching research goal of comprehending how organizations navigate the challenges posed by their environment to incorporate AI into international expansion efforts within emerging markets, it is crucial to explore how AI-driven initiatives can play a pivotal role in formalizing trade activities (Barnard, 2020; Mol et al., 2017; Nachum et al., 2023). A profound exploration into how AI technologies, particularly within the transportation sector, can act as catalysts for fostering transparency, efficiency, and compliance in trade practices is essential (Amankwah-Amoah & Lu, 2022; Arakpogun et al., 2021). This investigative approach aims to provide actionable insights especially relevant for organizations navigating the intricate landscape of environmental challenges in emerging markets. As an extension of the existing literature on international business in Africa (Amankwah-Amoah & Lu, 2022; Boafo et al., 2022; Boso et al., 2019), this study aims to offer a comprehensive understanding of how organizations, with a specific focus on the transportation sector, strategically leverage AI to contribute to the formalization of trade activities within emerging markets. Recognizing and addressing the identified gap in the current body of knowledge, the study endeavors to uncover the transformative potential embedded in AI applications, shedding light on how these technologies can actively promote transparency, enhance efficiency, and ensure compliance in the intricate web of trade practices. Through a meticulous and detailed investigation, the study seeks to not only contribute to academic scholarship but also furnish practical insights that can guide organizations in strategically adopting AI technologies for their international expansion efforts in the dynamic and ever-evolving landscape of emerging markets.

2.4 | The TOE framework

In the realm of technology adoption for business expansion, the process involves taking strategic decisions regarding the integration of innovative technologies to enhance operational efficiency,

competitive advantage, and market reach (Park et al., 2023; You et al., 2019). Organizations continually grapple with the challenge of selecting and implementing technologies that align with their business objectives and environmental conditions (Abdulquadri et al., 2021; Danquah & Amankwah-Amoah, 2017). Understanding this intricate process necessitates a comprehensive theoretical framework that addresses the multifaceted dimensions influencing technology adoption and its subsequent impact on organizational dynamics and environmental factors (Sattarapu et al., 2023).

The TOE framework emerges as a prominent theoretical model designed to illuminate the intricate interplay between technology, organizational structures, and the external environment in the context of business expansion. Originally proposed by Tornatzky and Fleischer in the 1990s, the TOE framework seeks to explain the mechanisms underlying technology adoption decisions within an organization (Tornatzky & Fleischer, 1990). This framework recognizes technology as a pivotal catalyst for organizational change and growth, with its impact reverberating across the organizational landscape and interacting with the broader business environment. In contrast to widely recognized frameworks such as Technology Adoption Model, the TOE framework may not enjoy the same level of popularity, often being invoked primarily when researchers aim to elucidate the adoption of innovative technologies like AI (Baabdullah et al., 2021; Bhattacharyya & Shah, 2022). Nevertheless, the TOE framework presents a versatile approach (Baabdullah et al., 2021), demonstrating its utility in demystifying decisions related to the adoption of innovations, especially in emerging markets. These applications extend beyond cutting-edge technologies like AI and encompass diverse areas such as process innovations involving big-data analytics or enhancements in mining operations (Bhattacharyya & Shah, 2022; Sun et al., 2020).

Given the objectives of this study, we leveraged the TOE framework as a robust model to examine the factors influencing the adoption of AI for international transport businesses in Africa, drawing insights from its foundational pillars—technology, organization, and environment. In the context of technology, the framework scrutinizes the attributes, functionalities, and implications of the adopted technology (Baabdullah et al., 2021; Bhattacharyya & Shah, 2022; Sun et al., 2020). The organizational dimension delves into the internal structures, processes, and capabilities that mediate the assimilation of technology, encompassing aspects such as leadership, organizational culture, and resource availability. Simultaneously, the environmental dimension encompasses the external factors that exert influence, including regulatory frameworks, market conditions, and broader socio-economic trends (Baabdullah et al., 2021).

The TOE framework has been widely employed across various industries and contexts to analyze technology adoption and its implications. In the field of information technology, for instance, studies have utilized the framework to understand how organizations embrace innovations such as enterprise resource planning systems, customer relationship management systems, and e-commerce platforms. Researchers have observed the framework to be valuable in unraveling the complex decision-making processes and contextual factors that shape technology adoption strategies. Specifically, this

framework aligns with our focus on emerging countries in Africa as they face challenges from their macro-environment that are significantly different from those faced by firms competing in already developed economies (Abdulquadri et al., 2021; Danquah & Amankwah-Amoah, 2017; Mogaji, 2021). Indeed, the former group must endure significant barriers that stem from the technological environment they exist within, which again are dissimilar to the barriers companies from the Global North must deal with (Abdulquadri et al., 2021).

In the present study, the TOE framework serves as a conceptual lens to delve into the adoption of AI in the African transportation sector for international business expansion. The technology dimension of TOE aids in understanding the intricate applications and implications of AI within the context of transport tech companies. The organizational dimension illuminates the internal dynamics, managerial considerations, and organizational readiness influencing the adoption of AI technologies. Lastly, the environmental dimension sheds light on the unique challenges and opportunities inherent in the African business context, offering insights into the broader socio-economic and regulatory landscape shaping technology adoption decisions. By applying the TOE framework to the specific context of AI adoption in African transportation, this study aims to contribute nuanced insights into the strategic choices and considerations that underpin the international expansion of transport tech companies. Through the amalgamation of technological, organizational, and environmental perspectives, the TOE framework provides a comprehensive analytical tool to unravel the complexities surrounding the adoption of AI for business expansion within the African transportation sector.

3 | METHODOLOGY

3.1 | Qualitative method

This study employed an interpretative phenomenological methodology (Braun & Clarke, 2022; Creswell & Creswell, 2018) to shed light on how new ventures navigate environmental challenges in integrating AI for international expansion within the transportation sector in the African economic region. Aligned with the Africa-to-Africa Internationalization agenda (Owusu-Yirenkyi et al., 2023), our study recognizes the African economic region as an emerging market due to its diverse landscapes, cultures, and untapped opportunities. Evolving consumer behavior, progressive government policies, and the rise of AI promise seamless travel experiences within Africa. However, challenges such as inconsistent road quality and regulatory complexities hinder transport operators, impacting operational costs and supply chain efficiency. As Africa aims for increased travel and trade, strategic AI integration in transportation is essential for optimizing experiences and catalyzing economic growth. Initiatives such as the Africa Free Trade Agreement contribute to economic integration, creating a transformative landscape with enhanced connectivity and increased opportunities for international trade in Africa.

The choice of qualitative research for this investigation is driven by several key reasons. First, recommended by Mogaji and Nguyen

(2022), qualitative research is well-suited for exploring complex phenomena like AI adoption in the international transport business. The interpretative phenomenological approach enables a deep exploration of stakeholders' lived experiences, providing valuable insights into perceptions, motivations, and challenges associated with AI integration. Second, qualitative research allows flexibility during data collection, capturing emergent themes in the dynamic technology landscape of African transportation (Creswell & Creswell, 2018; Patton, 2015). It empowers researchers to navigate evolving terrains and uncover subtleties overlooked in more rigid designs (Mogaji et al., 2023; Sattarapu et al., 2023). Lastly, qualitative research is inherently suitable for generating contextually rich and culturally sensitive findings, aligning with the diverse nature of international business in Africa (Kaur et al., 2022; Mogaji et al., 2023; Patton, 2015). The interpretative phenomenological approach facilitates a nuanced understanding of how individuals navigate AI adoption in their cultural and business contexts, contributing to a comprehensive understanding of AI adoption in the international transport business in Africa.

3.2 | Sample and participants

A list of prospective participants including transport tech startup founders was collected from StartupList Africa (<https://startuplist.africa>), providing a comprehensive overview and the names of the top transportation startups in Africa. To compile our sample, we employed a systematic approach. Firstly, we focused on startups categorized under the transport sector on the 'StartupList Africa' website. Subsequently, we verified information from their respective websites to gain a deeper understanding of the nature of their business. Thirdly, we verified that these are startups (ventures) originated and operating in Africa (an emerging market) that provide digital solutions, particularly in the African economic region. Finally, to ensure accuracy and avoid potential misclassification into other industry categories such as fintech or logistics, we confirmed with the founders of the selected startups that their primary operations lay within the transport sector. Founders of these transport startups across Africa were contacted via email, company website, and social media, and 18 founders responded to participate in the interview process. This purposeful sampling aimed to gather insights from key individuals with expertise in the intersection of AI, internationalization, and the transport business in Africa. The participants were chosen based on the following criteria: (a) they were above 18 years of age, (b) they identified as a founder of a TransTech startup, and (c) their TransTech startup was based and operating in Africa. Table 1 presents the demographics information of the participants. The participants included a mix of both male (12) and female (6) founders who hailed from Nigeria, Ghana, Uganda, Kenya, Rwanda, South Africa, and Egypt, reflecting a broad geographical representation. The participants' years of experience as founders ranged from 3 to 9 years, indicating a mix of established and newer businesses.

According to Glikson and Woolley's (2020) classification of AI, the sampled transport startups primarily utilized Virtual and Embedded AI, with no implementation of Robotic AI observed. Businesses

TABLE 1 Demographics information of the participant.

Participant	Founders' details		Transport tech startup details		
	Gender	Years of experience	Country	Type of transport business	Type of AI
P1	Male	5	Nigeria	Ride-Hailing	Virtual AI
P2	Female	8	Ghana	Logistics	Embedded AI
P3	Male	6	Uganda	Bus Services	Embedded AI
P4	Female	4	South Africa	E-Scooter Rentals	Embedded AI
P5	Male	7	Rwanda	Taxi Services	Virtual AI
P6	Male	9	Egypt	Freight Forwarding	Embedded AI
P7	Male	3	Nigeria	Ridesharing	Virtual AI
P8	Female	5	Ghana	Courier Services	Embedded AI
P9	Male	6	Uganda	B2B parcel delivery	Embedded AI
P10	Male	4	Kenya	Shuttle Services	Embedded AI
P11	Male	7	South Africa	Food order and delivery	Virtual AI
P12	Female	9	Nigeria	Motorcycle Taxi	Virtual AI
P13	Male	3	Rwanda	Trucking	Embedded AI
P14	Male	5	Ghana	Motorcycle Taxi	Virtual AI
P15	Male	6	Uganda	Electric mobility manufacturing	Embedded AI
P16	Female	4	Kenya	Courier Services	Embedded AI
P17	Male	8	South Africa	Revenue-based vehicle financing	Embedded AI
P18	Female	5	Nigeria	Travel hub	Embedded AI

employing Virtual AI, such as ride-hailing and taxi services, leverage AI for customer interactions and service management, utilizing AI-powered platforms to streamline bookings, offer real-time updates, and optimize routes, thus improving the overall user experience. Conversely, companies utilizing Embedded AI, like logistics and freight forwarding firms, integrate AI directly into their operations for tasks such as real-time tracking, route optimization, and predictive maintenance. Embedded AI plays a pivotal role in enhancing efficiency and reliability by enabling autonomous decision-making and optimization processes within the company's infrastructure.

3.3 | Data collection

The data collection for this research involved conducting online interviews with participants over Zoom from January to February 2023. The second author, a Nigerian, facilitated the interviews, employing a set of open-ended questions focused on AI, internationalization, and the nuances of the transport business in Africa. All interviews were recorded with explicit permission from the participants, who were assured of the confidentiality of their information. The participants were informed of their right to halt the interview at any point without providing a reason; fortunately, all participants chose to stay engaged throughout the interview process. The interviews, lasting between 38 and 63 min with an average of 49 min, provided comprehensive insights. Data saturation was reached when no new themes were emerging, and the identified themes were consistently

reiterated. Consequently, there was no justifiable reason to seek additional participants. The limited number of TransTech founders further affirmed the adequacy of the participant pool for addressing the research question. The qualitative data gathered through these interviews were recorded, transcribed, and used for subsequent analysis. The choice of online interviews facilitated efficient data collection while maintaining the geographical diversity of the participants.

3.4 | Data analysis

The interview transcripts, serving as the data for analysis, were imported into NVivo, a qualitative data analysis software. Employing thematic analysis following Braun and Clarke's six phases, we specifically emphasized reflexive thematic analysis (Braun & Clarke, 2006, 2022) to systematically explore patterns and themes within the interviews. The analysis started with familiarization and immersion in the data, involving repeated readings of the interview transcripts to comprehend and identify meaning, connections, and emerging themes. Initial codes (case nodes) were generated in NVivo during this phase based on the earlier familiarization. These initial case nodes were then compiled and merged to create child nodes. The child nodes underwent a review and were subsequently grouped and assigned to relevant overarching themes. A further review refined these themes, eliminating dormant ones. Following discussions with the research team, the themes were deemed satisfactory for addressing the research question.

3.5 | Rigor and credibility

Significant measures were implemented to uphold the rigor and credibility of our research. Ethical approval was secured, ensuring strict adherence to ethical standards throughout the study. Participants were volunteers who provided informed consent, and ethical considerations were consistently prioritized (Creswell & Creswell, 2018; Patton, 2015). The recruitment process involved voluntary participation, with a strong emphasis on respecting participants' autonomy, assuring them of the option to withdraw from the interview without explanation, and ensuring confidentiality and anonymity. A member check was conducted by sending the interview transcripts to participants, with no alterations made, ensuring the accuracy of the data (Farinloye et al., 2019; Sattarapu et al., 2023). To maintain the authenticity of the participants' voices, we made a deliberate effort to use their exact words in the final report. Additionally, an external expert in qualitative research reviewed the research instruments, and a series of debriefing meetings were conducted to uphold transparency and credibility throughout the entire research process (Creswell & Creswell, 2018).

4 | FINDINGS

In pursuit of uncovering how new ventures navigate environmental challenges in integrating AI for international expansion, our analysis yielded three key themes aligning with the TOE framework. The founders delved into the unique business structure influencing their internationalization motivations. The delicate balance between possibilities and realities was explored, and insights into navigating opportunities and challenges for AI adoption were presented. This section delves into each theme, offering a firsthand account through verbatim quotes from the founders.

4.1 | Integrating AI as a technological catalyst for international expansion

The founders recognized the potential for international expansion in Africa and the integration of AI. They contemplated strategically adopting AI to improve operations, optimize processes, and gain a competitive edge on the continent. However, they acknowledged challenges in incorporating AI tools, particularly in adapting solutions to diverse technological infrastructures and ensuring compatibility with varying levels of digital readiness across countries.

4.1.1 | AI adoption in the transportation business: Balancing possibilities and realities

The participants showcased a keen awareness of the vast possibilities presented by AI. Drawing on their roles as data-centric individuals, they acknowledged the transformative potential of AI but concurrently emphasized the necessity to manage expectations. All the participants notably highlighted a prevailing gap in the discourse,

indicating that AI discussions have predominantly centered on fintech, urging the transport industry to catch up in the realm of AI-driven business transformation. One participant (P9) stated that

AI is a topic we need to discuss in Africa, while there may be a perception that we are not fully engaged in the game, it's imperative for us to drive this digital transformation. Everyone is aware of its significance, and as a business, we are taking it seriously. We are actively working on streamlining our operations, optimizing our data, and enhancing our talent pool.

The participants stressed the significance of not merely contemplating the use of AI but also clearly defining its applications within the transportation sector. Exemplifying practices from other countries, the participants expressed agreement that these could be effectively implemented but cautioned against overlooking the inherent challenges. The consensus among these founders underscored the importance of local adoption of AI before considering global applications. They emphasized that the effectiveness of AI implementation hinges on a genuine motivation to embrace this transformative technology.

4.1.2 | Data extrapolation and collation

The challenge of developing initiatives to extrapolate and collate data from different countries within Africa was a major hurdle identified for AI integration for the internal transport business. Many of the founder ($n = 16$) acknowledged that data is crucial for enhancing machine learning and AI applications, and while there is a push to collaborate with the African Continental Free Trade Area (AfCFTA), these founders noted that any AI-Enterprise should be privately driven. One participant (P18)—who is a founder from Nigeria working on creating a travel hub where passengers can book hotels, rent cars, and book connecting aeroplane tickets—shared her frustration, noting that:

We're hitting a big roadblock with AI in our internal transport business even within Nigeria and this is one reason why we are not even motivated enough to move to other countries. The real headache is trying to get data from all these different partners. You know, it's like gathering puzzle pieces from every corner.

She later expanded on her thought, saying that there is a conscious drive for open access, underlining the delicate balance between collaborative efforts and private sector autonomy. Another participant (P6), a founder from Egypt, seemed to collaborate with the Nigerian travel hub founder's idea, stating that:

We need that data to turbocharge our machine learning and AI. We're talking about making our operations smarter and more efficient. Now, everyone's talking about teaming up with AfCFTA, and sure, collaboration

is good. But here's the real talk: we think the push for this should come from us, the private tech startups and not the government.

4.1.3 | Data challenges

The participants ($n = 15$) expressed apprehension regarding the quantity and quality of data available for developing algorithms. With the predominant presence of informal operators in the African transport services landscape, collecting data posed a significant challenge. The founders recognized the need to address these disparate data sets, emphasizing the importance of tailored solutions for the unique characteristics of the African context. One of the founders from Ghana (P8) said:

The struggle we face in the transportation sector is the scarcity of meaningful data. We find ourselves navigating through many informal operators, and collecting sufficient data to develop robust algorithms is like trying to catch a mirage. These informal guys own the ecosystem, we are simply coming in to change things but it's not very easy.

Another founder from South Africa (P4) reiterated her concerns as well, especially around the concerns for quality data, saying,

It's not just about having enough data; it's about having the good stuff. We're basically building everything from scratch, trying to set up data points that'll power our AI dreams. It's no joke and realizing how much groundwork we need to cover is like a reality check. We're in dire need of solutions customized for us because, let's face it, Africa's got its own way of doing things. The lack of standardized data is a real pain, throwing a massive wrench into our plans for AI magic and going global.

4.2 | Organizational capabilities in the face of globalization and AI integration

Even though these founders were conversant with technology, they reflected on internal capabilities to embark on international expansion. This included assessing the skill sets within the organization, the adaptability of existing processes to international contexts, and the capacity to manage the complexities associated with cross-border operations.

4.2.1 | Human resources

From an organizational perspective, most founders ($n = 17$) shared that their concerns revolved around the availability of human resources to drive AI initiatives in Africa. Despite being startup

founders, the participants revealed they had limited resources and indicated a desire for additional support. However, they noted a prevailing trend where potential employees are more inclined to work with or in fintech, posing a challenge in attracting skilled professionals for AI development within the transportation sector. One founder (P6) shared her concern, saying,

In the dynamic landscape of transportation, the hunger for AI-driven solutions is palpable. However, our excitement is often cut short by the stark reality of limited human resources. As startup founders navigating the complexities of our industry, we're not just competing with other players; we're also grappling with the industry-wide trend where top-tier developers and coders are moving towards fintech. Everyone wants to be a fintech founder.

Another founder (P5) talked about his struggle in competing with their European counterparts:

Securing skilled professionals for AI development within transportation is like chasing a moving target. These guys don't really want to stay and work. They are hot cake and moving to Europe, earning in hard currencies. It's a resource struggle that adds an extra layer of complexity to our journey of technological integration and innovation.

4.2.2 | Collaboration vs. individual development

The question of collaboration emerged as a central theme for the founders ($n = 12$). While the idea of working together was recognized as potentially easier, it was also deemed impractical in certain scenarios. The alternative approach involves individual companies taking the lead in developing their services to attract prospective commuters across Africa. The dichotomy between collective collaboration and individual autonomy poses a strategic dilemma for transport operators. Founders were questioning if their organizations were ready to drive the initiative, invite others, or leave it to another TransTech company entirely to drive the initiative. One founder (P13) from Rwanda said:

You need to remember the size of our operations in the grand scheme of things, we are small compared to those guys in Nigeria, we would not be driving this initiative for data collection. We will not make the move but would be willing to work with other companies.

4.2.3 | Marketing and stakeholder engagement

Beyond the technical challenges, especially their human resources challenges, 15 participants acknowledged the importance of marketing their innovative solutions. These founders noted that effectively

communicating the available services to commuters, working collaboratively with key stakeholders, and ensuring people can benefit from these advancements are pivotal aspects of the strategic roadmap. The emphasis here is on creating awareness, fostering engagement, and ensuring that the end-users are well-informed about the digital innovations designed to enhance their travel experiences. One founder (P10) reiterated this point, noting that

It's a good idea to be able to plan your journey across Africa from a single portal and having a personalised itinerary but who would market this idea, like I said about the collaboration, we might need to have a single company that would manage the initiative and then ask different partners to provide information and data to the dashboard.

While the changing behavior of consumers provides a compelling impetus for AI strategies in transportation, the journey is riddled with challenges. From data extrapolation to funding, regulatory considerations, and the strategic choice between collaboration and individual development, transport operators are navigating a complex landscape. The success of these endeavors hinges on finding a delicate balance between collaborative initiatives, private sector autonomy, and effective stakeholder engagement.

4.3 | Strategising international expansion amidst environmental challenges

In understanding how these founders navigate environmental challenges in integrating AI for international expansion, the environmental context of Africa was discussed. Managers reflected on the individual countries they planned to expand into and the inherent challenges associated with each of them. Africa, as a diverse continent, presents varying regulatory landscapes, cultural nuances, and infrastructural differences.

4.3.1 | Understanding the unique business structure in transportation for internationalization

In the exploration of navigating environmental challenges within the unique business landscape of the transportation sector in Africa, founders underscored the importance of managing their expectations. This imperative arises due to the apparent and inherent political and structural challenges entwined with conducting business across the diverse and vast continent of Africa. Despite the substantial opportunity presented by the trade zone, practicalities cast doubt on the feasibility of seamless international business operations. One founder from South Africa (P11) said:

It is good we are talking about AI; it is very important, but you need to be aware of the pressing issue which is about navigating the political and structural

challenges in Africa which demands a constant balancing act. The vastness and diversity of the continent introduce complexities that can't be underestimated even when we are thinking of AI.

Another founder (P16) shared her concern about the prospects of the trade zone, which could justify the need for AI integration across Africa. She noted that:

The [African Continental Free Trade Area (AfCFTA)] Trade Zone is an exciting prospect, no doubt, especially as it can motivate people to travel more across Africa and this will provide more data for AI. However, let's not get carried away. The practicalities of seamless international business operations are a whole different ball game. You began to doubt the practicality when you look into the details and see how it's very difficult to implement.

Founders acknowledged that operations persist in silos, driven by a limited desire to transcend borders. This phenomenon is grounded in the reality that significant untapped markets persist within individual countries, leading to a subdued motivation to expand operations beyond national boundaries. Reflecting on their motivation for staying in Uganda, one founder (P3) said:

Transcending borders and moving to another country is not our default mode here. Our operations are deeply rooted in individual countries, functioning in silos. It's not just about a lack of desire; it's about recognizing the untapped potential within our own borders that often takes precedence.

Another founder (P2) from Ghana shared their position on not considering AI for international business. He said:

In the transportation sector, our focus is inherently local. We've built our foundations catering to the needs of our communities. Going global is a different game altogether, and it's not something we're rushing into. Our priority is serving our local customers effectively, so we are not even thinking about AI for international business.

Founder of TransTech companies within the transportation sector emphasized local operations, indicating a reluctance to think globally. While consideration for the integration of AI is evident, the consensus leaned towards its application on a local basis. This stance prompts the need to delve into the prospect of leveraging AI for international business while each business unit continues to function predominantly at a local level.

On the local AI application, a motorcycle-hailing app TransTech founder (P12) said,

AI is intriguing, no doubt. We see its potential, especially in enhancing our local operations. The consensus within our company is to harness AI for improving services on a local basis first. It's about making sure we're leveraging technology effectively right where we are before contemplating grand global strategies.

Reflecting on delving into AI for international business, another founder (P1) acknowledged that they were considering it and said:

The prospect of leveraging AI for international business is on our radar, but it's a gradual process. Our business units are accustomed to functioning locally, and any integration of AI for international ventures needs careful consideration. It's about finding the right balance between local excellence and global aspirations.

The central concern revolves around identifying the catalyst that would propel these businesses to initiate the monumental move towards internationalization. Setting out the initiative for such action demands a meticulous understanding of the motivations, challenges, and potential benefits that would incentivize transport businesses to transcend local borders. The findings underscore the complexity of aligning the aspirations of internationalization with the prevailing operational focus on local markets, raising pertinent questions about the viability of seamlessly integrating AI into the broader landscape of international business within the African transportation sector.

4.3.2 | Navigating the institutional voids across Africa

The discussions with founders brought to light a prevalent theme: navigating the institutional voids across Africa. Founders expressed the formidable challenges inherent in conducting business on the continent, pointing to regulatory hurdles, corruption issues, and the general complexities of the business environment. Eight founders shared concerns revolving around the substantial obstacles encountered when expanding operations to other countries. Notably, they highlighted instances where government officials posed difficulties during the establishment of businesses in foreign nations. This included seemingly unattainable regulatory requirements, which prompted some founders to resort to finding insiders who could address these concerns more effectively.

Remarkably, the depth of these institutional voids has had tangible consequences, with five of the founders disclosing that they altered their initial plans due to the challenges faced. One of the founders [P10] shared his frustration:

We thought our technology and AI integration were meant to streamline entry into new markets, but the harsh reality of regulatory challenges in [an African

country] left us disappointed. The hurdles we faced were unexpected and frustrating, leading us to reassess our business plans.

This candid revelation underscores the significant impact that regulatory challenges and institutional voids can have on the decision-making processes of businesses operating or planning to expand in Africa. The need for effective strategies to navigate these hurdles and foster a more conducive business environment is evident, as these discussions shed light on the complex dynamics businesses encounter when dealing with institutional voids across the continent.

4.3.3 | Consumer behavior and AI strategies in transportation

Despite the challenges faced in navigating institutional voids, founders expressed unwavering optimism regarding the readiness of Africans for AI integration across the continent. A consensus emerged with the participants as 14 founders acknowledged the shifting behaviors of consumers as a compelling justification for transport operators to bolster their AI strategies. The founders recognized the increasing willingness of consumers to share data and explore the continent. Paired with supportive government policies, this dynamic presents a compelling need to introduce digital innovations that streamline the travel experience across Africa. The founder of a travel hub in Nigeria (P18) stated that:

We see a remarkable willingness among Africans to travel and explore diverse places. We believe that integrating AI-supported innovations into our services will not only benefit these adventurous consumers but also play a crucial role in planning and optimizing their journeys, ensuring a seamless and enhanced travel experience across the continent.

Five of the 18 start-up founders said that they had expanded internationally, embraced AI, and recognized its manifold benefits, expressing a willingness to further capitalize on these advantages as the business environment improves. The founders elucidated how they leveraged AI algorithms to analyze historical traffic data, weather conditions, and road infrastructure for optimized route planning, leading to more efficient and timely deliveries. They acknowledged the role of AI-powered predictive maintenance systems in real-time vehicle health monitoring, reducing downtime by predicting maintenance needs through sensor data analysis and historical records. This proactive approach enhances fleet efficiency.

One founder (P16) shared their experience: 'We use AI to optimize fleet management by considering factors such as vehicle health, driver behavior, and fuel efficiency. This leads to better resource allocation, reduced fuel consumption, and improved overall fleet performance.' Another founder (P9) also noted how they use AI to complement their customs and regulatory compliance in another

country that they operate and said, 'AI is being used to streamline the complex process of customs and regulatory compliance, our automated systems stay up to date with changing regulations, ensuring that shipments adhere to all necessary requirements, reducing delays and avoiding penalties.'

Furthermore, the founders emphasized AI's potential in demand forecasting, customer service enhancement through chatbots and virtual assistants, and data security in international transport. AI algorithms analyze historical data and market trends for accurate demand predictions, while chatbots provide real-time updates and address customer queries. Additionally, AI plays a crucial role in securing international transport data, detecting anomalies, protecting against cybersecurity threats, and preventing fraudulent activities, thereby safeguarding sensitive information. The consensus among these founders underscores the promising prospects of AI across various facets of their international business operations.

In summary, the study comprehensively examined how new ventures navigate the integration of AI for international expansion by scrutinizing the technological adoption, internal organizational capabilities, and the unique environmental challenges within the African context. This tripartite approach provides a holistic understanding of the intricate dynamics involved in leveraging AI for successful internationalization in a diverse and complex business landscape.

5 | DISCUSSION

This study deviates from the broader approach of previous research, which typically offered a general perspective on internationalization in Africa (Adomako et al., 2021; Nachum et al., 2023; Owusu-Yirenkyi et al., 2023). Instead, it meticulously concentrates on a specific industry within the continent—the transportation sector. By narrowing the focus, the research provides a nuanced understanding of the challenges and opportunities unique to this industry, contributing depth and specificity to the existing body of knowledge on international business in Africa (Mogaji, 2022; Mogaji & Nguyen, 2023). This targeted approach allows for a more detailed examination of the intricate dynamics at play within the transportation sector, offering insights that may be overlooked in studies with a broader scope.

Furthermore, the study sheds light on the concept of institutional voids as an opportunity for AI-entrepreneurship (Chalmers et al., 2021). While previous research may have touched upon institutional challenges in African business environments (Amankwah-Amoah & Lu, 2022; Asongu & Odhiambo, 2020), this study uniquely positions these voids as potential opportunities for entrepreneurship, specifically in the realm of AI. By framing institutional voids not merely as obstacles but as spaces where innovative AI-driven solutions can thrive, the research introduces a novel perspective. This highlights the adaptability and entrepreneurial spirit of individuals and organizations in navigating and leveraging institutional challenges, contributing a fresh angle to the understanding of AI adoption in the African context.

Our study delves into the intricacies of international expansion, specifically focusing on the decision-making process of where to

expand. Through insights from engaged founders, examples such as contemplating expansion from Nigeria to Ghana as a neighboring country or exploring Rwanda as a more TransTech-conducive destination and considering Botswana for its apparent need for transportation services, strategic choices in international business growth are illuminated. This exploration contributes to theoretical frameworks by highlighting the significance of assessing not only geographical proximity but also the technological landscape and market demand in potential expansion destinations. In alignment with the TOE framework, our study significantly enriches the theoretical understanding of strategic choices in the international expansion of businesses across diverse sectors, providing valuable implications for organizations in various industries and countries grappling with decisions related to international expansion strategies in diverse economic and regulatory landscapes.

The study emphasizes transportation as a formal sector of the economy, a fact that might not have received extensive attention in previous internationalization studies which, as often, focused on the informal economy in Africa (Boafo et al., 2023; Zahoor et al., 2023). By categorizing transportation as a formal economic sector, the research underscores its significance in the overall economic landscape. This approach challenges any preconceived notions that might relegate transportation to a peripheral role in economic discussions. Instead, it recognizes the sector's formal standing, reinforcing the idea that developments, challenges, and innovations within transportation carry substantial weight in shaping the broader economic landscape of African nations.

5.1 | Theoretical contribution

This study in transportation unveils three critical theoretical contributions, shedding light on the distinctive nuances that delineate international business dynamics. These theoretical insights offer a deeper understanding of the complexities inherent in expanding transport services across borders.

First, the research contributes to the understanding of how new ventures in emerging markets, specifically in Africa, navigate environmental challenges when integrating AI for international expansion. As existing literature predominantly focuses on developed countries (Di Vaio et al., 2020; Wei & Pardo, 2022), our study contributes to theoretical insights in the African context of international business, aligning with the increasing interest in African business expansion (Amankwah-Amoah & Lu, 2022; Mogaji et al., 2023). This study fills the gap by exploring the unique challenges and opportunities faced by new ventures in the African context, thereby contributing to the development of cutting-edge and generalisable theories in the field (Mol et al., 2017; Nachum et al., 2023). Our contribution aims to expand theoretical frameworks within international business, recognizing the importance of incorporating Africa's multifaceted business activities into the global scholarly discourse (Nachum et al., 2023). The theoretical contribution lies in shedding light on the interplay between technological innovation, institutional dynamics, and market peculiarities in the integration of AI in emerging economies. The study

responds to the call for more research on Africa-to-Africa Internationalization (Owusu-Yirenkyi et al., 2023) by investigating how technological innovation, particularly through AI, influences the expansion strategies of new ventures in the African context. It addresses the scarcity of comprehensive studies in formal sectors within Africa (Kamoche & Wood, 2023), offering insights into the role of technology-driven ventures in shaping the continent's global business presence (Farinloye et al., 2024; Owusu-Yirenkyi et al., 2023).

Second, the research builds upon the existing body of knowledge related to institutional voids in Africa (Chipp et al., 2019; Franczak et al., 2023; Murithi et al., 2020). It takes a novel perspective by reframing these voids as opportunities for innovations, technology adoption, and the proliferation of automated services facilitated by AI. By doing so, the study contributes to a more nuanced understanding of how new ventures strategically navigate institutional voids to leverage AI for international expansion (Amankwah-Amoah & Lu, 2022; Mogaji et al., 2023). This theoretical contribution extends beyond perceiving institutional voids as barriers and positions them as fertile grounds for innovative responses. As highlighted by Chalmers et al. (2021), the integration of AI technology, along with other digital technologies, is not an isolated occurrence but unfolds within the broader context of interconnected economic and political changes. The insights garnered from interactions with the founders further emphasize a heightened potential for innovative ideas to navigate the institutional void present in Africa.

Third, employing the TOE model as our theoretical framework (Tornatzky & Fleischer, 1990), our research makes a substantial theoretical contribution by delving into the intricate dynamics of AI technology adoption by organizations in Africa amidst the multifaceted challenges posed by the business environment (Arakpogun et al., 2021; Asongu & Odhiambo, 2020). Within the realm of AI-Entrepreneurship scholarship (Chalmers et al., 2021), our study adds specific theoretical insights, elucidating the complex interactions between technological factors, organizational characteristics, and the external environment within emerging markets. The TOE framework proves instrumental in analyzing AI-Entrepreneurship strategies, extending the discourse on AI's application across various business domains and contributing to the growing body of work at the intersection of entrepreneurship and AI (Liebregts et al., 2020; Townsend & Hunt, 2019).

In particular, our research sheds light on the *technological* aspect, revealing that entrepreneurs in Africa increasingly recognize the pivotal role of technology, especially AI, and display a willingness to adopt technology for innovative AI-Entrepreneurship strategies (Chalmers et al., 2021). On the *organizational* front, we explore how entrepreneurs in Africa are developing capabilities, with a focus on understanding the individual-level antecedents that influence their decisions to form new ventures (Kahn & Rouse, 2021) and managing the institutional voids (Adomako et al., 2021; Franczak et al., 2023). Regarding the *environmental* dimension, our findings underscore the cautious approach of entrepreneurs in Africa concerning the spatial and temporal aspects of their AI-Entrepreneurship strategic expansion. This caution is influenced by considerations related to the temporal, regulatory, and technological changes that facilitate their

venture ideas (Davidsson et al., 2020). Although our primary focus is on the transportation sector, our theoretical contribution enhances the evolving landscape of international business theories in the African context. This underscores the necessity for a nuanced theoretical framework that comprehensively addresses the specific challenges and opportunities associated with international business expansion within Africa, taking into account the unique complexities inherent in the business structure, societal needs, and structures specific to the region (Amankwah-Amoah & Lu, 2022; Boso et al., 2019; Mol et al., 2017).

Lastly, the study contributes to strategic pathways in international business expansion, introducing a tripartite framework for global growth.

5.1.1 | Neighboring country

The decision to expand business operations into a neighboring country reflects a strategy deeply rooted in geographical proximity. This approach capitalizes on shared borders, potentially similar cultural contexts, and established regional relationships. The advantage lies in leveraging existing regional networks and logistical efficiencies. However, challenges may arise in navigating distinct regulatory environments and addressing nuanced market preferences that could differ from the home country.

5.1.2 | Business-conducive country

Expanding into a business-conducive country involves a strategic evaluation of the host country's economic and regulatory landscape. Such a decision is driven by the perception that the selected country offers a favorable environment for the specific industry or sector of the expanding business. Factors such as supportive government policies, developed infrastructure, and a tech-savvy consumer base may influence this choice. The goal is to capitalize on an environment that fosters growth and innovation, facilitating a smoother integration of technology-driven solutions.

5.1.3 | Business-Need country

Choosing to expand into a business-need country reflects a strategic alignment with the host country's specific requirements or challenges. This approach considers the unique needs and gaps in the market that the expanding business aims to address. It may involve providing solutions or services that cater to a particular demand or socio-economic context prevalent in the chosen country. This strategy requires a deep understanding of the host country's business landscape, potentially involving collaborations and partnerships to effectively meet identified needs.

Figure 1 depicts a conceptual framework that serves as a visual representation of the key findings and theoretical contributions derived from our study. In alignment with Nachum et al.'s (2023)

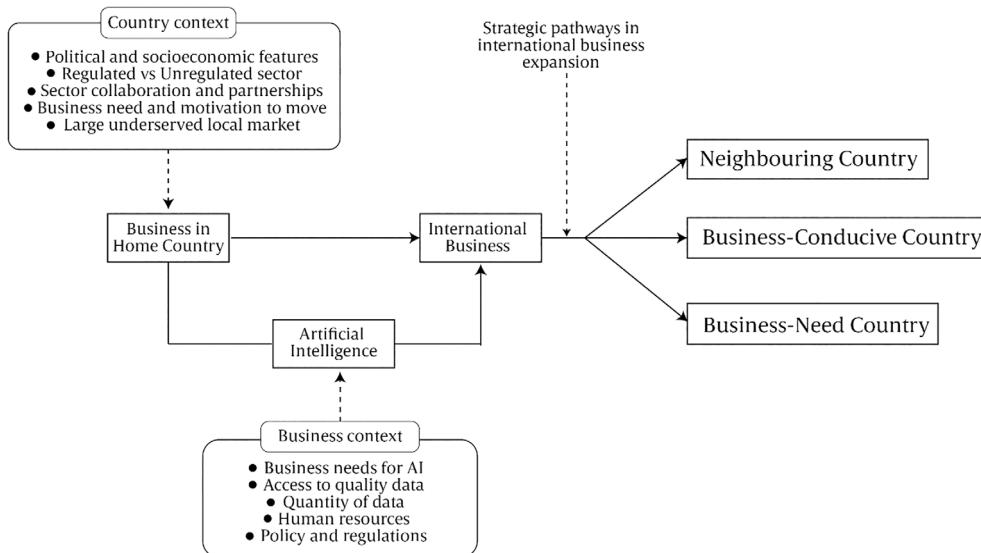


FIGURE 1 Conceptual framework for navigating the vast opportunities of AI and the future of international business.

urging to scrutinize the fundamental assumptions ingrained in international business theories, our framework emphasizes the importance of challenging these assumptions. This emphasis underscores the imperative for international business theories to delve into institutions, location-specific assets, and other macro-level attributes, thereby advocating for a more reflective and nuanced approach.

Our framework posits that the decision-making process in international business involves a meticulous analysis of the challenges inherent in the home country's business environment before venturing into international markets. This process necessitates a thoughtful consideration of various factors, including the country context, political and socio-economic conditions, and the identification of large underserved markets that organizations may need to cater to before expanding into additional markets. Within this contemplative process, the significance of AI is acknowledged. This acknowledgement encompasses an assessment of the business's needs, the quality and quantity of available data, the existing human resources, and the pertinent policies in place.

The study introduces three strategic considerations and a comprehensive framework tailored for organizations contemplating international expansion. This framework delineates the advantages and challenges associated with each strategic approach, taking into account the interplay of internal organizational capabilities and external environmental factors. More importantly, the insights derived from these considerations extend beyond the realm of transportation businesses. They offer a valuable perspective applicable to organizations across diverse sectors and regions, providing guidance for navigating the intricate landscape of international business expansion.

5.2 | Managerial implications

The study's findings highlight a critical imperative for key stakeholders within the transportation sector to not only recognize but also capitalize on emerging opportunities. This section provides managerial implications, recommendations, and an action plan for stakeholders on

how to effectively leverage the integration of AI for international business. It aims to offer practical insights and guidance, translating the research findings into actionable strategies that can empower stakeholders to navigate the dynamic landscape of AI-driven international business in the African transportation sector.

5.2.1 | Transport operators

TransTech companies and other transport operators stand at a crucial juncture where strategic implementation of AI technologies is paramount. Prioritizing AI-driven advancements such as route optimisation, predictive maintenance, and real-time tracking can markedly enhance operational efficiency. It is essential for transport operators to recognize that investing in AI is not merely about international business; it is an opportunity to revolutionize the travel experience for consumers. The technology offers personalized experiences, real-time insights, and improved information about journeys. As the integration of AI becomes imperative, transport operators should emphasize training and capacity-building programs for their workforce, ensuring a seamless transition and maximizing the advantages of technology. It is pivotal for transportation businesses to continuously reflect on the option of expansion, recognizing and capitalizing on emerging opportunities to stay competitive and resilient in the evolving landscape. The implementation of measures for future expansion is not just a strategic imperative; it safeguards businesses from being overtaken by more forward-thinking competitors. Strategising on leveraging data to enhance the travel experience, even at the local level, can serve as a foundational step for potential scaling in the future.

5.2.2 | Government authorities

Government authorities play a pivotal role in fostering the seamless integration of AI technologies for international business in Africa's

transportation sector. To facilitate this, proactive policy development is essential, encompassing frameworks for robust data protection and standardized regulatory requirements. By incentivizing the adoption of AI technologies, governments can stimulate overall efficiency in cross-border operations. Collaboration between the public and private sectors is a key element in creating an environment conducive to AI adoption. This collaboration should encourage partnerships that facilitate knowledge transfer, technology deployment, and regulatory compliance, ultimately contributing to the growth of international trade. Leveraging the AfCFTA, the African Union and policymakers can strategically explore this significant opportunity. By allowing commuters to travel freely across the continent, the AfCFTA can catalyze the development of TransTech initiatives. These initiatives would enable commuters to seamlessly book hotels, flights, and insurance, transcending language, currency, and geographical barriers. Such forward-thinking policies can revolutionize the transportation landscape, fostering greater connectivity and efficiency across Africa.

5.2.3 | Business entrepreneurs

Entrepreneurs venturing into or expanding within the African transportation sector can tap into a lucrative business opportunity by strategically incorporating AI into their operations. To ensure long-term success, these entrepreneurs should develop comprehensive strategic plans that integrate AI for market expansion and customer acquisition. Understanding the regulatory landscape and aligning business practices with evolving AI trends are crucial components, requiring a profound understanding of the industry's complexities. Additionally, effective risk management associated with AI adoption is essential, necessitating thorough risk assessments covering data security, regulatory compliance, and adaptability to AI-driven changes.

The study highlights a practical implication for technology providers interested in offering digital platforms as travel hubs for African travelers, akin to established platforms like Orbitz, Kayak, and [Booking.com](https://www.booking.com). Serving as data aggregators, these platforms can consolidate information from various transport service operators, enabling African travelers to efficiently plan their journeys and receive personalized offers. Given the reluctance of transport operators to expand, these aggregator businesses play a crucial role in extrapolating data, marketing services, engaging with customers, and leveraging generative AI to create content that transcends the diverse languages of the continent. The business opportunity lies in providing personalized services for African commuters, enhancing their travel experiences, and contributing to the growth of the transportation industry across the continent.

For technology providers catering to the African transportation sector, tailoring AI solutions to address specific needs and challenges faced by transport operators is imperative. Offering customized solutions that consider regional variations and regulatory requirements will enhance the effectiveness of AI adoption in the transportation sector. Collaborative partnerships with transport operators are crucial

for co-creating and refining AI solutions, fostering ongoing dialogues and feedback loops with end-users to continuously improve offerings and ensure relevance and impact in the evolving landscape of African transportation.

6 | CONCLUSION

The study delved into how new ventures navigate environmental challenges in integrating AI for international expansion, unveiling the transformative potential of AI in Africa's diverse transportation sector. The participants in the study acknowledged that AI adoption in internationalization faces challenges such as data scarcity, human resource constraints, and regulatory obstacles amidst institutional voids. Emphasizing the need to comprehend expectations with AI implementation and adoption, balance possibilities and realities, and foster collaboration, the study sheds light on navigating institutional voids and consumer behavior in Africa's distinct business landscape. Ultimately, the findings offer valuable insights into the complexities faced by and opportunities for new ventures leveraging AI in the internationalization process.

While this study provides valuable insights, it comes with certain limitations that warrant acknowledgement. First, concerns may arise about the generalisability of the findings due to the sample size and participant representation. A more diverse and extensive sample would better capture the heterogeneity of the African transportation landscape. The geographical focus on specific regions in the current study might limit the study's applicability continent-wide, overlooking variations in regulatory environments and economic conditions. Temporal considerations are crucial, given the rapid evolution of technology and business environments; therefore, the study's findings may become outdated with emerging trends. The overemphasis on tech founders' perspectives within transportation may introduce bias, neglecting other crucial stakeholder viewpoints. Future research should address these limitations by conducting larger, more diverse studies; expanding the geographical scope of the research; and involving a broader range of stakeholders. Ongoing research could track AI adoption in the African transportation sector, providing real-time insights into industry dynamics.

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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REFERENCES

- Abdulquadri, A., Mogaji, E., Kieu, T., & Nguyen, P. (2021). Digital transformation in financial services provision: A Nigerian perspective to the adoption of chatbot. *Journal of Enterprising Communities: People and Places in the Global Economy*, 15(2), 258–281.
- Adams, K., Attah-Boakye, R., Yu, H., Chu, I., & Ishaque, M. (2023). Competence and enterprise of management as drivers of early foreign listing of medium-sized emerging market multinationals (EMNEs) from Africa. *Journal of Business Research*, 158, 113660.
- Adomako, S., Amankwah-Amoah, J., Dankwah, G. O., Danso, A., & Donbesuur, F. (2019). Institutional voids, international learning effort and internationalization of emerging market new ventures. *Journal of International Management*, 25(4), 100666.
- Adomako, S., Amankwah-Amoah, J., Debrah, Y., Khan, Z., Chu, I., & Robinson, C. (2021). Institutional voids, economic adversity and inter-firm cooperation in an emerging market: The mediating role of government R&D support. *British Journal of Management*, 1(40–58), 32–58.
- Amankwah-Amoah, J., & Lu, Y. (2022). Harnessing AI for business development: A review of drivers and challenges in Africa. *Production Planning & Control*, 1–10. <https://doi.org/10.1080/09537287.2022.2069049>
- Arakpogun, E., Elshahn, Z., Olan, F., & Elshahn, T. (2021). Artificial intelligence in Africa: Challenges and opportunities. In *The fourth industrial revolution: Implementation of artificial intelligence for growing business success* (pp. 375–388). Springer.
- Asongu, S., & Odhiambo, N. (2020). Challenges of doing business in Africa: A systematic review. In *Contemporary issues and prospects in business development in Africa* (pp. 105–114). Routledge.
- Baabdullah, A., Alalwan, A., Slade, E., Raman, R., & Khatatneh, K. (2021). SMEs and artificial intelligence (AI): Antecedents and consequences of AI-based B2B practices. *Industrial Marketing Management*, 98, 255–270.
- Babić, D. (2020). Challenges and achievements of integration processes in Africa in light of the new continental free trade agreement. *The Review of International Affairs*, 71(1179), 77–92.
- Balakrishnan, J., Nwoba, A., & Nguyen, N. (2021). Emerging-market consumers' interactions with banking chatbots. *Telematics and Informatics*, 65(101), 711.
- Barnard, H. (2020). The Africa we want and the Africa we see: How scholarship from Africa stands to enrich global scholarship. *Africa Journal of Management*, 6(2), 132–143.
- Bhattacharyya, S., & Shah, Y. (2022). Emerging technologies in Indian mining industry: An exploratory empirical investigation regarding the adoption challenges. *Journal of Science and Technology Policy Management*, 13(2), 358–381.
- Boafo, C., Catanzaro, A., & Dornberger, U. (2023). International entrepreneurship in sub-Saharan Africa: Interfirm coordination and local economy dynamics in the informal economy. *Journal of Small Business and Enterprise Development*, 30(3), 587–620.
- Boafo, C., Owusu, R., & Guiderdoni-Jourdain, K. (2022). Understanding internationalisation of informal African firms through a network perspective. *International Small Business Journal*, 40(5), 618–649.
- Boso, N., Adeleye, I., Ibeh, K., & Chizema, A. (2019). The internationalization of African firms: Opportunities, challenges, and risks. *Thunderbird International Business Review*, 61(1), 5–12.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101.
- Braun, V., & Clarke, V. (2022). Conceptual and design thinking for thematic analysis. *Qualitative Psychology*, 9(1), 3–31.
- Cassetta, E., Monarca, U., Dileo, I., Di Berardino, C., & Pini, M. (2020). The relationship between digital technologies and internationalisation. Evidence from Italian SMEs. *Industry and Innovation*, 27(4), 311–339.
- Chalmers, D., MacKenzie, N., & Carter, S. (2021). Artificial intelligence and entrepreneurship: Implications for venture creation in the fourth industrial revolution. *Entrepreneurship Theory and Practice*, 45(5), 1028–1053.
- Chen, L., Jiang, M., Jia, F., & Liu, G. (2022). Artificial intelligence adoption in business-to-business marketing: Toward a conceptual framework. *Journal of Business & Industrial Marketing*, 37(5), 1025–1044.
- Chipp, K., Wocke, A., Strandberg, C., & Chiba, M. (2019). Overcoming African institutional voids: Market entry with networks. *European Business Review*, 31(3), 304–316.
- Creswell, J., & Creswell, D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). Sage.
- Damoah, I., Ayakwah, A., & Tingbani, I. (2021). Artificial intelligence (AI)-enhanced medical drones in the healthcare supply chain (HSC) for sustainability development: A case study. *Journal of Cleaner Production*, 328(129), 598.
- Dana, L., & Ratten, V. (2017). International entrepreneurship in resource-rich landlocked African countries. *Journal of International Entrepreneurship*, 15, 416–435.
- Danquah, M., & Amankwah-Amoah, J. (2017). Assessing the relationships between human capital, innovation and technology adoption: Evidence from sub-Saharan Africa. *Technological Forecasting and Social Change*, 122, 24–33.
- Davidsson, P., Recker, J., & Von Briel, F. (2020). External enablement of new venture creation: A framework. *Academy of Management Perspectives*, 34(3), 311–332.
- Di Vaio, A., Palladino, R., Hassan, R., & Escobar, O. (2020). Artificial intelligence and business models in the sustainable development goals perspective: A systematic literature review. *Journal of Business Research*, 121, 283–314.
- Drydakis, N. (2022). Artificial intelligence and reduced SMEs' business risks. A dynamic capabilities analysis during the COVID-19 pandemic. *Information Systems Frontiers*, 24(4), 1223–1247.
- Dwivedi, Y., Hughes, L., Ismagilova, E., Aarts, G., Coombs, C., Crick, T., Duan, Y., Dwivedi, R., Edwards, J., Eirug, A., Galanos, V., Ilavarasan, P. V., Janssen, M., Jones, P., Kar, A. K., Kizgin, H., Kronemann, B., Lal, B., Lucini, B., ... Williams, M. (2021). Artificial intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy. *International Journal of Information Management*, 57(101), 994.
- Ebner, K., Bühnen, N., & Urbach, N. (2014). Think big with big data: Identifying suitable big data strategies in corporate environments. (pp. 3748–3757). 2014 47th Hawaii international conference on system sciences: IEEE.
- Farinloye, T., Mogaji, E., Aririguzoh, S., & Kieu, T. (2019). Qualitatively exploring the effect of change in the residential environment on travel behaviour. *Travel Behaviour and Society*, 17, 26–35.
- Farinloye, T., Oluwatobi, O., Ugboma, O., Dickson, O. F., Uzundu, C., & Mogaji, E. (2024). Driving the electric vehicle agenda in Nigeria: The challenges, prospects and opportunities. *Transportation Research Part D: Transport and Environment*, 130(104), 182.
- Franczak, J., Lanivich, S., & Adomako, S. (2023). Filling institutional voids: Combinative effects of institutional shortcomings and gender on the alertness–opportunity recognition relationship. *Journal of Business Research*, 155(113), 444.
- Gangwani, D., & Gangwani, P. (2021). Applications of machine learning and artificial intelligence in intelligent transportation system: A review. Applications of artificial intelligence and machine learning. (pp. 203–216). Select proceedings of ICAAAIML 2020.
- Gao, C., Zuzul, T., Jones, G., & Khanna, T. (2017). Overcoming institutional voids: A reputation-based view of long-run survival. *Strategic Management Journal*, 38(11), 2147–2167.

- Genga, B. (2022). Flutterwave is now Africa's most valuable startup. <https://www.aljazeera.com/economy/2022/2/16/flutterwave-is-now-africas-most-valuable-startup>
- Glikson, E., & Woolley, A. (2020). Human trust in artificial intelligence: Review of empirical research. *Academy of Management Annals*, 14(2), 627–660.
- Gomes Correia, A., Cortez, P., Tinoco, J., & Marques, R. (2013). Artificial intelligence applications in transportation geotechnics. *Geotechnical and Geological Engineering*, 31, 861–879.
- Hajer, M. (2003). Policy without polity? Policy analysis and the institutional void. *Policy Sciences*, 36(2), 175–195.
- Herath, H., & Mittal, M. (2022). Adoption of artificial intelligence in smart cities: A comprehensive review. *International Journal of Information Management Data Insights*, 2(1), 100076–100088.
- Hoff, D. (2006). South African cellular wars in Nigeria. *International Journal of Emerging Markets*, 1(1), 84–95.
- Iyer, L. (2021). AI enabled applications towards intelligent transportation. *Transportation Engineering*, 5, 100083.
- Kahn, W., & Rouse, E. (2021). Navigating space for personal agency: Auxiliary routines as adaptations in toxic organizations. *Academy of Management Journal*, 64(5), 1419–1444.
- Kamoche, K., & Wood, G. (2023). International business and Africa: Theoretical and applied challenges, and future directions. *Journal of International Business Studies*, 54(5), 956–967.
- Kaur, J., Mogaji, E., Wadera, D., & Gupta, S. (2022). Sustainable consumption practices in Indian households: A saga of environment management linked to Indian ethos and generational differences. *Society and Business Review*, 17(3), 441–468.
- Khan, N., Alsaqer, M., Shah, H., Badsha, G., Abbasi, A., & Salehian, S. (2018). The 10 Vs, issues and challenges of big data., (pp. 52–56). In: Proceedings of the 2018 international conference on big data and education.
- Khayesi, J. N., Sserwanga, A., & Kiconco, R. (2017). Culture as a facilitator and a barrier to entrepreneurship development in Uganda. In *Entrepreneurship in Africa* (pp. 307–322). Brill: LEIDEN.
- Kim, M., Hall, C., & Chung, N. (2023). The influence of AI and smart apps on tourist public transport use: Applying mixed methods. *Information Technology & Tourism*, 26(1), 1–24.
- Lashitew, A., van Tulder, R., & Muche, L. (2022). Social value creation in institutional voids: A business model perspective. *Business & Society*, 61(8), 1992–2037.
- Liebrechts, W., Darnihamedani, P., Postma, E., & Atzmüller, M. (2020). The promise of social signal processing for research on decision-making in entrepreneurial contexts. *Small business economics*, 55(3), 589–605.
- Loureiro, S., Guerreiro, J., & Tussyadiah, I. (2021). Artificial intelligence in business: State of the art and future research agenda. *Journal of Business Research*, 129, 911–926.
- Madichie, N., Mpofu, K., & Kolo, J. (2017). Entrepreneurship development in Africa: Insights from Nigeria's and Zimbabwe's telecoms. *Entrepreneurship in Africa*, 15, 172–208.
- McAfee, A., Brynjolfsson, T., Davenport, D., Patil, J., & Barton, D. (2012). Big data: The management revolution. *Harvard Business Review*, 90(10), 60–68.
- Mogaji, E. (2021). Africa is not a country: Rebranding and repositioning Africa as a continent. In *Marketing brands in Africa: Perspectives on the evolution of branding in an emerging market* (pp. 237–259). Springer International Publishing.
- Mogaji, E. (2022). Wishful thinking? Addressing the long-term implications of COVID-19 for transport in Nigeria. *Transportation Research Part D: Transport and Environment*, 105, 103206.
- Mogaji, E., & Nguyen, N. (2021). Transportation satisfaction of disabled passengers: Evidence from a developing country. *Transportation Research Part D: Transport and Environment*, 98, 102982.
- Mogaji, E., & Nguyen, N. (2022). Managers' understanding of artificial intelligence in relation to marketing financial services: Insights from a cross-country study. *International Journal of Bank Marketing*, 40(6), 1272–1298.
- Mogaji, E., & Nguyen, N. P. (2023). Exploring interactions between commuters with disabilities and transport service providers. *Journal of Services Marketing*, 37(6), 762–787.
- Mogaji, E., Restuccia, M., Lee, Z., & Nguyen, N. (2023). B2B brand positioning in emerging markets: Exploring positioning signals via websites and managerial tensions in top-performing African B2B service brands. *Industrial Marketing Management*, 108, 237–250.
- Mol, M., Stadler, C., & Ariño, A. (2017). Africa: The new frontier for global strategy scholars. *Global Strategy Journal*, 7(1), 3–9.
- Muresan, A. (2023). BRICS immigration policies and visa regimes, strategic cooperation for a future BRICS African agenda. *Journal of BRICS Studies*, 2(1), 22–33.
- Murithi, W., Vershinina, N., & Rodgers, P. (2020). Where less is more: Institutional voids and business families in sub-Saharan Africa. *International Journal of Entrepreneurial Behavior & Research*, 26(1), 158–174.
- Nachum, L., Stevens, C., Newenham-Kahindi, A., Lundan, S., Rose, E., & Wantchekon, L. (2023). Africa rising: Opportunities for advancing theory on people, institutions, and the nation state in international business. *Journal of International Business Studies*, 54(5), 938–955.
- Olan, F., Arakpogun, E., Suklan, J., Nakpodia, F., Damij, N., & Jayawickrama, U. (2022). Artificial intelligence and knowledge sharing: Contributing factors to organizational performance. *Journal of Business Research*, 145, 605–615.
- Oubibi, M., Zhou, Y., Oubibi, A., Fute, A., & Saleem, A. (2022). The challenges and opportunities for developing the use of data and artificial intelligence (AI) in North Africa: Case of Morocco. In *International conference on digital technologies and applications* (pp. 80–90). Springer.
- Owusu-Yrenkyi, D., Akolgo, P., Naab, G., Donbesuur, F., & Danso, A. (2023). Charity can still begin at home: Examining the drivers and boundary conditions of Africa-to-Africa outward foreign direct investment (OFDI). *Journal of International Management*, 30(1), 101108.
- Pindado, E., Alarcón, S., Sánchez, M., & Martínez, M. G. (2023). International entrepreneurship in Africa: The roles of institutional voids, entrepreneurial networks and gender. *Journal of Business Research*, 166, 114109.
- Park, H., Lee, M., & Back, K. (2023). A critical review of technology-driven service innovation in hospitality and tourism: Current discussions and future research agendas. *International Journal of Contemporary Hospitality Management*, 35(12), 4502–4534.
- Patton, M. (2015). *Qualitative research and evaluating methods: Integrating theory and practice* (4th ed.). Sage.
- Sattarapu, P., Wadera, D., Nguyen, N., Kaur, J., Kaur, S., & Mogaji, E. (2023). Tomeito or Tomahto: Exploring consumer's accent and their engagement with artificially intelligent interactive voice assistants. *Journal of Consumer Behaviour*, 23, 278–298. <https://doi.org/10.1002/cb.2195>
- Shree, D., Singh, R., Paul, J., Hao, A., & Xu, S. (2021). Digital platforms for business-to-business markets: A systematic review and future research agenda. *Journal of Business Research*, 137, 354–365.
- Soetan, T., Mogaji, E., & Nguyen, N. (2021). Financial services experience and consumption in Nigeria. *Journal of Services Marketing*, 35(7), 947–961.
- Stekelorum, R., Laguir, I., & Elbaz, J. (2020). Cooperation with international NGOs and supplier assessment: Investigating the multiple mediating role of CSR activities in SMEs. *Industrial Marketing Management*, 84, 50–62.
- Stephan, U., Uhlaner, L., & Stride, C. (2015). Institutions and social entrepreneurship: The role of institutional voids, institutional support, and institutional configurations. *Journal of International Business Studies*, 46, 308–331.
- Strange, R., & Zucchella, A. (2017). Industry 4.0, global value chains and international business. *Multinational Business Review*, 25(3), 174–184.

- Sun, S., Hall, D., & Cegielski, C. (2020). Organizational intention to adopt big data in the B2B context: An integrated view. *Industrial Marketing Management*, 86, 109–121.
- Sutherland, E. (2015). MTN: A south African mobile telecommunications group in Africa and Asia. *Communication*, 41(4), 471–505.
- Sydow, A., Cannatelli, B., Giudici, A., & Molteni, M. (2022). Entrepreneurial workaround practices in severe institutional voids: Evidence from Kenya. *Entrepreneurship Theory and Practice*, 46(2), 331–367.
- Tizghadam, A., Khazaei, H., Moghaddam, M., & Hassan, Y. (2019). Machine learning in transportation. *Journal of Advanced Transportation*, 2019, 4359785. <https://doi.org/10.1155/2019/4359785>
- Tornatzky, L., & Fleischer, M. (1990). *The process of technology innovation*. Lexington Books.
- Townsend, D. M., & Hunt, R. A. (2019). Entrepreneurial action, creativity, & judgment in the age of artificial intelligence. *Journal of Business Venturing Insights*, 11, e00126.
- Ushakov, D., Dudukalov, E., Shmatko, L., & Shatila, K. (2022). Artificial intelligence as a factor of public transportations system development. *Transportation Research Procedia*, 63, 2401–2408.
- Uzundu, C. (2022). Non-motorized transport and traffic safety in African cities: An introduction. In *Transport and mobility futures in urban Africa* (pp. 237–243). Springer.
- Uzundu, C., & Etika, A. (2022). The future of non-motorised transport in urban Africa. In *Transport and mobility futures in urban Africa* (pp. 297–312). Springer.
- Vhumbunu, C., & Rudigi, J. (2020). Facilitating regional integration through free movement of people in Africa: Progress, challenges and prospects. *Journal of African Union Studies*, 9(2), 43–49.
- Wei, R., & Pardo, C. (2022). Artificial intelligence and SMEs: How can B2B SMEs leverage AI platforms to integrate AI technologies? *Industrial Marketing Management*, 107(466–483), 466–483.
- You, K., Dal Bianco, S., Lin, Z., & Amankwah-Amoah, J. (2019). Bridging technology divide to improve business environment: Insights from African nations. *Journal of Business Research*, 97, 268–280.
- Zahoor, N., Khan, Z., Meyer, M., & Laker, B. (2023). International entrepreneurial behavior of internationalizing African SMEs—towards a new research agenda. *Journal of Business Research*, 154(113), 367.

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