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Micro-Foundations of Dynamic Capabilities for Generative AI Integration

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Abstract- ***This study provides a rare, detailed empirical account of the specific routines, roles, and processes that constitute the micro-foundations of dynamic capabilities for Generative AI in an African legacy firm. Through an immersive 14-month ethnography of a Kenyan financial services company, we go beyond theoretical concepts to document the actual organizational structure of technological adaptation. Our findings identify and define three key organizational routines that form the core of the firm's dynamic capabilities: (1) the "AI Opportunity Radar," a structured sensing system for systematic environmental scanning; (2) the "Proof-of-Concept Sprint," a disciplined process for rapidly validating opportunities; and (3) the "AI Integration Squad," a transformative approach for continuous capability embedding. We contribute to Africa-focused management research by offering unprecedented empirical detail on how African firms organize internally to seize technological opportunities, providing both a theoretical advancement in understanding the micro-foundations of dynamic capabilities and a practical guide for legacy firms navigating digital transformation on the continent.***

Index Terms- ***Dynamic Capabilities, Micro-Foundations, Generative AI, Organizational Routines, Legacy Firms, Africa, Kenya, Digital Transformation***

I. INTRODUCTION

The digital transformation of African enterprises marks one of the most significant economic developments of the 21st century, yet our understanding of how legacy firms on the continent are building internal capabilities to leverage technologies like Generative AI remains surprisingly limited (Zoogah et al., 2023). While extensive literature exists on the challenges of digital adoption in Africa (Abebe et al., 2023) and the success of digital-native startups (Lingelbach, 2024), we know very little about the internal organizational processes through which established African firms are adapting to technological disruption (Mbalyohere et al., 2024).

The dynamic capabilities framework, which emphasizes the micro-foundations of strategic adaptation (Teece, 2007), provides a valuable theoretical perspective for understanding this phenomenon. However, as Di Vaio et al. (2024) note, there remains a significant "empirical gap in understanding the specific organizational routines and processes that constitute dynamic capabilities in real-world contexts." This gap is especially evident in African settings, where most research concentrates on macro-level issues rather than organizational processes.

This study addresses both theoretical and empirical gaps by asking: What specific organizational routines, roles, and processes underpin the microfoundations of dynamic capabilities for Generative AI in a Kenyan legacy firm? Through an immersive 14-month organizational ethnography of "KenyaFirst Bank," we offer unprecedented detail on the structures of technological adaptation.

Our contributions are threefold. First, we respond to calls for more detailed research on the micro-foundations of dynamic capability by providing extensive empirical evidence on specific organizational routines (Felin et al., 2024). Second, we contribute to African management literature by moving beyond challenge-based narratives to demonstrate how African firms actively develop advanced adaptation capabilities. Third, we present a practical "anatomy of adaptation" that offers a replicable model for other legacy firms navigating digital transformation.

II. THEORETICAL FRAMEWORK

The idea of micro-foundations—the individual, routine, and organizational building blocks of higher-level capabilities—has become crucial for

progressing in dynamic capabilities theory (Felin et al., 2024; Teece, 2007). While the three-part framework of sensing, seizing, and transforming offers a helpful macro-level view of dynamic capabilities, its practical value relies on understanding the specific organizational components that make up these capabilities (Di Vaio et al., 2024). As Winter (2023) argues, "dynamic capabilities remain theoretical abstractions until we can identify the specific organizational routines and decision rules that constitute them." This micro-foundational perspective is especially important for understanding how firms develop a reproducible capacity for change instead of relying on ad hoc responses to environmental shifts (Zahra, 2023). However, as Korherr and Kanbach (2024) note in their systematic review, "the black box of micro-foundations for digital capabilities remains poorly unpacked." Most studies still treat dynamic capabilities as latent constructs inferred from outcomes rather than directly observable organizational phenomena. This is especially true in African contexts, where research on dynamic capabilities is still in its early stages (Mbalyohere et al., 2024).

Organizational Routines as Capability Carriers

Organizational routines—the recurring, recognizable patterns of interconnected actions performed by multiple members—are increasingly regarded as the primary carriers of organizational capabilities (Feldman, 2023; Pentland et al., 2024). Routines act as the organization's "muscle memory," enabling coordinated action while allowing space for flexibility and adaptation (Rerup & Feldman, 2024). In the realm of technological adaptation, routines serve a dual purpose: they encode existing organizational knowledge and also provide platforms for learning and change (Turner & Rindova, 2023). This dual role makes routines particularly vital for understanding how legacy firms can break inertia and develop dynamic capabilities for emerging technologies like GenAI.

However, as Winter (2023) warns, not all routines qualify as dynamic capabilities. The main difference is whether routines are operational (performing current tasks) or dynamic (adapting operational routines). This study specifically looks at the latter—the routines that enable the firm to systematically change its operational routines in response to GenAI opportunities.

III. METHODOLOGY

We used an organizational ethnography approach (Ybema et al., 2023) to develop a detailed, contextual understanding of the micro-foundations of dynamic capabilities. This approach was particularly suitable because our focus was on uncovering the often-tacit organizational routines and practices that support capability development (Feldman, 2023). Our philosophical orientation followed the tradition of practice-based studies (Nicolini, 2023), which views organizational phenomena as enacted through everyday practices and routines rather than existing as abstract constructs. This perspective enabled us to move beyond what organizations say they do and observe what they actually do in practice.

The research was conducted at Kenya First Bank, where we gained excellent access to observe organizational processes across various levels and functions. The study period (January 2023-February 2024) coincided with the company's intense efforts to develop GenAI capabilities, providing a rare opportunity to observe capability development in real time. Our multi-method data collection was specifically designed to capture detailed aspects of organizational routines. The first author spent approximately 120 hours in direct observation, including 45 hours observing formal meetings and decision-making processes, 35 hours shadowing key personnel involved in GenAI initiatives, and 40 hours observing routine work practices and informal interactions. We conducted 42 semi-structured interviews focused on organizational processes and routines. Unlike traditional interviews that explore perceptions and attitudes, our interviews used the "routine elicitation" technique (Turner & Rindova, 2023), asking participants to walk us through specific processes step-by-step.

We collected and analyzed 86 internal documents providing insights into organizational routines, including process manuals, standard operating procedures, meeting agendas and minutes, project charters, implementation guides, training materials, and job descriptions. We examined physical and

digital artifacts representing these routines, such as templates, forms, software tools, and workflow diagrams. Our analysis used a grounded theory approach (Charmaz, 2023) while applying specific techniques for studying organizational routines. We created detailed maps of routines by triangulating observation notes, interview data, and documentary evidence. This involved identifying actors, actions, artifacts, and patterns that make up each routine. We also looked for recurring patterns across different contexts and over time, focusing on how routines support sensing, seizing, and transforming activities. Additionally, we analyzed how particular routines contribute to developing dynamic capabilities by examining their roles in the adaptation process.

IV. FINDINGS

Our analysis identified three key organizational routines that serve as the foundation of the firm's dynamic capabilities for GenAI. Each routine comprised specific micro-foundations of sensing, seizing, or transforming capabilities. The "AI Opportunity Radar" was a monthly, cross-functional meeting explicitly designed as a systematic sensing mechanism. This routine involved representatives from each business unit and functional area collaborating to scan, share, and synthesize information about GenAI advancements.

There were 12-15 representatives from business units, technology, strategy, and innovation, participating in a monthly, 90-minute session. A standardized template required each participant to bring one external trend, one competitor activity, and one internal implication. The discussion was structured around the "STEEP" framework (Social, Technological, Economic, Environmental, Political factors). They prioritized an opportunity list, assigned follow-up actions, and updated the strategic radar.

Micro-Foundations Revealed

The routine incorporated several key sensing micro-foundations: Instead of centralizing environmental scanning, it utilized the diverse perspectives and positions of participants across the organization. The STEEP framework offered a consistent way to interpret ambiguous external developments. The routine outlined specific steps for converting external trends into clear organizational implications. A middle manager explained: "Before the Radar, everyone was seeing bits and pieces of the AI revolution, but nobody was putting it together. The Radar forces us to systematically scan our environments and make collective sense of what we're seeing. It's turned random observations into strategic intelligence."

The "Proof-of-Concept Sprint" was a disciplined, time-bound process for quickly validating GenAI opportunities. This 30-day cycle offered a structured way to pursue opportunities while managing risk and resource use. It spanned 30 calendar days from start to decision point, involved a cross-functional team with dedicated time, and included Week 1 (Problem definition), Weeks 2-3 (Solution development), and Week 4 (Validation and presentation). A formal go/no-go decision was made on day 30 based on predefined success criteria.

The routine included several key micro-foundations: The standardized approach allowed for quick assembly of teams and resources. The time-limited nature and decision points enabled progressive commitment based on learning. The routine incorporated specific mechanisms for capturing and documenting learning, regardless of the project's outcome. A project team member explained, "The sprint model lets us test ideas quickly and cheaply. In 30 days, we can go from a vague notion to a working prototype and a clear go/no-go recommendation. It's eliminated the paralysis of over-analysis and big-bet thinking."

The "AI Integration Squad" was a permanent, rotating organizational unit responsible for embedding successful GenAI experiments into business operations. This routine served as the firm's main mechanism for institutionalizing change. Consisting of 8-10 members with diverse skills (technical, business, change management), the team rotated every 6 months with 2 members overlapping for continuity. They provided embedded support to business units, working alongside operational staff. The team systematically captured and codified integration patterns, focusing on adoption rates, performance impact, and capability transfer.

Micro-Foundations The routine included several key micro-foundations that drive transformation: The rotating structure established ongoing capacity for organizational change. Systematic collection of integration patterns helped build organizational memory. The embedded work mode supported transferring GenAI capabilities to business units. An Integration Squad member explained, "We're the bridge between innovation and operations. We take what works in experiments and make it work at scale. The rotation ensures fresh perspectives constantly, while the overlap maintains organizational memory. We're building transformation into the fabric of how we work."

The Interplay of Routines

Critically, these routines functioned as an interconnected system rather than in isolation. The Opportunity Radar fed into the Sprint pipeline, which then generated projects for the Integration Squad. This created a self-reinforcing cycle of adaptation: systematic sensing (Radar) identified opportunities, disciplined seizing (Sprint) validated them, and continuous transforming (Squad) institutionalized successful validations. This routine system represented the firm's core dynamic capability—the repeatable ability to adapt to GenAI disruption through structured organizational processes.

V. DISCUSSION

Our main contribution lies in what we call the "anatomization" of dynamic capabilities—the detailed empirical documentation of their specific organizational components. By moving beyond abstract concepts to concrete routines, we address repeated calls for a more detailed understanding of dynamic capability micro-foundations (Felin et al., 2024; Winter, 2023). The three routines we identified—Radar, Sprint, and Squad—are observable, repeatable organizational structures that systematically produce sensing, seizing, and transforming results. This anatomical perspective helps close the gap between theory and practice in dynamic capabilities by showing exactly how organizations can build reproducible adaptation capacity.

Our findings challenge narratives that portray African firms as mainly reactive or limited in their technological adaptation (Abebe et al., 2023). The advanced routines we observed show how African firms are capable of developing world-class organizational capabilities for digital transformation. The routine-based approach could be especially useful in African settings marked by resource constraints and institutional gaps (Zoogah et al., 2023). By systematizing adaptation through routines, firms can produce more consistent results with limited resources, while steadily building organizational learning over time.

Beyond theoretical insights, our study provides a practical "anatomy of adaptation" that serves as a replicable model for other legacy firms. The three-routine system (Radar-Sprint-Squad) offers a comprehensive method for developing dynamic capabilities that can be tailored to different contexts and technologies. For practitioners, this model delivers clear guidance on how to organize processes for technological adaptation, moving beyond vague guidelines to specific, actionable organizational structures.

VI. CONCLUSION

This study makes important contributions to both dynamic capabilities theory and African management literature. By breaking down dynamic capabilities into specific organizational routines, we advance the micro-foundations research agenda and offer new empirical support for understanding how organizations adapt to technological change. For African management scholarship, our findings highlight the importance of looking beyond macro-level challenges to explore the sophisticated organizational capabilities being developed by African firms. This emphasizes the need for more organization-level research that captures the agency and innovation happening within African enterprises.

For managers in legacy firms, especially in African contexts, our study provides a practical blueprint for developing dynamic capabilities. The three-routine system offers a structured approach to technological adaptation that combines systematic processes with flexibility and learning. Specifically, managers should consider: implementing structured sensing

mechanisms like the Opportunity Radar; adopting disciplined validation approaches such as the Proof-of-Concept Sprint; building permanent transformation capacity through units like the Integration Squad; and ensuring a close connection between sensing, seizing, and transforming routines.

Our study has several limitations that suggest promising directions for future research. First, as a single case study, the generalizability of our specific routine designs needs testing in other contexts. Future research might explore whether similar routine patterns arise in different industries or cultural settings. Second, our study captures routines at a specific point in time. Longitudinal research that tracks how these routines evolve as technologies mature would offer valuable insights into how dynamic capabilities develop over time. Lastly, research is necessary to understand the contextual factors that impact routine effectiveness. Future studies could investigate how factors such as organizational size, industry dynamics, and leadership styles influence the design and performance of dynamic capability routines.

Examining the micro-foundations of dynamic capabilities, we offer both theoretical progress and practical guidance for understanding how organizations adapt to technological change. The advanced routines we identified in a Kenyan legacy company show the potential for systematic, routine-based strategies to drive digital transformation in African settings and beyond.

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