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Beyond market penetration: leveraging brand capital for competitive advantage in digitally driven SMES in resource-constrained settings

Rennie Bakashaba^{1*} and Dedrix Stephenson Bindeebea¹

Abstract

Digital commerce activation (DCA) has enabled SMEs to broaden market reach, yet market penetration (MP) alone often fails to create sustainable competitive advantage (CA). Drawing on the Resource-Based View and Dynamic Capabilities Theory, this study examines how brand capital (BC) mediates the relationship between DCA and CA while assessing MP's parallel role. Survey data were collected from 405 digitally active SMEs in Kampala and Wakiso, Uganda, and analyzed through structural equation modeling. Findings indicate that DCA significantly enhances both BC and MP; however, MP neither directly influences CA nor transmits DCA's effects into CA. In contrast, BC demonstrates a strong positive influence on CA and fully mediates the DCA–CA relationship. These results confirm that BC, encompassing brand awareness, perceived quality, loyalty, and associations, functions as a valuable, rare, inimitable, and non-substitutable (VRIN) resource that converts digital investments into enduring advantage. The study contributes by (1) extending RBV to position BC as the primary intangible conduit for digital strategy, (2) clarifying the micro-foundations of BC formation via dynamic digital routines, and (3) offering context-specific insights for resource-constrained SMEs. Practically, managers should prioritize brand-building routines over reach-seeking, and policymakers should support digital branding initiatives to strengthen SME competitiveness.

Keywords Digital commerce activation, Brand capital, Market penetration, Competitive advantage, SMEs, Resource-constrained environments, Uganda

Introduction

The digital era has radically transformed competitive dynamics for small and medium-sized enterprises (SMEs). Rapid advances in broadband Internet, widespread smartphone adoption, and the proliferation of social media and e-commerce platforms have dramatically lowered entry barriers, enabling even micro-enterprises to reach customers far beyond traditional geographic confines at minimal cost [1–3]. In

resource-constrained environments marked by underdeveloped infrastructure, limited access to finance, and regulatory uncertainty, digital commerce activation (DCA) has become a critical enabler of SME growth and resilience [4–6]. By leveraging e-commerce platforms, social commerce tools, and digital payment systems, SMEs can mitigate the disadvantages of a weak physical presence and engage consumers in real time [7, 8], Q. [9, 10]. Recognizing this potential, international agencies and national policymakers have prioritized SME digitalization as a strategic avenue for job creation, poverty reduction, and broader economic development (ITC, 2022 [11–13]). These points synthesize established knowledge

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about what digitalization enables for SMEs; our study builds on, rather than restates, this base.

Despite this enthusiasm, a persistent paradox has surfaced: many digitally active SMEs succeed in expanding their market penetration (MP) yet fail to secure lasting competitive advantage (CA) [14, 15]. Classical marketing theories assert that a larger customer base drives economies of scale, revenue growth, and market power [16, 17]. However, recent meta-analyses and empirical studies challenge this view, revealing that incremental increases in market share often yield only modest profitability gains in contexts where switching costs are low and digital imitation is rapid [14]. For instance, Edeling and Himme [14] demonstrate that small market share gains can translate into negligible profit increases when competitors replicate digital offerings. Likewise, [18] find that SMEs prioritizing digital expansion without embedding strategic digital capabilities often fail to sustain superior performance. Their findings highlight that digital growth must be supported by digital readiness, internal alignment, and organizational learning. These insights suggest that MP is necessary but insufficient for sustainable CA in digital contexts, where agility, distinctiveness, and integration are key to long-term advantage. In LMIC SME settings, the underexplored question is whether DCA's benefits reach CA mainly via short-term scale (MP) or via harder-to-imitate assets (BC).

The Resource-Based View (RBV) of the firm provides a useful lens to understand this paradox. According to RBV, enduring CA arises from resources that are Valuable, Rare, Inimitable, and Non-substitutable (VRIN) [19]. While MP represents a threshold resource that competitors can easily secure through similar digital channels [20, 21], brand capital (BC) encompassing brand awareness, perceived quality, loyalty, and associations constitutes a prototypical VRIN asset [22–24]. A strong BC confers customer loyalty, premium pricing power, and barriers to imitation, even when digital reach is commoditized [25]. Evidence from emerging markets reinforces this dynamic: Odoom & Mensah [10] show that Ghanaian SMEs with a brand orientation achieve superior performance when moderated by innovation and social media capabilities, and Wiid et al. [26] document that African SMEs overcoming “brand barriers” see improved customer retention and perceived outcomes. Similarly, Agaba & Kalu [27] find that brand awareness and loyalty significantly predict competitive positioning in Uganda's alcoholic beverage sector. These studies collectively underscore that BC, more than MP alone, serves as the linchpin for sustainable CA, particularly in resource-constrained environments.

Dynamic Capabilities Theory further clarifies how BC can be developed and leveraged in rapidly changing

digital markets. This perspective emphasizes that firms must continuously integrate, build, and reconfigure resources to adapt to evolving environments [28, 29]. In the digital realm characterized by technological volatility, shifting consumer preferences, and intensifying competition SMEs require dynamic capabilities to sense emerging trends e.g., new social commerce opportunities, seize them through targeted digital campaigns, and transform operations to reinforce intangible assets like BC [30, 31]. Bouwman et al. [8] emphasize that aligning digital strategy with business objectives is crucial for converting digital initiatives into competitive outcomes. Within the SME context, Marolt et al. [32], reveal that social media boosts business performance only when firms build relational social commerce capabilities and competitive advantage. Together, these findings suggest that while DCA provides essential infrastructure, it is the dynamic orchestration of digital resources into brand-building processes that enables SMEs to convert digital activation into enduring BC [6]. Specific adaptive routines such as data-driven personalization, community engagement, and iterative feedback loops empower SMEs to continuously refine their brand narrative and deepen customer relationships.

Although these theoretical frameworks advance our understanding, integrative research on how DCA, MP, and BC converge to drive CA remains limited, especially for SMEs in low- and middle-income countries (LMICs). Most existing literature focuses on developed economy SMEs or large corporations, leaving a gap in context-specific insights for resource-constrained settings [1, 33]. Gielens & Steenkamp [34] examine how digital disintermediation shifts branding power toward consumers in Belgium, but such dynamics may differ in low-infrastructure settings. Achieng & Malatji [7] identify digital illiteracy, financial constraints, and infrastructural limitations as critical barriers for SMEs in developing countries, challenges echoed by Oduro & Mensah-Williams [35] in African contexts. Likewise, Susila et al. [33] highlight how corporate governance and intellectual capital jointly drive firm value in ASEAN, affirming the strategic role of intangibles beyond BC. Yet, the integration of such resources with DCA in LMIC SMEs remains underexplored. Distinguishing between superficial MP effects and genuine gains in CA through enhanced BC is therefore essential.

While it is well established that digitalization lowers entry barriers and can improve SME performance [8], what remains underexplored especially in LMIC contexts is whether MP or BC is the more effective pathway to sustained CA [35]. Prior studies often equate expanded reach with durable advantage or examine branding effects in isolation e.g., MP via internet-based channels without BC [15, 36], or BC effects without an integrated

DCA–MP comparison [10, 37], while digital disintermediation and low switching costs complicate the share performance link. This study jointly models MP and BC as parallel conduits from Digital DCA to CA, thereby testing whether reach (replicable) or brand assets (harder to imitate) carry digital investments into enduring advantage. Our results refine RBV by showing that DCA yields CA chiefly when converted into VRIN-like BC [1, 22, 23, 25, 38–40] and extend DCT by specifying micro-routines (sensing, seizing, reconfiguring brand touchpoints) that operationalize this conversion in resource-constrained SMEs [28, 29].

To address this gap, the present study proposes a theory-driven framework in which BC mediates the relationship between DCA and CA, while MP serves as a parallel but incomplete pathway. Specifically, the research investigates: (1) how DCA directly influences MP and BC; (2) the differential effects of MP and BC on CA; and (3) the mediating roles of MP and BC in channeling the effects of DCA into CA. By focusing on SMEs operating within a resource-constrained environment, we capture the unique challenges these firms face limited budgets for branding, rudimentary digital capabilities, and intense competitive pressures from both local and global players [6, 33, 35]. This context provides a rich setting to examine whether BC truly serves as the mechanism that converts digital reach into sustainable CA. Our design operationalizes both pathways and estimates their relative contributions, moving beyond narrative review to a decisive empirical comparison.

Our study makes three key theoretical contributions. First, it extends RBV by positioning BC as the primary VRIN resource through which digital investments can yield sustainable CA, thereby challenging the conventional emphasis on scale and reach [24, 37, 41]). Second, it enriches Dynamic Capabilities Theory by identifying specific adaptive routines such as digital brand-building processes, community engagement, and iterative customer feedback loops that enable SMEs to transform DCA into enduring strategic assets [28, 29, 31]. Third, by examining these mechanisms within a resource-constrained setting, we respond to calls for more context-specific SME research in LMICs, offering insights that account for infrastructural, financial, and institutional constraints [42]. In doing so, we establish a foundation for understanding how SMEs can leverage intangible assets rather than market penetration alone to secure lasting advantage in digital marketplaces.

In summary, this study aims to illuminate the nuanced pathways through which DCA influences SME competitiveness in resource-constrained environments. By demonstrating the centrality of BC as a mediating resource and the insufficiency of MP alone we challenge

conventional digitalization rhetoric and propose a robust, capabilities-driven framework. This framework will equip scholars with empirical insights to refine RBV and Dynamic Capabilities Theory in digital contexts, while guiding practitioners and policymakers on how SMEs can harness digital technologies and intangible resources to achieve sustainable advantage, even amid severe resource constraints. Future research might extend these insights by exploring cross-industry comparisons, examining complementary intangible resources, e.g., intellectual capital, and testing whether similar mechanisms hold across diverse LMIC geographies.

Literature review

Theoretical review

This study's theoretical framework integrates the RBV and DC Theory to explain how DCA leads to CA among resource-constrained SMEs via BC, with MP as an intermediary outcome.

DCA, MP, BC, and CA are interrelated constructs that underpin SME success in digital environments. The RBV asserts that sustainable CA arises from resources that are Valuable, Rare, Inimitable, and Non-substitutable (VRIN) [19], Barney & Ray, 2021) [20, 21]. In digital contexts, adopting e-commerce platforms, social media tools, and digital payment systems constitutes essential infrastructure but does not guarantee lasting advantage, as competitors can replicate these assets with relative ease. Instead, RBV highlights that intangible assets most notably BC serve as strategic differentiators, converting digital reach into enduring CA. BC encompasses customer-based brand equity dimensions brand awareness, perceived quality, loyalty, and brand associations that shape consumer perceptions and drive preference [38, 39]. By embedding trust, reputation, and emotional resonance, BC embodies VRIN attributes: it commands premium pricing, fosters repeat patronage, and resists imitation [37]. Empirical studies in emerging economies reinforce BC's primacy: Odoom & Mensah [10] show that Ghanaian SMEs with strong brand orientation outperform peers when augmented by innovation and social media capabilities, while Wiid, Wiid et al. [26] document that African SMEs investing in digital brand development achieve higher customer retention despite constrained budgets.

Dynamic Capabilities Theory extends the Resource-Based View by explaining how firms adapt through processes of sensing, seizing, and transforming in volatile digital environments [28, 29]. For SMEs, this means embedding adaptive routines that go beyond static digital adoption. Barua et al. [36] emphasize that digital business processes yield value only when aligned with strategic goals. P. Chen & Kim [43] show that

innovation performance improves when digital transformation is mediated by absorptive capacity. Similarly, Marolt et al. [32] find that social media enhances SME performance only through relational commerce capabilities. Sudrajat et al. [6] reveal that digitalization drives performance when focused on value realization. These findings suggest that digital commerce activation becomes a dynamic capability only when SMEs embed data-driven personalization, interactive brand learning, and iterative feedback loops within their marketing and branding ecosystems.

MP often emerges as a primary objective of DCA, as SMEs seek to broaden customer reach and revenue streams. However, MP alone lacks VRIN qualities because competitors can quickly replicate market-outreach tactics [14]. For example, Edeling & Himme [14] demonstrate that marginal increases in market share yield negligible profit improvements when switching costs are low and digital offerings are easily imitated. Konuk et al. [21] similarly observe that SMEs focusing solely on expansion without investing in distinctive capabilities struggle to sustain performance. Thus, MP represents a necessary but insufficient outcome of DCA, it signals digital adoption but does not in itself generate sustainable CA.

By contrast, BC mediates the relationship between DCA and CA, capturing the value created when digital interactions strengthen brand equity. Studies of SME digitalization underscore BC's central role. Dumitriu et al. [25] show that Romanian SMEs using digital marketing tools enhance BC and stakeholder trust when aligning digital and sustainability goals. Monfort et al. [40] find that in Spain, sustainability-driven communication and customer satisfaction significantly predict brand trust. These insights align with RBV: BC transforms digital reach into relational capital that underlies CA. Moreover, the ASEAN study by Susila et al. (2023) validates that intangible assets, including BC, mediate corporate governance's effect on firm value, further affirming BC's VRIN status.

In sum, RBV and Dynamic Capabilities Theory converge to assert that DCA's impact on CA is mediated by BC rather than MP alone. DCA provides necessary digital infrastructure, but without dynamic routines to cultivate BC through consistent brand messaging, community engagement, and iterative learning SMEs risk expending resources on superficial MP gains. In resource-constrained settings, BC emerges as the linchpin: It transforms digital investments into enduring relational capital, enabling SMEs to compete despite infrastructural and financial limitations. This theoretical synthesis establishes BC as the critical mediator linking DCA to CA, substantiating why intangible assets must be prioritized

over mere market expansion in digitally driven SME strategies.

Why market penetration and brand capital are pathways to competitive advantage

DCA widens access and opens new channels, so MP is a credible conduit from digital investment to outcomes. Prior work shows that internet-based sales channels and net-enabled processes translate adoption into reach and efficiency gains that can lift performance when firms pair them with complementary capabilities [15, 30, 32, 36]. In resource-constrained settings, serving new segments at low marginal cost is especially valuable. Yet MP is often easy for rivals to match. Where switching costs are low and imitation is fast, the performance lift from share gains tends to be modest and short lived, so MP is necessary but insufficient for durable advantage [14, 34]. By contrast, brand capital (BC) bundles awareness, perceived quality, associations, and loyalty into an intangible stock that is slower to imitate and aligns with the VRIN logic of the resource-based view. Evidence links BC to retention and superior outcomes in LMICs [10, 25, 37–40]. Dynamic capabilities explain how DCA feeds BC: sensing signals, seizing opportunities, and reconfiguring content and service turn digital touchpoints into trust. We model MP and BC in parallel to distinguish scale effects from harder to imitate brand assets in LMIC SMEs.

Hypothesis Building

Digital commerce activation as a driver of competitive advantage

CA emerges when SMEs leverage capabilities that rivals cannot easily replicate. RBV suggests that digital tools on their own are threshold resources, while strategic integration with internal processes converts them into advantage [19]. Consistent with this view, studies report performance gains when digital investments are tied to customer service, operations, and decision routines, rather than stand-alone adoption [8, 30, 36]. DC Theory adds that DCA supports CA when firms build sensing, seizing, and transforming routines that create agility and responsiveness [28, 44, 45]. Evidence from entrepreneurial and SME settings shows that such capability alignment strengthens brand-related resources and performance [32, 46].

At the same time, prior work cautions that generic digital moves are easy to imitate and that scale effects can be modest in markets with low switching costs, which is common in LMIC contexts [7, 14, 20, 34]. This mixed record motivates a conservative stance: We expect a positive direct link from DCA to CA where digital activation is coupled with complementary capabilities, while

recognizing that much of DCA's payoff may flow indirectly through harder-to-copy intangibles such as brand capital. Hence, by enabling SMEs to differentiate through agility, innovation, and brand-driven value, we hypothesize that,

H1: Digital commerce activation positively influences firm competitive advantage

Digital commerce activation and brand capital

DCA involves SMEs adopting e-commerce platforms, social media channels, and digital payment systems to engage customers and articulate brand narratives. RBV posits that intangible assets such as BC encompassing brand awareness, perceived quality, loyalty, and associations are VRIN resources that generate sustainable advantage [38, 39]. Empirical evidence supports this linkage: Dumitriu et al. [25] demonstrate that Romanian SMEs aligning digital marketing tools with sustainability goals significantly strengthen BC, while Monfort et al. [40] confirm that sustainability-driven digital communication enhances consumer trust.

Dynamic Capabilities Theory suggests that DCA becomes a true dynamic capability when SMEs embed iterative routines that reinforce BC such as personalized content, real-time feedback loops, and consistent brand messaging [28, 29]. Bouwman et al. [8] and Hussain et al. [47] reveal that SMEs develop relational social commerce capabilities, another BC dimension through continuous digital engagement. Eriandani & Winarno [48] further find that BC is critical in commoditized B2B settings when digital tools reinforce perceived quality and loyalty. Thus, by transforming digital interactions into emotional resonance and trust, we hypothesize that:

H2: Digital commerce activation positively influences brand capital.

Digital commerce activation as a catalyst for market penetration

MP captures SMEs' ability to broaden their customer base and enter new markets through digital channels. RBV views DCA as threshold infrastructure, with MP materializing when firms combine digital tools with targeting, integration, and channel management to reach previously inaccessible segments [7, 8, 15, 36]. Studies show that internet-based sales channels and net-enabled processes translate adoption into reach and efficiency, while digital readiness and technology fit strengthen these effects [15, 18, 32, 36].

DC Theory clarifies the mechanism: DCA reduces reliance on physical infrastructure and, through sensing–seizing–transforming routines, helps firms access remote and underserved customers at lower cost [28, 29]. Evidence from LMIC contexts reports gains where firms

align digital outreach with complementary capabilities, including Kenya's agrochemical, banking, and telecom sectors [49–51]. At the same time, market share gains can be easy to imitate in settings with low switching costs, so MP effects are not automatic and depend on capability depth [14, 34]. Taken together, these studies support a positive link from DCA to MP while acknowledging boundary conditions.

H3: Digital commerce activation has a positive influence on market penetration.

Brand capital as a driver of competitive advantage

BC embodies customer-based brand equity awareness, perceived quality, loyalty, and associations that RBV recognizes as a VRIN resource [39]. Empirical studies confirm BC's strategic significance. Suryaningsih & Abadi [37] show in Asia–Pacific B2B chemicals that robust BC yields customer retention and premium pricing, directly bolstering CA. Dumitriu et al. [25] find that Romanian SMEs leveraging digital marketing tools and sustainability frameworks significantly strengthen BC, translating digital interactions into stakeholder trust. Odoom & Mensah [10] report that Ghanaian SMEs with strong brand orientation outperform peers by enhancing BC through social media capabilities. Dynamic Capabilities Theory further elucidates how BC fosters CA. Eisenhardt & Martin [28] argue that adaptive routines such as co-creation, real-time feedback, and iterative messaging reinforce BC in turbulent markets. Monfort et al. [40] demonstrate that sustainability-driven communication strategies in Spain enhance BC via perceived value and customer satisfaction, which in turn elevate CA. By continuously reconfiguring digital brand-building processes, SMEs embed BC as a source of resilience and differentiation. Thus, we hypothesize that:

H4: Brand capital positively influences firm competitive advantage.

Market penetration as a contributor to competitive advantage

MP reflects SMEs' expansion into new segments via digital channels and can yield near-term gains in sales and reach. Evidence shows that internet-based channels and net-enabled processes convert digital adoption into broader access and efficiency, which can support performance [15, 36]. In SSA settings, MP has sometimes explained substantial variance in competitive positioning, particularly where strategy aligns with regulation [49]. Yet prior evidence is mixed and context-dependent: meta-analytic work notes that share gains often translate weakly into profits when switching costs are low and imitation is rapid [14], and digital disintermediation can further erode defensibility [34]. Consistent with RBV,

MP is therefore a threshold outcome that requires complementary capabilities to become advantage. Studies in Kenya indicate that e-commerce improves ROA through customer satisfaction and efficiency [50], while work in Slovenia and Indonesia shows MP's benefits materialize when relational social commerce and digital performance capabilities are in place [6, 32]. From a DC perspective, MP contributes to CA when firms use expanded reach to sense, seize, and reconfigure e.g., leveraging data from new segments to refine offerings [28, 29]. Accordingly, we treat MP as a plausible but potentially modest and capability-contingent pathway from DCA to CA in resource-constrained contexts.

H5: Market penetration positively influences firm competitive advantage.

Firm size's role in shaping competitive advantage

Firm Size determines resource availability financial, human, and technological which RBV posits as critical for nurturing VRIN resources [19]. Larger SMEs typically possess greater economies of scale, enabling investments in brand-building and digital infrastructure [18]. Gitonga et al. [49] demonstrate that in Kenyan retail, larger firms leverage broader distribution and marketing budgets to enhance CA. Similarly, Kaunda Mutuku et al. [50] find that commercial banks with greater asset bases achieve higher ROA through e-commerce-enabled operational efficiencies. However, size alone does not guarantee CA, it must be coupled with strategic resource deployment.

Dynamic Capabilities Theory further emphasizes that larger firms must cultivate adaptive routines to translate size into advantage [28]. Oduro & Mensah-Williams [35] show that Ghanaian SMEs' marketing capabilities mediate size's effect on performance, indicating that dynamic marketing routines product development, communication, and implementation help larger firms convert resources into CA. Charles & Lester [18] highlight that employee engagement and continuous learning in larger SMEs foster a digital culture, enabling rapid responses to market shifts. Therefore, while Firm Size provides necessary resources, its positive effect on CA depends on dynamic capabilities. Thus, we hypothesize that:

H6: Firm size positively influences firm competitive advantage.

Brand capital mediates the relationship between digital commerce activation and firm competitive advantage

DCA equips SMEs with e-commerce, social media, and digital payments that RBV views as threshold assets; these only create advantage when converted into VRIN intangibles such as brand capital (BC) [19, 20, 39]. Empirically, DCA-related practices raise awareness, perceived quality, and loyalty when firms use digital tools

deliberately: Romanian SMEs that align digital marketing with clear value propositions strengthen BC and trust [25], while sustainability-driven digital communication improves brand trust in Spain [40]. In commoditized markets, BC is linked to retention and pricing power, reinforcing its VRIN character [37], and brand value is positively associated with firm value (Konuk, 2023). Under DCT, sensing, seizing, and transforming routines explain how DCA turns touchpoints into equity by testing messages, learning from feedback, and reconfiguring content and service [28, 29].

At the same time, prior evidence shows the BC pathway is conditional rather than automatic. BC's performance effects are stronger when complemented by social media and innovation capabilities [10], and when relational social commerce capabilities are in place [32]. Studies of startups likewise indicate that strategic capabilities and digital readiness amplify BC's mediating role on outcomes [46]. These boundary conditions are consistent with RBV/DCT: DCA can build BC, but the conversion depends on capability depth and learning routines. Accordingly, we posit that DCA influences competitive advantage primarily through brand capital.

H7: Brand capital mediates the relationship between digital commerce activation and firm competitive advantage.

Market penetration mediates the relationship between digital commerce activation and firm competitive advantage

DCA gives SMEs affordable, scalable channels such as e-commerce, social media, and digital payments that expand market penetration (MP) by reaching customers who were previously out of reach [15, 36]. In LMIC settings, these tools lower the need for physical infrastructure and help firms access remote segments at relatively low cost, which can lift sales and efficiency, as shown in Kenyan banking where e-commerce capabilities improved ROA through customer satisfaction and process gains [50]. Within the RBV, MP is a threshold outcome that may be necessary for growth but is easy for rivals to imitate [19].

Under Dynamic Capabilities Theory, MP supports competitive advantage only when firms sense shifts, seize new segments, and reconfigure processes to retain and serve expanded demand [28, 29]. Evidence is mixed: MP strategies explain a sizable share of advantage in Kenyan telecoms when aligned with regulation and execution quality [49], yet meta-analytic work shows that share gains often translate into modest profits where offerings are easy to copy and switching costs are low [14]. For MSMEs in Indonesia, penetration improves financial outcomes mainly when mediated by digital performance

capabilities, not by access alone [6]. Taken together, MP is a plausible conduit from DCA to outcomes, but its effect on advantage is contingent on complementary capabilities.

Thus, we hypothesize that:

H8: Market penetration mediates the relationship between digital commerce activation and firm competitive advantage.

To position the present study within the broader discourse on SME digital strategy and competitive advantage, Table 1 summarizes key studies on DCA, brand capital, Market Penetration, and competitive advantage, highlighting unresolved gaps that inform the present study. Most prior research treats these constructs in isolation or omits key mediators. Whereas Fig. 1 illustrates the proposed conceptual model, integrating DCA, BC, and MP as pathways to CA, with firm size as a moderator. The model tests both direct and mediated effects within SME contexts.

Methodology

Research design and paradigm

This study aimed to determine how DCA influences CA through BC and MP in resource-constrained SMEs. Adopting a positivist paradigm, we employed an explanatory research design with a quantitative approach to test causal relationships among DCA, BC, MP, and CA (Saunders, Lewis, & Thornhill, 2009 [52]). Drawing on the Resource-Based View and Dynamic Capabilities Theory, we developed a mediation model and applied CB Structural Equation Modeling (CB-SEM) for hypothesis testing.

Study setting and population

Data collection took place in Kampala and Wakiso business districts regions collectively accounting for over 34 percent of Uganda's SMEs and contributing approximately 70 percent of national GDP [53]. These districts encompass diverse industries, including retail, services, manufacturing, and information technology, and represent both formal and informal enterprises. The target population comprised owner-managers or senior managers of SMEs that (1) maintained an active digital presence through platforms such as e-commerce websites, social media pages, or digital payment systems, (2) were registered or operating within Kampala or Wakiso; and (3) had been in operation for at least one year, signifying a baseline level of digital adoption.

Sampling and pilot testing

This study recognizes that employing a probabilistic sampling approach would have been ideal for selecting a representative sample from the target population and

enhancing the generalizability of the findings. However, because no comprehensive public registry of digitally active SMEs exists, we were unable to implement random sampling techniques. As a result, we calculated a target sample size of 387 SMEs based on Krejcie and Morgan's [54] table for populations exceeding 100,000, ensuring a representative confidence level and margin of error. Due to the lack of a complete directory of digitally engaged SMEs in Kampala and Wakiso, we instead utilized snowball sampling. Initial participants were identified from the Uganda Investment Authority's database of registered SMEs, selecting those that met our criteria of maintaining an active digital presence and at least one year of operation. Each of these SMEs was then asked to recommend additional digitally engaged firms, and this referral process continued until responses were obtained from 405 SMEs, slightly exceeding our target sample size.

Prior to the main data collection, a pilot test was conducted with 45 SMEs to evaluate item clarity, relevance, and internal consistency of the questionnaire. These pilot firms provided feedback on wording, context, and length, which led to minor revisions in item phrasing and response instructions. These adjustments ensured that each measurement covering DCA, BC, MP, and Firm competitive advantage was comprehensible and contextually appropriate across the diverse SME environments encountered in Kampala and Wakiso districts.

Sampling limitations and non-response checks

We acknowledge that snowball sampling is non-probabilistic and constrains statistical generalizability; our inferences are best viewed as analytically transferable to digitally active SMEs in Kampala/Wakiso rather than population estimates [55–57] Shadish, Cook, & Campbell, 2002) [58]. To mitigate referral bias, we initiated multiple seed firms, a recommended practice in chain-referral designs, screened referrals against eligibility, deduplicated entries, and monitored sector or size balance [59, 60]. We also issued tailored reminders to underrepresented groups to improve coverage (Dillman, Smyth, & Christian, 2014) [61]. To assess non-response bias, we compared early and late respondents on focal constructs and firm size using independent-samples *t* tests, a standard diagnostic, and found no systematic differences at $\alpha=0.05$ [62]. We further contrasted sectoral and size distributions with available district profiles and observed broad alignment.

Instrument and measurement

A structured questionnaire was chosen for its cost-effectiveness and efficiency in gathering data from a moderately large sample (Saunders et al. 2012 [63]). The instrument included three demographic questions

Table 1 Key empirical and review studies on DCA, BC, MP, and CA: unresolved gaps driving the present study

Author (year)	Context & sample	Theory/framework	Variables & method	Principal findings	Unresolved gaps that this study tackles
Dumitriu et al. [25]	Romania; 250 SMEs in manufacturing and services	RBV; Sustainability Theory	Digital Marketing Tools & Techniques (DMTTs) → Brand Equity; survey-based PLS-SEM	Strategic use of DMTTs significantly enhances BC and stakeholder trust, resulting in higher customer loyalty and market competitiveness	Focuses narrowly on DMTTs without examining broader DCA or its direct link to CA; does not consider MP as a parallel pathway alongside BC
Marolt et al. [32]	Slovenia; 180 SMEs in retail and services	Dynamic Capabilities; Relational Social Commerce	Social Media Use → Relational Social Commerce Capability → Performance; survey and regression	Social media alone does not directly affect performance; relational social commerce capability mediates its impact on CA, validating the importance of capability-building	Omits BC as a VRIN resource mediating DCA and CA; does not examine MP's role
Jovanovic et al. [15]	EU; 300 SMEs in manufacturing and retail	RBV; Channel Integration Framework	E-commerce Capabilities → Internet-Based Sales Channels → Firm Performance; OLS regression	Internet-based sales channels mediate e-commerce's impact on SME performance, highlighting digital channel strategy's importance for MP	Fails to incorporate BC as a mediator; does not explore how DCA influences CA beyond MP, nor compare the relative effects of BC versus MP on CA
Monfort et al. [40]	Spain; 1,280 consumers of sustainable brands	Consumer Trust; Sustainable Branding	Perceived Value, Satisfaction, Service, Brand Image → BC; PLS-SEM	Perceived value, customer satisfaction, customer service, and brand image significantly predict brand trust; sustainability-driven communication strategies strengthen BC	Concentrates on consumer trust in sustainable brands without linking DCA, BC, MP, and CA in SMEs; ignores MP and CA outcomes
Charles & Lester [18]	Global SMEs; multiple industries	RBV; Dynamic Capabilities	Digital Transformation Roadmap; case studies of DCA tools, digital readiness assessment, and culture	SMEs that assess digital readiness, select suitable technologies, and foster a digital culture achieve sustainable growth and competitiveness; barriers include limited resources and resistance to change	Offers a broad DCA roadmap but does not empirically link DCA to BC, MP, or CA; lacks mediation analysis to show how BC and MP transmit DCA's effects into CA
Odoom & Mensah [10]	Ghana; 220 SMEs across sectors	RBV; Social Media Capabilities	Brand Orientation (BC) × Social Media & Innovation Capabilities → SME Performance; survey and SEM	Social media and innovation capabilities positively moderate BC's effect on SME performance, especially in medium-sized firms; BC enhances communication and differentiation	Does not integrate DCA as a broader construct or test its direct influence on BC and CA; overlooks MP and the joint effects of BC and MP on CA
Present study	Resource-constrained SMEs; 405 firms across sectors	RBV; Dynamic Capabilities Theory	DCA → BC, MP → CA; PLS-SEM mediation analysis	DCA directly enhances BC and MP; BC fully mediates DCA's effect on CA, whereas MP's mediation is not significant, confirming BC's VRIN role	Integrates DCA, BC, MP, and CA in a single model for resource-constrained SMEs; fills gap by empirically demonstrating BC's central mediating role and MP's insufficiency in generating CA

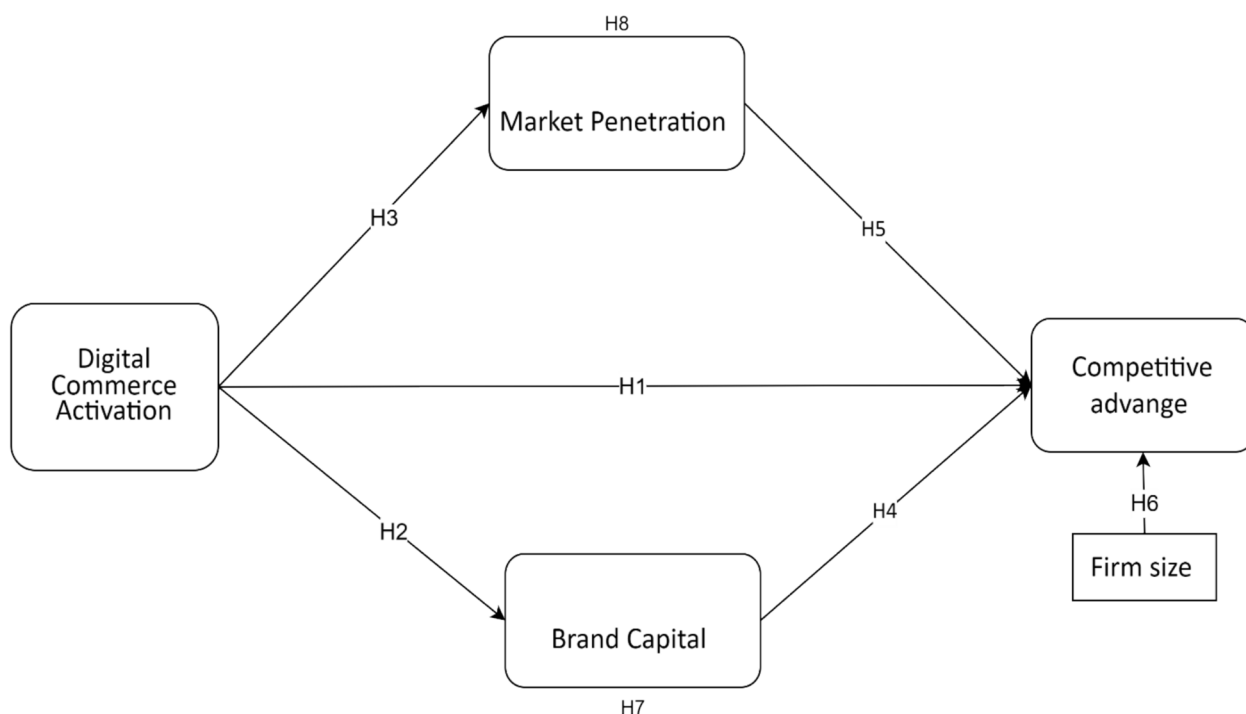


Fig. 1 Conceptual model

(firm age, sector, and digital engagement duration) and twenty items adapted from established sources to measure the key constructs. DCA was measured using four items adapted from Saeed et al. [30], and Jovanovic et al. [15], and Q. Chen & Zhang [9] for example, “Our firm uses digital platforms to reach and engage customers” and “Digital tools drive customer conversion in our business.” BC employed five items adapted from Keller’s [39] Customer-Based Brand Equity model and Atilgan, Aksoy, and Akinci [64] to assess dimensions such as digital brand awareness (“Our digital presence enhances our brand recognition”), perceived quality, trust, consistent communication, and loyalty.

Market penetration comprised four items reflecting digital reach and customer base expansion, based on Jovanovic et al. [15] and Gitonga et al. [49], including “We have extended market reach through digital technologies.” CA was operationalized with five items adapted from Saeed et al. [30], focusing on digital agility (“Our digital capabilities give us a competitive edge”), strategic decision-making (“We make strategic decisions based on digital insights”), performance enhancement, operational agility, and sustained competitiveness. Each item used a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). Prior to full deployment, the questionnaire was pretested with 45 SMEs to ensure clarity, relevance, and contextual appropriateness, leading to minor wording adjustments. This process ensured that all

constructs were measured reliably and aligned with the theoretical framework.

Data collection procedure

Over an eight-week period, trained research assistants visited SMEs in person to explain the study’s objectives, secure informed consent, and distribute paper or electronic copies of the questionnaire. One week after initial distribution, reminders were sent via phone calls or email to increase response rates. For respondents with limited literacy or time constraints, the questionnaire was administered through face-to-face interviews to ensure completeness. All completed questionnaires were coded numerically to protect participant anonymity. Ethical approval was obtained from the [University’s Institutional Review Board], and participants were assured of confidentiality and voluntary participation.

Data analysis

Survey responses were entered into SPSS 27 for preliminary screening (IBM Corp., 2019) [65]. Descriptive statistics were computed to profile the sample by industry sector, firm size, and years of digital engagement (Hair, Black, Babin, & Anderson, 2019) [66]. Missing data amounting to less than 2 percent per item were handled through mean imputation.

Confirmatory factor analysis (CFA) and structural model testing were conducted in AMOS 26. First, we

assessed convergent validity by examining standardized factor loadings (all above 0.60), Average Variance Extracted ($AVE > 0.50$), and Composite Reliability ($CR > 0.70$) for each construct [66, 67]. Discriminant validity was evaluated by ensuring that each construct's AVE exceeded its squared correlations with other constructs. Model fit was judged using multiple indices: Chi-square/degrees of freedom ($\chi^2/df < 3$), Comparative Fit Index ($CFI > 0.90$), Tucker–Lewis Index ($TLI > 0.90$), Root Mean Square Error of Approximation ($RMSEA < 0.08$), and Standardized Root Mean Square Residual ($SRMR < 0.08$) [66, 68]. Next, the structural model was estimated to test direct and indirect pathways. Path coefficients (β) were evaluated for significance, and R^2 values were inspected to appraise explanatory power. Mediation analysis followed the bootstrapping procedure outlined by Zhao, Lynch, and Chen [69], generating 5,000 bootstrap samples to obtain bias-corrected confidence intervals for indirect effects of digital commerce activation on competitive advantage via brand capital and market penetration. Effect sizes (f^2) were calculated to determine each predictor's practical contribution to the endogenous constructs [66, 70]. Collectively, these analyses ensured rigorous validation of the measurement model and robust testing of hypothesized relationships within a covariance-based SEM framework.

Results

Background characteristics of respondents and SMEs under study

In Table 2, the majority of respondents were aged 25–34 (49%), followed by 35–44 (29%). Most had tertiary education (53.2%), with others holding vocational (18.1%) or secondary education (24.5%). Trading was the dominant industry (73.3%). Respondents were nearly evenly split between business owners (51.2%) and managers (48.8%). Most firms lacked credit access (68.8%). In terms of size, 64.6% were small enterprises, while 35.4% were medium-sized. Sole proprietorships dominated legal status (71%), followed by partnerships (24%) and limited companies (5%). These demographics reflect a youthful, educated, and entrepreneurial respondent base operating mainly in trading sectors, with limited access to credit and smaller firm sizes. This profile suggests that digital commerce strategies and brand-building efforts are shaped by resource constraints, adaptability, and a preference for practical, scalable solutions. The predominance of sole proprietorships also implies leaner, more agile decision-making. These contextual characteristics are essential for interpreting how digital commerce activation, market penetration, and brand capital jointly influence competitive advantage among SMEs in resource-limited settings.

Table 2 Background characteristics of respondents ($N = 404$)

Variable	Category	Frequency	Percent (%)
Age of respondent	Under 25	60	14.9
	25–34	198	49.0
	35–44	117	29.0
	45–54	26	6.4
	55 and above	3	0.7
Education level	No formal education	5	1.2
	Primary	12	3.0
	Secondary	99	24.5
	Tertiary	215	53.2
	Vocational/technical	73	18.1
Industry type	Manufacturing	8	2.0
	Service	100	24.8
	Trading	296	73.3
Position of respondent in the firm	Business owner	207	51.2
	Manager/supervisor	197	48.8
Access to credit	No	278	68.8
	Yes	126	31.2
Firm size by employees	Small (5–49 employees)	261	64.6
	Medium (50–99 employees)	143	35.4
Legal status	Limited company	20	5.0
	Partnership	97	24.0
	Sole trader	287	71.0

Correlation analysis among study constructs

To examine the associations among study constructs, Pearson correlation analysis was conducted (Table 3). The results revealed statistically significant positive correlations among all variables at the 0.01 level (2-tailed). DCA exhibited strong correlations with BC ($r=0.696$) and MP ($r=0.545$), indicating that digital activation strategies are closely aligned with market and branding outcomes. CA was moderately correlated with DCA ($r=0.517$), MP ($r=0.588$), and BC ($r=0.531$), suggesting a strong interplay between digital mechanisms and competitive positioning in firms.

Measurement model

Assessment of construct reliability and validity of the measurement model

To determine the reliability and validity of the measurement model, a construct reliability and validity assessment was conducted. As shown in Table 4, the results

confirm that all constructs exhibit strong convergent validity and internal consistency reliability. All standardized item loadings exceed the recommended threshold of 0.60, with most items above 0.70, indicating that each item meaningfully represents its underlying construct [66, 67]. The Average Variance Extracted (AVE) values range from 0.708 to 0.805, which surpass the minimum recommended threshold of 0.50, confirming that the constructs explain more than half of the variance in their respective indicators. Additionally, the Composite Reliability (CR) values range from 0.903 to 0.943, and all Cronbach’s Alpha coefficients exceed 0.86, indicating strong internal consistency across constructs [66].

Further, to assess discriminant validity, the Fornell–Larcker criterion was applied, as presented in Table 5. The square roots of the AVE for each construct (shown

Table 3 Correlation matrix ($N=405$)

Variables	DCA	MP	BC	CA
DCA	1	–	–	–
MP	0.545**	1	–	–
BC	0.696**	0.693**	1	–
CA	0.517**	0.588**	0.531**	1

$p < 0.01$ (2-tailed). All correlation coefficients marked ** are statistically significant

Table 5 Fornell–Larcker criterion for assessing discriminant validity among constructs

Constructs	DCA	MP	BC	CA
DCA	0.906	–	–	–
MP	0.545	0.806	–	–
BC	0.696	0.693	0.789	–
CA	0.517	0.588	0.531	0.796

Note: Bold values represent the square roots of the Average VarianceExtracted (AVE). Discriminant validity is affirmed when these values exceed the corresponding inter-construct correlations.

Table 4 Construct reliability and validity table (factor loadings, AVE, CR, Cronbach’s Alpha)

Factor	Item	Item narrative	Std. loading	AVE	CR	Cronbach’s Alpha
DCA	DCA1	Our firm uses digital platforms to reach and engage customers	0.917	0.805	0.943	0.901
	DCA2	We adopt social commerce tools for business expansion	0.895			
	DCA3	Our commerce strategy integrates digital touchpoints	0.934			
	DCA4	Digital tools drive customer conversion in our business	0.850			
MP	MP1	We have extended market reach through digital technologies	0.792	0.709	0.903	0.862
	MP2	Digital platforms have increased our customer base	0.841			
	MP3	We access new markets via digital channels	0.649			
	MP4	Our online presence has grown significantly	0.715			
BC	BC1	Our digital presence enhances our brand recognition	0.734	0.708	0.915	0.872
	BC2	Customers associate quality with our digital brand	0.642			
	BC3	Our brand is trusted in online environments	0.762			
	BC4	We consistently communicate our brand online	0.756			
	BC5	Our digital marketing reinforces brand loyalty	0.735			
CA	CA1	Our digital capabilities give us a competitive edge	0.851	0.710	0.926	0.882
	CA2	Digital strategies enhance our performance	0.796			
	CA3	We make strategic decisions based on digital insights	0.676			
	CA4	Digital tools improve our strategic agility	0.844			
	CA5	We continuously leverage digital innovations for competitiveness	0.760			

diagonally in the matrix) are greater than the inter-construct correlations (off-diagonal values), which confirms satisfactory discriminant validity [67]. For example, the square root of AVE for DCA is 0.906, which is higher than its correlations with MP (0.545), BC (0.696), and CA (0.517). This pattern is consistently observed across all other constructs. These findings collectively support that the measurement model is both reliable and valid, providing a robust foundation for structural equation modeling and subsequent hypothesis testing.

Common method bias (CMB)

To assess the potential presence of CMB in the data, we conducted Harman’s single-factor test as recommended by Podsakoff et al. [71]. All measurement items were subjected to exploratory factor analysis using un-rotated principal component analysis. The results revealed that the first factor accounted for only 49.2% of the total variance, which is below the critical threshold of 50%, suggesting that common method variance is not a major concern in this study. Additionally, we ensured methodological remedies were incorporated during instrument design, such as item randomization, assurance of respondent anonymity, and clear separation of constructs, further minimizing the risk of CMB. Therefore, both procedural and statistical evidence confirm that common method bias does not significantly threaten the validity of the results.

Structural model analysis

Assessment of structural model fit and predictive power

To determine the adequacy of the structural model, several goodness-of-fit indices were evaluated, as summarized in Table 6. The model demonstrates acceptable fit based on key threshold criteria commonly cited in structural equation modeling literature [66, 68]. The Chi-Square/Degrees of Freedom ratio (χ^2/df) was 3.257,

which is marginally above the ideal threshold of ≤ 3 , but still within an acceptable range for complex models. The Root Mean Square Error of Approximation (RMSEA) stood at 0.075, indicating a good approximation of model fit, as values below 0.08 are generally acceptable [72].

Further, the Comparative Fit Index (CFI=0.933), Tucker–Lewis Index (TLI=0.923), and Normed Fit Index (NFI=0.907) all exceeded the recommended threshold of 0.90, demonstrating strong comparative model fit. Additionally, the R-squared values for the endogenous constructs CA (48.6%), MP (43.9%), and brand capital (37.1%) indicate that the exogenous predictors explain a substantial proportion of variance in the key outcome variables. These findings confirm the model’s robustness and explanatory power.

Direct effects analysis

The structural model results presented in Table 7 provide empirical support for several hypothesized relationships. Notably, H2 and H3 are supported, indicating that DCA significantly influences both BC ($\beta=0.609$, $SE=0.051$, $p<0.001$) and MP ($\beta=0.663$, $SE=0.046$, $p<0.001$). These findings emphasize the foundational role of DCA in enhancing firms’ digital visibility and reach. H4 is also supported, with a substantial effect of BC on CA ($\beta=0.697$, $SE=0.090$, $p<0.001$), highlighting how strong digital brand positioning contributes to strategic advantage in the digital landscape. However, H1, which posited a direct effect of DCA on CA, was marginally significant ($\beta=0.118$, $SE=0.083$, $p=0.070$) and therefore not strongly supported. Both H5 (MP—CA; $\beta=0.060$, $p=0.291$) and H6 (Firm Size—CA; $\beta=0.017$, $p=0.647$) were not supported, indicating these paths are statistically insignificant. Overall, the results suggest that DCA is a key enabler of digital outcomes, but strategic advantage is primarily attained through strong digital brand capital.

Managerial meaning of effect sizes. A one–SD improvement in DCA associates with +0.609 SD in BC and +0.663 SD in MP. Moving DCA from the 25th to 75th percentile (+1.35 SD) implies +0.82 SD higher BC and +0.90 SD higher MP. Because BC strongly predicts

Table 6 Summary of structural model fit indices and acceptable thresholds

Fit index	Observed value	Threshold
R-squared (CA)	48.6%	–
R-squared (BC)	37.1%	–
R-squared (MP)	43.9%	–
Chi-square/df (χ^2/df)	3.257	≤ 3
RMSEA	0.075	< 0.08
CFI	0.933	≥ 0.90
TLI (NNFI)	0.923	≥ 0.90
NFI	0.907	≥ 0.90

Table 7 Direct effects

Hypothesis	Path	Std (β)	SE	P value	Supported?
H1	DCA → CA	0.118	0.083	0.070	Marginal/No
H2	DCA → BC	0.609	0.051	< 0.001	Yes
H3	DCA → MP	0.663	0.046	< 0.001	Yes
H4	BC → CA	0.697	0.090	< 0.001	Yes
H5	MP → CA	0.060	0.088	0.291	No
H6	Firm Size → CA	0.017	0.044	0.647	No

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

CA ($\beta=0.697$), the implied indirect effect DCA-BC-CA is 0.424 SD per 1 SD rise in DCA over ten times the MP pathway (0.040). Practically, prioritize DCA upgrades, mobile payments, integrated social commerce ordering, weekly content-and-feedback cadences, structured to build recognition, perceived quality, associations, and loyalty; these brand assets convert digital spend into durable advantage.

Indirect effects (mediation analysis)

To further examine the mechanisms through which DCA contributes to Firm Competitive advantage, mediation analysis was performed, and the results are summarized in Table 8. The findings reveal that BC

significantly mediates the relationship between DCA and CA, with a standardized indirect effect of 0.424 (SE=0.065, $p<0.001$). This result supports Hypothesis H4a and suggests that digital branding serves as a key strategic conduit through which digital commerce investments enhance competitive advantage. In contrast, the mediation effect of MP was not statistically significant ($\beta=0.040$, SE=0.057, $p=0.291$), providing no support for Hypothesis H4b. This implies that while expanding digital market reach is valuable, it does not sufficiently explain the pathway from DCA to CA. The findings reinforce the strategic importance of cultivating brand capital over mere market expansion.

Table 8 Indirect effects (mediation paths)

Hypothesis	Indirect path	Indirect effect (β)	SE	P value	Supported?
H7	DCA → BC → CA	0.424	0.065	<0.001	Yes
H8	DCA → MP → CA	0.040	0.057	0.291	No

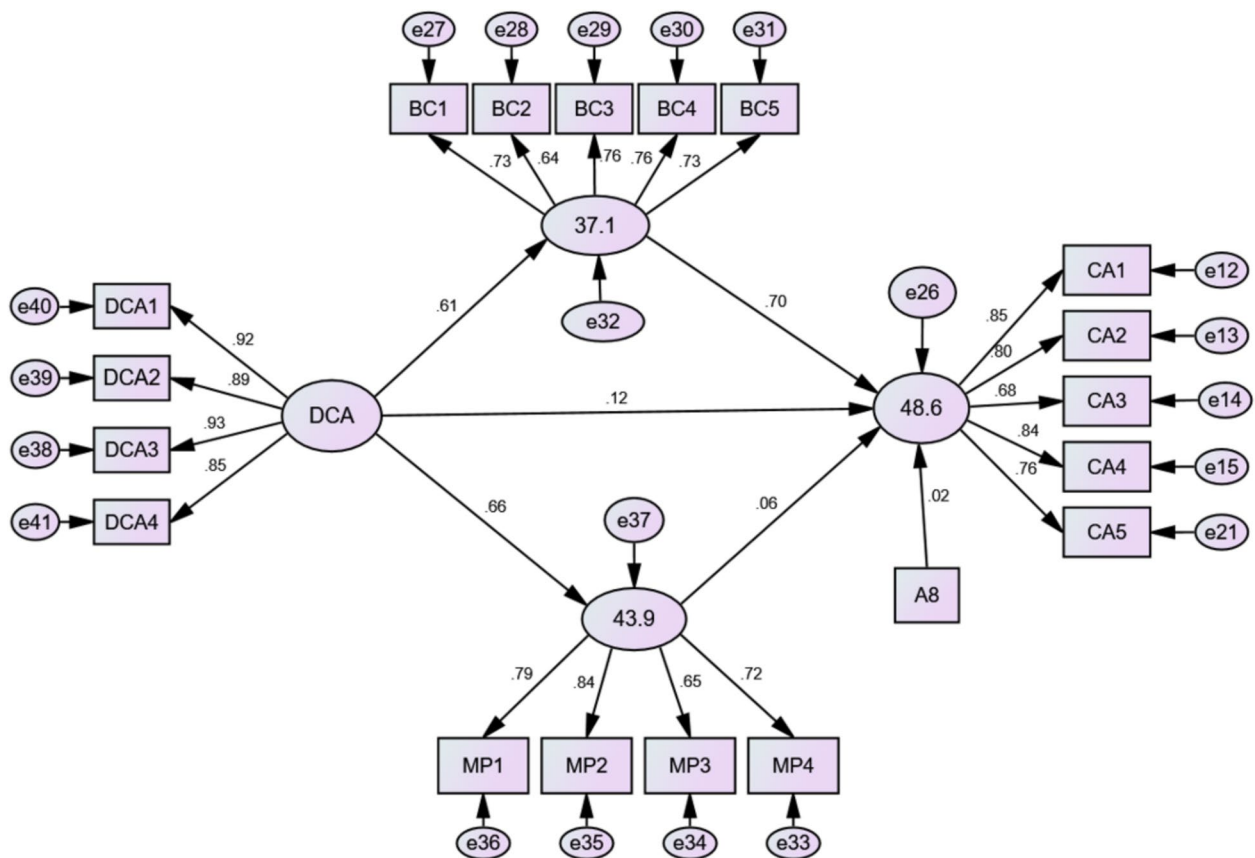


Fig. 2 SEM path model of DCA, MP, BC, and CA relationships

Figure 2 visually illustrates the structural model, highlighting the standardized path coefficients, measurement loadings, and *R*-squared values for BC (37.1%), MP (43.9%), and CA (48.6%) as explained by DCA and other predictors.

Discussion

This study explored how DCA influences CA in resource-constrained SMEs, examining the mediating roles of BC and MP. Drawing on the RBV and DC Theory, we sought to (1) assess DCA's direct effects on BC and MP; (2) evaluate BC's and MP's direct influences on CA; and (3) test BC's and MP's mediating roles in channeling DCA into CA. RBV posits that lasting CA emerges from resources and capabilities that are Valuable, Rare, Inimitable, and Non-substitutable (VRIN), whereas DC Theory emphasizes firms' capacity to integrate, reconfigure, and renew resources in response to dynamic environments. By situating DCA as a dynamic capability that enables SMEs to convert digital investments into VRIN assets, this research extends both theoretical perspectives in a low-resource context. Specifically, our results confirm the RBV prediction that only VRIN-like intangibles transmit advantage, while extending DCT by showing that DCA yields CA only when orchestrated into brand-based assets in LMIC SMEs.

Our findings affirm that DCA serves as a powerful enabler of both BC and MP. Specifically, SMEs actively deploying digital platforms, social commerce tools, and digital payment systems significantly strengthened their BC, measured through digital brand awareness, perceived quality, loyalty, and associations, as well as expanded their digital reach. This aligns with prior research indicating that digital adoption is necessary but not sufficient for sustained advantage. Studies in Eastern Europe, such as Dumitriu et al. [25], show that Romanian SMEs leveraging digital marketing tools in conjunction with intentional brand-building efforts realize greater stakeholder trust and loyalty. Similarly, Marolt et al. [32] demonstrate that relational social commerce capabilities, built through continuous digital engagement, are critical for translating digital presence into brand equity. In resource-constrained settings like Uganda, our evidence suggests that the same micro-foundational routines (personalized content, customer feedback loops, consistent digital storytelling) underlie BC formation, confirming that DCA must be coupled with deliberate brand management practices [28, 73].

The more intriguing insight emerges when contrasting BC and MP as channels from DCA to CA. Although DCA markedly enhanced MP, allowing SMEs to access previously unreachable market segments at low cost, MP neither directly conferred CA nor mediated DCA's

impact on CA. This finding refines classical marketing tenets asserting that broader market share yields economies of scale, bargaining power, and superior performance [16, 17]. In resource-constrained digital markets, however, switching costs are minimal and digital offerings can be rapidly imitated [14]. Our results mirror meta-analytic evidence that marginal market share gains produce negligible profitability when rivals can replicate promotions and targeting strategies almost instantly. This dynamic is amplified in contexts where SMEs lack deep pockets to sustain extensive marketing budgets, digital reach becomes a commoditized resource rather than a VRIN asset. Accordingly, we challenge scale-led explanations of digital advantage and specify a boundary condition low switching-cost, high-imitation environments under which MP is unlikely to translate into CA.

By embedding MP and BC within a single structural model, we demonstrate empirically that only BC functions as a VRIN mediator. Whereas MP characterized by digital audience expansion operates as a threshold capability easily matched by competitors, BC embodies intangible assets that resist imitation. Studies in Ghana [10] and Kenya [49] support this interpretation, showing that brand orientation coupled with innovation or social media capabilities yields superior performance relative to mere digital expansion. In our sample of Ugandan SMEs, digital reach did not translate into sustainable rents: digital campaigns, influencer tie-ins, and geo-targeted ads could be cloned within hours, rendering MP gains fleeting. As such, prioritizing reach alone risks expending scarce resources on efforts that competitors replicate before any enduring advantage can accrue. This contrast refines RBV by distinguishing replicable "threshold" digital reach from harder-to-imitate brand assets and demonstrates, *in situ*, that only the latter transmits advantage.

In stark contrast, BC exerted a robust direct effect on CA and fully mediated the DCA–CA relationship. This confirms RBV's central assertion that intangible resources, particularly customer-based brand equity, constitute quintessential VRIN assets [19, 39]. Empirical evidence from diverse contexts validates BC's strategic value: Monfort et al. [40] find that sustainability-driven digital communications in Spain significantly boost consumer trust and brand loyalty, which in turn elevate CA. In Romania, digital marketing tools aligned with sustainability goals bolstered BC, leading to heightened competitive positioning [25]. In Ghana, Odoom and Mensah [10] demonstrate that BC augmented by social media and innovation capabilities directly correlates with superior SME performance. Together, these studies confirm that BC transforms digital interactions into relational capital, emotional resonance, and trust that competitors cannot readily replicate precisely the attributes required for

sustained CA. Our evidence extends RBV by identifying BC as the primary conduit through which digital investments yield CA and by specifying which CBBE dimensions (awareness, perceived quality, loyalty, associations) matter most in LMIC SMEs.

DC Theory further elucidates why BC, rather than MP, mediates DCA's impact on CA. DCA, as a dynamic capability, encapsulates a firm's ability to sense evolving consumer preferences (e.g., emergent social media trends), seize market opportunities (e.g., targeted digital campaigns), and transform internal operations to reinforce BC [31, 74]. In our Ugandan context, SMEs that engaged in message testing, iterative feedback loops, and community engagement effectively nurtured BC. For instance, digital routines that solicit customer reviews, foster user-generated content, and deliver tailored brand narratives engender emotional bonds that transcend mere transactional relationships. Similar observations in Slovenia [32] illustrate how relational social commerce capability, cultivated through sustained digital engagement, drives competitiveness. Thus, SMEs that deliberately convert digital touchpoints into consistent brand experiences craft BC as a dynamic resource, enabling them to capture CA through customer loyalty and credibility that are inherently difficult to replicate. We therefore extend DCT by specifying LMIC-relevant micro-foundations, message testing, feedback loops, community building that convert DCA into BC, and by highlighting boundary conditions (resource constraints, fast imitation) that shape these routines.

This interpretation aligns with broader digital branding scholarship. Under digital disintermediation, brand personality and active customer engagement are paramount to prevent commoditization of offerings [34]. Digital co-creation and user-generated content become essential levers for maintaining brand equity, as consumers increasingly seek authenticity and participatory experiences [1]. Our findings echo Saeed, Grover, and Hwang's [30] assertion that e-commerce capabilities alone do not drive performance unless integrated with customer service and relational capabilities. In resource-constrained environments, where budgets and infrastructural support are limited, BC emerges as a strategic equalizer. Wiid, Senoane, and Cant [26] demonstrate that African SMEs investing in digital brand narratives, social media storytelling, and influencer collaborations see marked gains in customer retention despite financial constraints. Likewise, Suryaningsih and Abadi [37] find in Asia-Pacific B2B chemicals that BC, comprising brand awareness, perceived quality, loyalty, and associations, significantly enhances competitiveness in commoditized markets. Collectively, these studies substantiate that BC is the linchpin of CA in digital contexts where resource

constraints render scale and reach insufficient. Taken together, our results confirm RBV's emphasis on VRIN intangibles, challenge share-based views of digital advantage, and extend DCT with LMIC-specific micro-foundations and boundary conditions that explain when and how DCA produces competitive advantage.

Implications

Practical implications

SME managers should transition from merely pursuing broader market access to cultivating a distinctive, robust brand identity. They must emphasize digital narratives that highlight core values and purpose, create emotionally compelling content, and collaborate with influencers or micro-influencers to build trust. Engaging formats like polls, live Q&A sessions, and customer-generated testimonials deepen audience bonds, transforming casual interactions into lasting loyalty. Loyalty programs and systematic solicitation of customer feedback via social channels further strengthen connections, enabling SMEs to translate digital visibility into enduring relational capital.

Establishing agile marketing processes is crucial in rapid digital environments. Leaders must employ analytics platforms to track consumer preferences and behavior patterns, detecting emerging trends early. Consistent A/B experiments on digital advertisements, email subject lines, social media imagery, or website elements identify which content resonates best with intended audiences. By refining messaging according to immediate insights and swiftly adjusting tactics, SMEs keep their branding responsive and adaptive. Training team members to respond promptly and empathetically to customer inquiries via live chat, social platforms, or messaging apps reinforces trust and fosters a sense of community, helping brands stand out in crowded digital spaces.

Aligning digital touchpoints into a unified brand approach improves customer experience. Rather than isolating social media, e-commerce sites, and mobile applications, SMEs should maintain coherent visuals, tone, and messaging across all platforms. This omnichannel strategy delivers a seamless, professional brand presence whether a customer engages via social post, online storefront, or email newsletter. Additionally, investing in accessible support offerings, live chat assistance, AI-powered chatbots for routine queries, and transparent return policies demonstrates a commitment to customer satisfaction. When customers receive prompt, helpful assistance online, it reinforces the brand promise, builds loyalty, and encourages repeat purchases.

Theoretical implications

This study extends RBV by demonstrating that BC functions as the pivotal intangible resource through which digital commerce activities yield competitive advantage for SMEs. It challenges the widespread belief that simply adopting digital tools, launching an e-commerce site, or establishing social media profiles automatically produces lasting benefits. Instead, our findings show that digital investments must be strategically funneled into building brand equity, awareness, loyalty, trust, and perceived quality to create a defensible advantage. This refinement of RBV's application in digital contexts emphasizes that intangible assets must mediate technological adoption's impact on firm performance.

The research also advances DC Theory by identifying the specific micro foundational processes that enable SMEs to reconfigure digital resources into valuable brand assets. We highlight digital brand-building routines, personalized content creation, community engagement practices, and iterative customer feedback loops as vital capabilities for nurturing BC. By detailing how these processes unfold in resource-constrained environments, the study bridges the gap between the mere possession of digital tools and the development of enduring intangible assets. It underscores that SMEs must continuously adapt and learn to deploy digital tools effectively in order to strengthen their brand.

Moreover, by establishing that DCA leads to competitive advantage primarily through BC rather than MP, this work informs more integrated frameworks for digital strategy. Future research should examine additional intangible resources, such as intellectual capital, relational capital, or organizational learning capabilities, and explore how they interact with digital capabilities to drive sustainable performance. This layered perspective encourages scholars to consider both resource endowment and the processes for resource composition when evaluating digital transformation initiatives in SMEs. Additionally, future studies should consider a broader range of control variables beyond firm size, such as firm age and location, to provide a more nuanced understanding of the relationships examined.

Policy implications

To foster SME competitiveness, policymakers and development agencies should broaden digital support programs to include dedicated digital branding workshops. These workshops can equip entrepreneurs with skills to craft compelling brand narratives, engage customers through social media storytelling, and manage online reputations effectively. Hands-on training in content creation, visual design, and messaging consistency will

enable SMEs to build a robust brand presence without requiring large marketing budgets. This targeted support ensures that digitalization efforts extend beyond basic website functionality to include strategic brand-building components.

Governments should also invest in "digital trust" infrastructure to reduce transaction uncertainty and accelerate brand capital formation. Measures might include establishing secure digital payment platforms, enforcing robust consumer protection regulations, and granting certifications, like digital trust seals, that signal credibility. When small businesses can display official trust marks and adhere to clear, enforceable e-commerce standards, consumers feel more confident making online purchases. Lower perceived risk in digital transactions directly supports SMEs in building credibility and fostering customer loyalty, thereby strengthening their brand capital.

Finally, policymakers should provide financial incentives specifically aimed at intangible asset development rather than merely subsidizing technology adoption. Introducing matching grants or tax incentives for SMEs that demonstrate measurable improvements in brand awareness, customer satisfaction, or online reputation can motivate small firms to invest in brand-building activities. Additionally, supporting the formation of cooperative branding consortia, such as creating collective trademarks or geographic indication labels, enables resource pooling for broader marketing initiatives. By facilitating joint branding efforts and rewarding investments in intangible assets, policymakers communicate that long-term competitiveness depends on brand equity as much as digital infrastructure.

Conclusions

This study offers a robust examination of how DCA influences CA in resource-constrained SMEs, revealing that BC, not MP, serves as the critical conduit for digital investments to yield competitive advantage. By integrating RBV and DC Theory, we demonstrate that SMEs must transform digital adoption into VRIN brand assets through dynamic digital routines and relational engagement. The findings challenge conventional digitalization rhetoric that equates broader reach with sustained advantage, underscoring the necessity of prioritizing brand equity formation. For scholars, these results enrich theory by elucidating micro-foundations for BC in digital contexts. For practitioners and policymakers, they provide actionable guidance: invest in brand-building routines, foster digital trust infrastructure, and incentivize intangible asset development to ensure SMEs can compete sustainably, even amid severe resource constraints.

Limitations and future research

While our study contributes important insights, it has limitations. First, reliance on snowball sampling may have introduced referral bias, potentially skewing toward more digitally savvy SMEs. Future research could leverage official registries or mixed methods sampling to enhance representativeness. Second, the cross sectional design precludes causal inference over time; longitudinal studies could illuminate how BC evolves and sustains CA as digital landscapes change. Third, our focus on urban districts in Uganda may limit generalizability; comparative studies across diverse LMICs or rural contexts would test whether BC's mediating role holds under different infrastructural and institutional constraints. Finally, while we operationalized CA through perceptual measures (strategic edge and agility), incorporating firm-level performance metrics (e.g., growth rates and profitability) would strengthen empirical rigor.

Author contribution

R.B. wrote the main manuscript text, conceptualized the study, contributed to developing the hypotheses, generated the literature review and wrote the final manuscript. C.S.B. contributed to the methodology write up, data collection and the analysis of the data. He also reviewed the final manuscript.

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Data availability

If required will be provided.

Declarations

Ethics approval and consent to participate

Ethics approval was received from the Research Ethics Committee (REC) from Mbarara University of Science and Technology. The approval reference number is MUST-2025-368. The consent from the participants was captured in the research instrument.

Consent for publication

Consent to publish was captured in the research tool.

Competing interests

The authors declare no competing interests.

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References

- Kencebay B, Ertugan A (2025) Understanding the mediating effect of brand equity on sustainability and omnichannel operation and phygital experience. *Sustainability*. <https://doi.org/10.3390/su17051878>
- UNCTAD (2021) Digital economy report 2021: cross-border data flows and development. In—United Nations conference on trade and development, Geneva
- World Bank (2020) Digital economy for africa initiative report. World Bank, Washington
- Gomber P, Kauffman RJ, Parker C, Weber BW (2018) On the fintech revolution: interpreting the forces of innovation, disruption, and transformation in financial services. *J Manage Inf Syst* 35(1):220–265. <https://doi.org/10.1080/07421222.2018.1440766>
- OECD (2021) The digital transformation of SMEs (OECD studies on SMEs and entrepreneurship). OECD Publishing, Paris. <https://doi.org/10.1787/bdb9256a-en>
- Sudrajad AI, Tricahyono D, Zuwardi A-A, Yulianti EB, Ahmad I, Rosmawati W (2023) The role of digitalization performance on digital business strategy in Indonesia MSEM. *Int J Prof Bus Rev* 8(6):26
- Achieng MS, Malatji M (2022) Digital transformation of small and medium enterprises in sub-Saharan Africa: a scoping review. *J Transdiscipl Res South Afr*. <https://doi.org/10.4102/td.v18i1.1257>
- Bouwman H, Nikou S, de Reuver M (2019) Digitalization, business models, and SMEs: how do business model innovation practices improve performance of digitalizing SMEs? *Telecommun Policy*. <https://doi.org/10.1016/j.telpol.2019.101828>
- Chen Q, Zhang N (2015) Does e-commerce provide a sustained competitive advantage? An investigation of survival and sustainability in growth-oriented enterprises. *Sustainability* 7(2):1411–1428. <https://doi.org/10.3390/su7021411>
- Odoo R, Mensah P (2019) Brand orientation and brand performance in SMEs: the moderating effects of social media and innovation capabilities. *Manag Res Rev* 42(1):155–171. <https://doi.org/10.1108/MRR-12-2017-0441>
- International Trade Centre (ITC) (2022) SME competitiveness outlook 2022: connected services, competitive businesses. ITC, Geneva
- OECD (2019) OECD SME and entrepreneurship outlook 2019. OECD Publishing, Paris
- World Bank (2022) Digitalizing SMEs to boost competitiveness: insights from emerging markets. World Bank, Washington
- Edeling A, Himme A (2018) When does market share matter? New empirical generalizations from a meta-analysis of the market share-performance relationship. *J Mark* 82(3):1–24. <https://doi.org/10.1509/jm.16.0250>
- Jovanovic JS, Vujadinovic R, Mitreva E, Fragassa C, Vujovic A (2020) The relationship between E-commerce and firm performance: the mediating role of internet sales channels. *Sustainability*. <https://doi.org/10.3390/su12176993>
- Kotler P, Keller KL (2016) *Marketing management*, 15th ed. Pearson
- Porter ME (1985) *Competitive advantage: creating and sustaining superior performance*. Free Press, New York
- Charles H, Lester M (2024) Leveraging digitalization for SME growth: a roadmap to competitive advantage. <https://doi.org/10.13140/RG.2.2.35558.43841>
- Barney J (1991) Firm resources and sustained competitive advantage. *J Manage* 17(1):99–120. <https://doi.org/10.1177/014920639101700108>
- Bharadwaj A, El Sawy OA, Pavlou PA, Venkatraman N (2013) Digital business strategy: toward a next generation of insights. *MIS Q*. <https://doi.org/10.25300/MISQ/2013/37.2.3>
- Konuk S, Doruk ÖT, Önal YB (2023) An empirical investigation of the relationship between brand value and firm value: evidence from Turkey. *Int J Financ Econ*. <https://doi.org/10.1002/ijfe.2915>
- Belo F, Lin X, Vitorino MA (2014) Brand capital and firm value. *Rev Econ Dyn* 17(1):150–169. <https://doi.org/10.1016/j.red.2013.05.001>
- He Q, Guaita-Martínez JM, Botella-Carrubi D (2020) How brand equity affects firm productivity: the role of R&D and human capital. *Econ Res-Ekonomska Istrazivanja* 33(1):2976–2992. <https://doi.org/10.1080/1331677X.2019.1686045>
- Luo X, Bhattacharya CB (2006) Corporate social responsibility, customer satisfaction, and market value. *J Mark* 70(4):1–18. <https://doi.org/10.1509/jmkg.70.4.1>
- Dumitriu D, Militaru G, Deselnicu DC, Niculescu A, Popescu MAM (2019) A perspective over modern SMEs: managing brand equity, growth and sustainability through digital marketing tools and techniques. *Sustainability*. <https://doi.org/10.3390/su11072111>
- Wiid J, Senoane B, Cant M (2024) Small and medium-sized enterprise brand development in an emerging economy: The view of the owner/manager. *Development Management* 23(3):50–59. <https://doi.org/10.57111/devt/3.2024.50>
- Agaba MK, Kalu EO (2019) Brand equity and competitive advantage in alcoholic beverage products. *Int J Manag Netw Econ* 4(3):246–262

28. Eisenhardt KM, Martin JA (2000) Dynamic capabilities: What are they? *Strateg Manag J* 21(10–11):1105–1121. [https://doi.org/10.1002/1097-0266\(200010/11\)21](https://doi.org/10.1002/1097-0266(200010/11)21)
29. Teece DJ, Pisano G, Shuen A (1997) Dynamic capabilities and strategic management. *Strateg Manag J* 18(7):509–533. [https://doi.org/10.1002/\(SICI\)1097-0266\(199708\)18](https://doi.org/10.1002/(SICI)1097-0266(199708)18)
30. Saeed KA, Grover V, Hwang Y (2005) The impact of e-commerce on firm performance. *J Strat Inf Syst* 14(4):295–330. <https://doi.org/10.1016/j.jsis.2005.10.003>
31. Warner KSR, Wäger M (2019) Building dynamic capabilities for digital transformation: an ongoing process of strategic renewal. *Long Range Plann* 52(3):326–349. <https://doi.org/10.1016/j.lrp.2018.12.001>
32. Marolt M, Zimmermann HD, Pucihar A (2022) Social media use and business performance in SMEs: the mediating roles of relational social commerce capability and competitive advantage. *Sustainability*. <https://doi.org/10.3390/su142215029>
33. Susila GPAJ, Purbawangsa IBA, Rahyuda H, Artini LGS (2023) Competitive advantage and intellectual capital as mediators of the influence of corporate governance on firm value. *Jurnal Ilmiah Akuntansi* 8(1):206–224
34. Gielens K, Steenkamp JBEM (2019) Branding in the era of digital (dis) intermediation. *Int J Res Mark* 36(3):367–384. <https://doi.org/10.1016/j.ijresmar.2019.01.005>
35. Oduro S, Mensah-Williams E (2023) Marketing capabilities and competitive performance in the SMEs context: a bi-theoretical perspective. *J Small Bus Strateg* 33(2):17–35. <https://doi.org/10.53703/001c.77458>
36. Barua A, Konana P, Whinston AB, Yin F (2004) An empirical investigation of net-enabled business value. *Manag Inf Syst Res Cent*. <https://doi.org/10.2307/25148656>
37. Suryaningsih W, Abadi F (2024) Conceptual exploration: the roles of brand equity towards firm competitive advantage in commodity chemical industry. In 5th international conference on global innovation and trends in economy 2024 (INCOGITE 2024), Atlantis Press, pp 697–711. https://doi.org/10.2991/978-94-6463-585-0_47
38. Aaker DA (1996) Building strong brands. Free Press, New York
39. Keller KL (2003) Strategic brand management: building, measuring, and managing brand equity, 2nd edn. Prentice Hall, NJ
40. Monfort A, López-Vázquez B, Sebastián-Morillas A (2025) Building trust in sustainable brands: revisiting perceived value, satisfaction, customer service, and brand image. *Sustain Technol Entrep* 4(3):100105. <https://doi.org/10.1016/j.stae.2025.100105>
41. Keller KL (2013) Strategic brand management: building, measuring, and managing brand equity, 4th ed. Pearson
42. Zoogah BD, Degbey WY, Elo M (2023) Industrial policy environments and the flourishing of African multinational enterprises. *J Int Bus Policy* 6(4):408–431
43. Chen P, Kim SK (2023) The impact of digital transformation on innovation performance: the mediating role of innovation factors. *Heliyon*. <https://doi.org/10.1016/j.heliyon.2023.e13916>
44. Castiaux A (2012) Developing dynamic capabilities to meet sustainable development challenges. *Int J Innov Manag*. <https://doi.org/10.1142/S1363919612400130>
45. Kump B, Engelmann A, Kessler A, Schweiger C (2019) Toward a dynamic capabilities scale: measuring organizational sensing, seizing, and transforming capacities. *Ind Corp Change* 28(5):1149–1172. <https://doi.org/10.1093/icc/dty054>
46. Kocak A, Carsrud A, Oflazoglu S (2017) Market, entrepreneurial, and technology orientations: impact on innovation and firm performance. *Manag Decis* 55(2):248–270. <https://doi.org/10.1108/MD-04-2015-0146>
47. Hussain I, Mu S, Mohiuddin M, Danish RQ, Sair SA (2020) Effects of sustainable brand equity and marketing innovation on market performance in hospitality industry: mediating effects of sustainable competitive advantage. *Sustainability*. <https://doi.org/10.3390/su12072939>
48. Eriandani R, Winarno WA (2023) Esg and firm performance: the role of digitalization. *J Account Invest* 24(3):993–1010. <https://doi.org/10.18196/jai.v24i3.20044>
49. Gitonga G, Kariuki P, Kimani E (2025) Market penetration strategies and competitive advantage of the telecommunication firms in Kenya. *Int J Strateg Manag* 4(1):1–26. <https://doi.org/10.47604/ijsm.3171>
50. Mutuku MK, Muathe S, James R (2019) Mediating effect of competitive advantage on the relationship between e-commerce capability and performance: empirical evidence from commercial banks in Kenya. *Eur J Bus Manag* 11(17):48–57
51. Mutembei C, Wanjira Njuguna J (2019) Competitive strategies and market penetration of insurance companies in Kenya. *Int Acad J Hum Resour Bus Adm* 3(7):552–571
52. Saunders M, Lewis P, Thornhill A (2009) Research methods for business students, 5th ed. Pearson
53. Uganda Bureau of Statistics (2022) Statistical abstract 2022
54. Krejcie RV, Morgan DW (1970) Determining sample size for research activities. *Educ Psychol Meas* 30(3):607–610. <https://doi.org/10.1177/001316447003000308>
55. Atkinson R, Flint J (2001) Accessing hidden and hard-to-reach populations: snowball research strategies. *Soc Res Update* 33(1):1–4
56. Biernacki P, Waldorf D (1981) Snowball sampling: problems and techniques of chain referral sampling. *Sociol Methods Res* 10(2):141–163
57. Goodman LA (1961) Snowball sampling. *Ann Math Stat* 32(1):148–170
58. Shadish WR, Cook TD, Campbell DT (2002) Experimental and quasi-experimental designs for generalized causal inference. Houghton Mifflin
59. Groves RM, Fowler FJ Jr, Couper MP, Lepkowski JM, Singer E, Tourangeau R (2009) Survey methodology, 2nd edn. Wiley, NJ
60. Salganik MJ, Heckathorn DD (2004) Sampling and estimation in hidden populations using respondent-driven sampling. *Sociol Methodol* 34(1):193–240
61. Dillman DA, Smyth JD, Christian LM (2014) Internet, phone, mail, and mixed-mode surveys: the tailored design method, 4th edn. Wiley, NJ
62. Armstrong JS, Overton TS (1977) Estimating nonresponse bias in mail surveys. *J Mark Res* 14(3):396–402
63. Saunders M (2012) Choosing research participants. In research methods for business students, 6th ed. Pearson, pp 238–260
64. Atilgan E, Aksoy S, Akinci S (2005) Determinants of the brand equity: a verification approach in the beverage industry in Turkey. *Mark Intell Plann* 23(3):237–248
65. Corp IBM (2020) IBM SPSS statistics for windows (version 27.0) [computer software]. Armonk, NY
66. Hair JF, Black WC, Babin BJ, Anderson RE (2019) Multivariate data analysis, 8th edn. Cengage Learning
67. Fornell C, Larcker DF (1981) Evaluating structural equation models with unobservable variables and measurement error. *J Mark Res* 18(1):39–50. <https://doi.org/10.1177/002224378101800104>
68. Kline RB (2016) Principles and practice of structural equation modeling, 4th edn. The Guilford Press, New York
69. Zhao X, Lynch JG Jr, Chen Q (2010) Reconsidering baron and kenny: myths and truths about mediation analysis. *J Consum Res* 37(2):197–206. <https://doi.org/10.1086/651257>
70. Cohen J (1988) Statistical power analysis for the behavioral sciences, 2nd edn. Lawrence Erlbaum Associates, NJ
71. Podsakoff PM, MacKenzie SB, Lee J-Y, Podsakoff NP (2003) Common method biases in behavioral research: a critical review of the literature and recommended remedies. *J Appl Psychol* 88(5):879–903
72. Hu L-T, Bentler PM (1999) Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. *Struct Equ Modeling* 6(1):1–55
73. Teece DJ (2007) Explicating dynamic capabilities: the nature and micro-foundations of (sustainable) enterprise performance. *Strateg Manag J* 28(13):1319–1350
74. Teece DJ (2018) Business models and dynamic capabilities. *Long Range Plann* 51(1):40–49

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