

Tamirat, Shimelis; Amentie, Chalchissa

## Article

# Advances in knowledge-based dynamic capabilities: A systematic review of foundations and determinants in recent literature

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Shimelis Tamirat & Chalchissa Amentie

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\*Corresponding author: Tamirat Shimelis Department, College of Business & Economics, Wolaita Sodo, University Wolaita, P. O. Box 138, Sodo, Ethiopia  
Email: [ShimelisTamirat@wsu.edu.et](mailto:ShimelisTamirat@wsu.edu.et)

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Trevor Wilmshurst, Accounting and Corporate Governance, University of Tasmania - Launceston Campus, Australia

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## MANAGEMENT | REVIEW ARTICLE

# Advances in knowledge-based dynamic capabilities: A systematic review of foundations and determinants in recent literature

Shimelis Tamirat<sup>1\*</sup> and Chalchissa Amentie<sup>2</sup>

**Abstract:** In contemporary dynamic and turbulent competitive business landscape, knowledge-based competition became a new normal. So far, studies gave little attention to an integration of knowledge and dynamic capabilities for business strategies, however. Therefore, this study was initiated to see recent literature developments in knowledge-based dynamic capabilities (KBDCs) as juxtaposition of both themes to identify foundational sources, factors impacting, and consequences by conducting a systematic review. The review considered 72 empirical papers published from 1 January 2015 to 19 July 2022. The findings indicated that tacit knowledge resource, knowledge management, managerial features (team composition, technological insight, and tenure), intellectual/human capital, organizational design/structure, financial resources, social capital, technology ownership and usage, existing operational and dynamic capabilities, and firm location are the foundations of KBDCs. Contextual factors affecting KBDCs at corporate interior are namely firm size, type, realized absorptive capacity, and experiential and



Shimelis Tamirat

### ABOUT THE AUTHORS

Shimelis Tamirat, Assistant Prof. in Management Department, College of Business & Economics Wolaita Sodo University & Ph.D., Class Student in Management Department of Jimma University. His research interests are on areas of marketing, strategic management, new venture creation and start-up challenges, organizational behavior, and leadership from which some works were published.

Chalchissa Amentie, Associate Professor, Ph.D., in management (specialization in management science), Dean Business and Economics College, Jimma University. He has 14 years of professional experience and contributed about 26 research articles in reputable journals in areas of strategic management, innovation and entrepreneurship, project management, leadership, change management, and marketing management.

### PUBLIC INTEREST STATEMENT

We are amid of knowledge economy that requires sharper strategic sense making to fit the environmental and competitive dynamism using knowledge-based dynamic capabilities (KBDCs). This research synthesis was done in the pursuit of bringing the lessons learned from high-quality studies conducted in different contexts through a systematic review. The findings indicated that KBDCs could be derived from many of the organizational knowledge-related resources, intellectual capital, dynamic capabilities (DCs), and their effective management. According to the lessons drawn from reviewed studies, the effective utilization and absorption of KBDCs were situationally impacted by factors like institutional size and type, technology, competition, business ecosystem, and regulatory forces. It was also evidenced that significant improvement in business performance and competitive advantage is gained due to KBDCs. Therefore, it will be unwise to ignore such a state-of-the-art core competency in both business and non-profit organizations today.

organizational knowledge. Those external factors are new technologies, global competition, market dynamism, local business ecosystem, public innovation intermediaries, economic circumstances, and regulatory factors. Businesses used KBDCs' gained sustainable competitive advantage, improvement in resource base, and proficient in firm's business performance. Theoretical contributions, implications to practitioners, and future lines of research were discussed.

**Subjects: Business, Management and Accounting; Strategic Management; Management of Technology & Innovation; Leadership**

**Keywords: contexts; dynamic capabilities; foundations; KBDCs; knowledge management; systematic review**

## 1. Introduction

### 1.1. Background

As a result of very dynamic global economic environment and the rapid development of technology and other factors, market conditions became turbulent and more uncertain (Lee & Trimi, 2018; Primc & Čater, 2016). Such volatile business environment is able to cause eminent challenges and risks to firm operation and expansions (Gyemang & Emeagwali, 2020; Li et al., 2021) and has more significant influence on business unit performance (Ermaya & Wibowo, 2020). The trend was expected to go in the same way as the environmental change chased by technological advances coupled with globalization in which knowledge-based competition plays a significant role (Lee & Trimi, 2018). This makes knowledge a key factor of competitive advantage for organizations, regions, and nations, and therefore, its measurement has gained tremendous attention (Kianto et al., 2018).

The ability to be on the top of market competition lies not merely in the ownership of best knowledge but in incorporating it into build superior knowledge-based capabilities (Kaur, 2019a). In other words, it needs firms to understand those environmental factors affecting their decisions and how they could influence business strategic choices (Li et al., 2021). Besides knowledge, dynamic capabilities (DCs) also differentiate firms with the ability to survive and compete in periods of rapid and disruptive change from those firms that lose competitive advantage in such environments (Hilsenrath & Pogue, 2017) by enhancing their preparedness for the competitive fitness and strategic alignment (Costa & Rezende, 2018). This in turn requires orchestrating the firm's knowledge-based resources to shape itself in tandem with changes in the marketplace (Teece, 2018).

The preparation in its essence mainly focused on the development of knowledge-absorptive capacity be defined as the DCs of a firm to recognize the value of knowledge and its application to commercial ends (Sinkovics et al., 2018). Based on the knowledge-based view (KBV) of a firm, an appropriate management of knowledge in organization enables the adaptability of strategies of the company as organizational knowledge assets are sources of DCs (Nieves & Haller, 2014). To this end, the findings by S. Li et al. (2019) suggest that DCs rely extensively on combined knowledge derived from global and local marketplace knowledge.

Despite such dovetailed conceptual relations, knowledge resource and knowledge management (KM) were still elusive concepts (Ode & Ayavoo, 2020). The concept of DCs was also lacking theoretical underpinnings (Arndt & Pierce, 2017) as scholars opined that only few studies have elaborated various economic systems and theories to trace the evolution of DC theory (Kapoor & Aggarwal, 2020). Moreover, studies so far gave little attention to the integration of both KM and DCs (Della Corte & Del Gaudio, 2012). This is due to the fact that knowledge and its connection to related ideas became recent phenomenon (Phillips et al., 2017).

The linking of concepts lacks comprehensiveness (TisnawatiTisnawati et al., 2019), for instance, renovating organizational knowledge resources to develop DCs (Nieves et al., 2015); driving *dynamic knowledge capabilities* from knowledge information system strategies (Chan et al., 2016); *experience-based DC deployment* (Tang & Gudergan, 2018); and/or *learning-based DCs* also (Ritola et al., 2021), just to mention a few. This implies that the discussions of the findings of such researches and their contribution to knowledge-based dynamic capabilities (KBDCs) to strategic KM are nascent (Garavan et al., 2016). Some systematic reviews conducted in the field were limited to see factors related to KBDCs (Gupta et al., 2020; Pigola & Costa, 2021) or theoretical mappings (Kaur, 2022).

Therefore, this study was initiated to integrate recent literature developments in KBV and DCs to draw lessons and identify research gaps by conducting a systematic review. The first part of this review introduces KBV of firm and KM, DCs, and KBDCs. The later parts detail the rationale for the review, methods applied, and results obtained. Finally, the review tried to forward managerial and scholarly theoretical, practical, and research implications with limitations of the review.

### 1.2. Overview of KBV and DCs

In earlier strategic management literature as in the resource-based view (RBV), corporations must create competitive advantage from its resources, which need to be *rare*, *imperfectly imitable*, and *non-substitutable* (Herden, 2020). As extension to the RBV in the 1950s, many theoretical trends have been concerned with highlighting the use of knowledge as a way of exploring issues related to competitiveness (Faccin et al., 2019). But remarkably, the rise of the concept of knowledge society and its conceptualization starts from the time of *Karl Marx* onwards (Phillips et al., 2017) and knowledge-worker productivity theory of *Peter Drucker* (Rehman et al., 2021) more worth mentioning in the field. In whatever approach of theorizing, knowledge is considered as the most valuable resource for organizations when it is incorporated into human capital, allowing companies to improve their distinctive competencies (Kianto et al., 2018).

KBV is a prominent way of conceptualizing the bases of competitive advantage that holds knowledge as the most significant strategic organizational resource in terms of its market value (Al-attraqchi et al., 2016). Knowledge-based resources (*intangible assets*) are more decisive than that of tangible resources in stimulating firms that are knowledge driven (Zhao, 2019). Knowledge is described as a multifaceted concept with multi-layered meanings, and therefore, there is no universally accepted definition (Ode & Ayavoo, 2020). But in most of the cases, it was defined as accumulated practical skill or expertise that allows one to do something smoothly and efficiently (Kaur, 2019b). The knowledge value chain starts from raw facts and presents knowledge at the highest echelon in the hierarchy, considering it to be the richest and most crucial component in comparison to data and information. It is the interaction between the *tacit* and *explicit* forms of knowledge that gives rise to organizational knowledge (Faccin et al., 2019). Knowledge integration is one of the prominent differentiators for firm performance (Azari et al., 2020).

From the perspective of KBV, strategic competitiveness of firms depends upon their ability to exploit knowledge relatedness by using the knowledge transfer processes within the organizational network (Villasalero, 2017) though knowledge transfer stimulates the combination of the existing knowledge with the newly acquired one and increases the capability of a unit for carrying out new combinations (Silveira et al., 2017). The aspect most essential for the knowledge integration and application is the degree of its transferability, while *tacit*-ness of knowledge is substantial in the argumentation for generating competitive advantage from knowledge because it make the knowledge as a resource that can be *scarce*, *non-transferable*, and *non-replicable* (Herden, 2020).

KBV treats knowledge as the firm's most important resource and underlines KM as a source of competitive advantage (Azari et al., 2020). KM refers to a set of processes aimed at effective management as well as consumption of organizational knowledge that in turn can ease a firm in creating value, improving performance, and gaining a strategic edge over other players in the

market (Kaur, 2019b). KM was defined as the management function that generates or locates knowledge, manages the issuing of knowledge within organizations, and ensures that the knowledge is used effectively and efficiently for the accomplishment of the organizational goals (Ode & Ayavoo, 2020). In fiercely competitive environment, formulating new strategic archetypes will be an imperative that can enable organizations to update their knowledge resources to adapt and compete in unceasingly changing business environment (Kaur, 2019b). That means KM was also concomitant with DCs and competitive performance (Gyemang & Emeagwali, 2020).

Likewise, DC theory has significant importance in the literature of strategic management and competitive advantages (Tisnawati et al., 2019). The custom of DC theory was traced to Eisenhardt and Martin and to that of Teece and colleagues to their relative emphasis on behavioral versus evolutionary theories (Arndt & Pierce, 2017). DCs were hypothesized to explain that the type of strategic management is needed for a firm to achieve and withstand competitive advantage. That means, RBV is essentially a “static” theory since it does not describe how the firm resources and capabilities advance over time to be the basis of competitive advantage and there comes the notion of “DC” (Teece, 2018).

Before defining DCs, let us define capabilities. “Capabilities” are defined as the resources needed to produce and manage technical change, containing skills, knowledge and experience, and organizational structure and linkages (Sinkovics et al., 2018). It refers to the firm’s ability for utilizing its resources commendably like to bring a product to market earlier than competitors: or it is a firm’s ability to deploy and synchronize different arrangement of resources through firm’s processes to effect an anticipated end (Arifin, 2017). The term “dynamic” signposts the role of renewal and that renewal is not impulsive, but rather an outcome of a strategic decision made in response to an altering context (Kaur, 2019b). When we are mentioning its original term, “DCs”, they are distinctive from operational capabilities, which pertain to the key role of strategic management in appropriately adapting, integrating, and reconfiguring internal and outside organizational skills, resources, and functional competences to match the necessities of a dynamic environment (Arifin, 2017).

Conceptually, throughout most of the studies everywhere a DC is defined, it is the firm’s capability to integrate, build, and reconfigure internal and external proficiencies to address swiftly changing situations (Hilsenrath & Pogue, 2017). Analytically, DCs are disaggregated into: *sensing* opportunities (or threats), *seizing* (or neutralizing) them via expedient investments, and *transforming* the firm and its resources and capabilities accordingly (Teece, 2018). However, the quintessential components of DCs are *absorptive capability*, *innovation capability*, and *adaptive capability* (Kapoor & Aggarwal, 2020). More recently, manufacturers need to contemplate the dynamic interplay between resource repositioning modes (building *digital capabilities*, *leveraging existing capabilities*, *accessing external capabilities*, and *releasing decaying capabilities*), hence stressing their underlining mechanism to converge products, services, and software (Huikkola et al., 2022).

The above definitions and categorizations suggest that resources are the building blocks of organizational capabilities, and capabilities, in turn, can be classified into two types based on capability hierarchy frameworks (Jiang et al., 2021), viz., *ordinary/operational capabilities* and DCs (Daspit et al., 2016). Ordinary capabilities constitute the “*zero-order capabilities*” that enable an organization to earn a living by performing routine governance and operational functions (Jiang et al., 2021). However, DCs enable a firm to constantly renew the stock of ordinary organizational capabilities as well as direct the activities of the firm towards more rewarding endeavors (Ibid).

Although there was no consensus among researchers on the relationship between DCs and competitive advantage (Kaur & Mehta, 2017), it is necessary for fostering the organizational agility to address deep environmental competitive uncertainty, such as that were generated by innovation and the associated dynamic competition (Huikkola et al., 2022). It maps contextual role of strategies for firm growth and organizational ambidexterity (Friesenbichler & Hoelzl, 2022).



Strategic capabilities are renewed through DCs, which involve a reconfiguration of strategic capabilities and processes (Huikkola et al., 2022). When the environmental fuzziness level of the idea and the set of capabilities to develop the knowledge in innovative firms are poorly aligned, the knowledge-development process is either inefficient or runs the risk of stalling (Gama et al., 2022). Therefore, it is expected that organizations should grow, implement, and maintain their DCs in order to improve their intellectual capital as DCs (Tisnawati et al., 2019).

### **1.3. Knowledge-based dynamic capabilities**

As argued above, ignoring the linkage between knowledge resource and capabilities driven from this intellectual resource was not affordable, and therefore, this part tried to elucidate the linkages in KBDCs. Whereas knowledge assets underpin core competencies, DCs are shaped by enabling and inhibiting variables within and outside the firm, including the perceptions and motivations of managers to reconfigure and make use of core competencies and resources to continuously adapt to changing situations (Arifin, 2017). According to Kaur (2019b), these two views to strategic management are complementary, and hence, they could be amalgamated involving both knowledge process capabilities and DCs, which are quintessential for organizational success.

Chan et al. (2016) opined that KM or the creation, transfer, and application of knowledge have paramount importance in supporting dynamic knowledge capabilities and information systems. Kaur and Mehta (2016) also posited that recent strategic management studies did not see DCs in isolation because knowledge process capabilities are leveraged to generate *higher-order DCs*, the resultant KBDCs that have a greater potential to generate competitive advantage for a firm. However, Kaur (2019b) categorized KM-related processes and capabilities as DCs belonging to the first order in the hierarchy of capabilities. DCs are essentially knowledge based, i.e., the information about changes in the business environment is identified with the help of knowledge processes and capabilities (Arifin, 2017). The features of knowledge as an intellectual capital such as; its *temporality* and *dynamics* dimension gives it strategic importance to firms (Kianto et al., 2018). Unlike the DC view, which is focused on renewing resources to modify operational routines, KM is focused on generating solutions to create, transfer, and use tacit knowledge.

The possible combinations between critical KM processes (*absorptive capacity, knowledge transfer, and knowledge application*) build a dynamic or higher-order capability that results in the creation of superior value for customers (Cepeda-Carrion et al., 2017). Therefore, the new thinking and capabilities are generated in companies through knowledge-building practices, especially in network environments (Faccin et al., 2019). When both views fused into a single framework, it was modeled as “dynamic knowledge capabilities” (Chan et al., 2016) or “KBDCs” (Kaur, 2019b) to explain those competencies or capabilities within a firm that manipulate knowledge resources and consists of *knowledge creation, knowledge absorption, knowledge reconfiguration, and knowledge integration capabilities*. Empirically, KBDCs provide a means to create and share expertise, which contributes to the diversification of the economy, and allow businesses to reach beyond their own boundaries to create value for customers in new ways (Robertson et al., 2021). KBDCs had also a positive effect on organizational strategic intuition (OSI) to make them high-performing systems (Songkajorn et al., 2022).

## **2. Rationale and research objectives**

KM is becoming a growing concern in management research and practice because of its role in determining firm performance and competitive advantage and in enhancing working life quality of knowledge workers (Wang & Yang, 2016). Despite the growing interest in KM, it is still an elusive concept (Ode & Ayavoo, 2020). Similarly, there is an exponential growth in the number of publications on DCs in the past decades (Albort-Morant et al., 2018) although some scholars opined that very few studies have elaborated various economic systems and theories to trace its significance (Kapoor & Aggarwal, 2020). These concepts have largely developed in parallel with minimal cross-fertilization (Evans et al., 2017); contrary to generation and development of management, knowledge in DCs of the organizations leads to the strategic learning and the possibilities to absorb this knowledge into organizational innovation (Vargas-Hernández & Muratalla-Bautista, 2017).

But as recent phenomenon, the current state and direction of the knowledge society demand the connection of related ideas to detail implications for business, other organizations, and society at large (Phillips et al., 2017). Few attempts of integrating both KBV and DCs view have been made (Tisnawati et al., 2019). Discussion of the findings of such researches and their contribution to KBDCs to strategic KM is nascent (Garavan et al., 2016). For instance, prior studies tend to argue that DCs played a mediator or moderator role on intellectual capital and performance linkage, while others hypothesized that DCs are the antecedents of intellectual capital (Tisnawati et al., 2019). Therefore, these concepts are not distinct but overlapping and are influenced by broader structural learning and KM processes (Evans et al., 2017) as well as because of its multidimensionality, human agency and action, contextual variability, temporality, and dynamics (Kianto et al., 2018).

Due to this deficit, the impacts of KBDCs on the effectiveness of an organization strategic management were not fully discovered (Cyfert et al., 2021), which contributes to the confusion regarding the conceptual boundaries and relationships and lack of potentially useful evidence for business application. Therefore, this systematic review tried to synthesize advances in lessons from recent empirical evidence in KBDCs. More specifically, the study conducted to:

- identify the foundational sources of KBDCs for firm's strategic orientations;
- sort out the enabling contextual factors enhancing the strategic potency of KBDCs; and
- determine strategic effects of having KBDCs on firms

### 3. Methodology

This study adopted a systematic literature review method to collect evidence from available empirical research articles following the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) (Haddaway et al., 2022; Rethlefsen et al., 2021). This is because a systematic review is a comprehensive review that helps to maintain the required level of quality in the review process (Page et al., 2021).

#### 3.1. Search strategy

In business and management, there is no much advice on deciding the sample selection process as part of a systematic reviews (Hiebl, 2021). The purpose of using two or more databases is recommended to avoid bias of missing publication and enhance the rigor of review (Ewald et al., 2022). Because of its resource-intensive nature (Nussbaumer-Streit et al., 2021), specific colossal database hosting many journals could also be used in some instances, however (Egan et al., 2012). As far as the review process is transparent and reproducible, focusing on high-ranked journals was recommended (Fisch & Block, 2018). Therefore, the database of "ScienceDirect" in combination with *Boolean operators*, "AND" & "OR" and some available filters were utilized for the current review (Al-Tabbaa et al., 2019; Bramer et al., 2017). The search string used was "The Importance of Dynamic capabilities and Knowledge based view for firm strategies and performance". "[All: importance of dynamic capabilities] AND [[All: Knowledge based view for firm] AND [[All: strategies]] AND [[All: performance]] AND [Publication Date: (01/01/2015 TO 07/19/2022)]".

#### 3.2. Criteria for including or excluding studies

Eligibility criteria for final study scope, sample determination, type of article included, and the accessibility of the databases were considered (Kraus et al., 2022). *Elsevier/ScienceDirect/* was accessible and the criteria like search period, search field (e.g., "article title, abstract, keywords"), subject area (e.g., "business, management, strategic management, KM, and related fields), document type (e.g., empirical research articles), language (mainly "English"), and quality filtering (peer-reviewed articles) and document relevance were decided upon by the reviewers (Fisch & Block, 2018; Kraus et al., 2022; Splenda, 2020). Those articles that took either DCs or knowledge-based firm resources or combination as KBDCs were involved in the review. Thus, empirical studies that were openly accessed peer-reviewed articles within time frame scope starting from 1 January 2015 to 19 July 2022 were searched for. This time frame was decided by the reviewers to enhance its up-to-datedness (Bashir et al., 2018;



Pieper et al., 2014). Conceptual papers, literature reviews of any form, unpublished grey literature, journal articles that the reviewer cannot have the access openly, and other databases were not included although some of them were used in the reference of introductory part and substantiating references. The selection of final papers to the review followed the objective of this study. In order to avoid the selection bias, a team of an academic staff colleague was consulted to engage in the article selection process (Frampton et al., 2022). When ties occurred between the reviewers in the selection of the articles decided by consensus arrived upon discussion (Pahlevan Sharif et al., 2019). The search and selection process of the review was depicted in the PRISMA-flow diagram.

### 3.3. Data extraction and analysis

A summary of bibliographic information and the underpinning theoretical lens of the study in each reviewed papers, the methodological approaches employed in each of the studies, and the variables involved in the analysis (as antecedents, intermediate variables, and consequences) were collected in tableau of the data extraction format prepared to this end to address the objectives of the research (Al-Tabbaa et al., 2019). And finally, qualitative thematic content analysis was done, and synthesis based on the collected data from these research articles was performed based on the aim of the present review (Ganshorn & Premji, 2021).

## 4. Results

The primary search using the string with relevant filters based on the exclusion and inclusion criteria provided us with 593 scholarly works. Title and abstract screening eliminated 421 records from the list of documents that do not meet the eligibility criteria of the review. Out of the remaining 172 articles passed title and abstract screening, 28 articles were not accessed due to unavailability of full text for further analysis. Finally, 61 articles that are unrelated to the scope and topic of interest of the present review and 11 articles that were found to be conceptual/review papers were eliminated and the review considered 72 empirical papers. The search and selection process of the articles in the review are indicted in Figure 1.

### 4.1. Descriptive analysis of the characteristics of reviewed papers

As the trend given in the following graph (Figure 2), the number of publications was increasing over the time, indicating that the issue under consideration gains attention of scholars more recently, specifically from 2019 onwards.

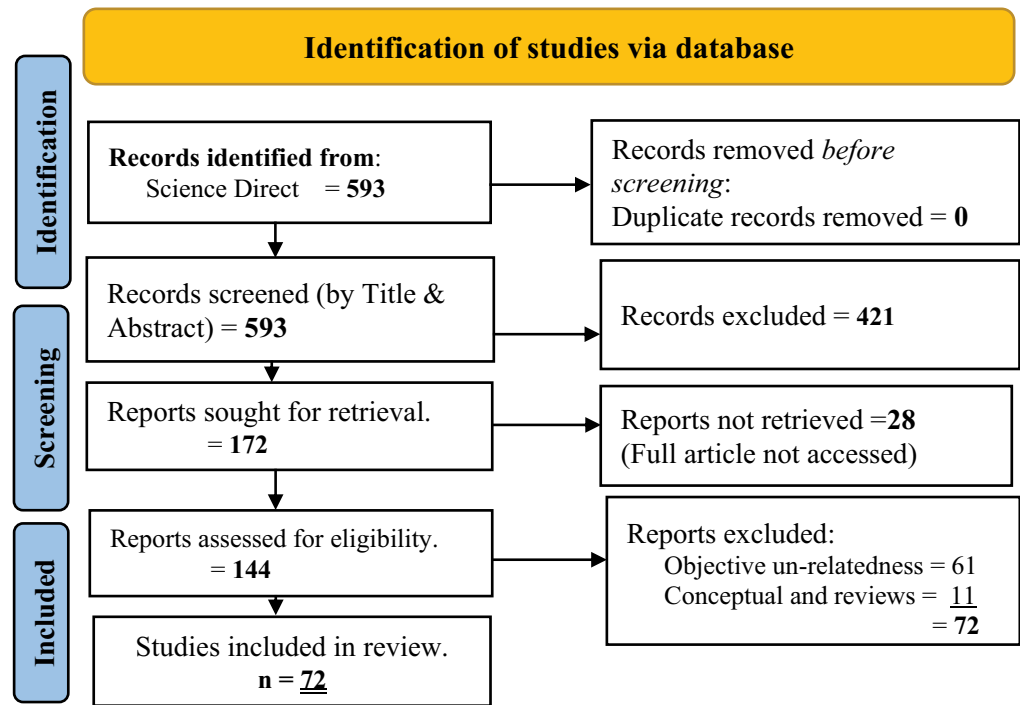
Distribution of the articles included in this systematic review collected from 28 journals, and this shows a third of articles were contributed from three major journals (*Journal of Innovation & Knowledge* 9 (12.5%), *Journal of Business Research* 8 (11%), and *Industrial Marketing Management* 7 (9.7%). Three journals (*Asia Pacific Management Review*, *Research Policy*, and *Technovation*) have 5 articles (7%) each; *Journal of World Business* 4 articles; and *Technological Forecasting & Social Change* 3 articles been involved in the review.

Concerning the location where the studies were conducted, the articles reviewed were collected from multiple directions and cultural settings across the globe. However, majority of the studies were collected from *Europe* 29 (40.3%) and *Asia* 19 (26.4%). The article from *Oceania* is only 1 (1.3%) and *Latin* is 3 (4.16%) that implies the issue of DCs and knowledge resources were unexplored to greater extent in these locations (Figure 3). Regarding the research approach applied to the reviewed studies, out of the 72 papers reviewed, majority or 47 (65%) used quantitative approach, 19 (27 %) employed qualitative method, and the remaining 6 (8 %) done by mixed research approach as indicated in piechart in Figure 4.

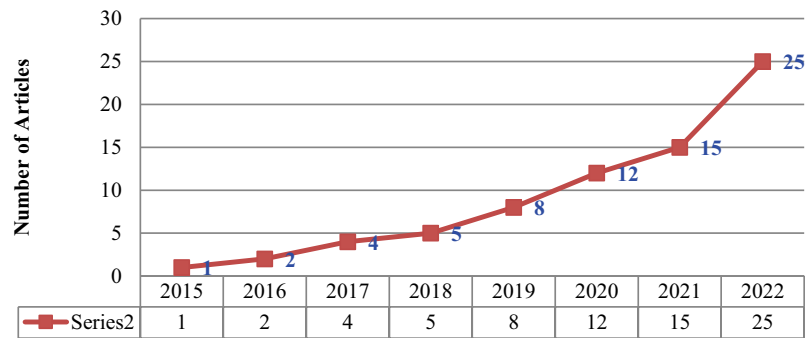
### 4.2. Foundational sources of KBDCs

As indicated in the papers reviewed, the first thing considered as the major source of KBDCs is knowledge resource base and its management. Among others, internal knowledge base was mainly focused on foundation (Hervas-Oliver et al., 2022). Based on the type of knowledge resource, mainly tacit knowledge needed to be stressed as seen in Muthuveloo et al. (2017).

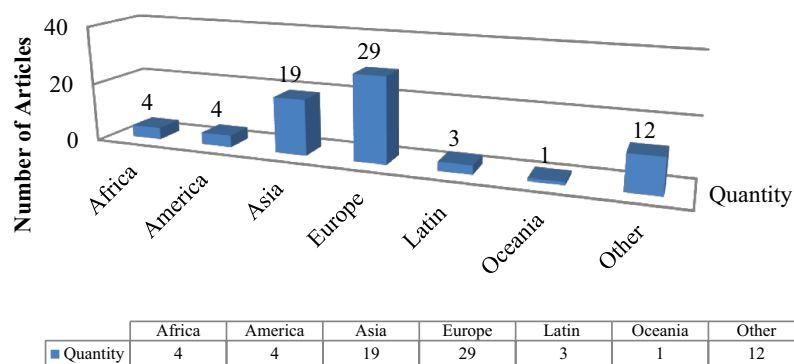
**Figure 1. PRISMA flow diagram of the review.**



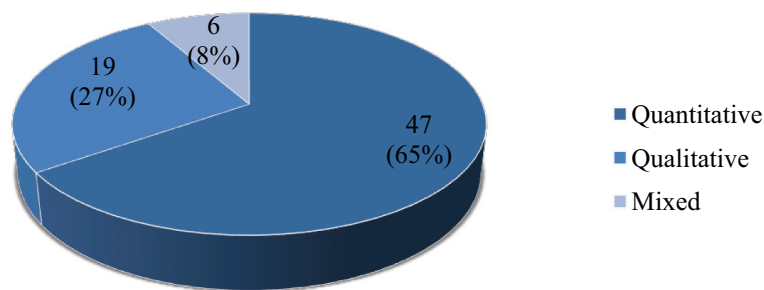
**Figure 2. Publication trend.**



**Figure 3. Study location.**



**Figure 4. Proportion of articles by methodology used.**



Market knowledge (Huang & Huang, 2020) and specifically foreign market entry (FME) knowledge (Martín Martín et al., 2022) became the main source of KBDCs. Different characteristics of knowledge also matters besides the type of knowledge resources, for instance, focal firm's own knowledge recombination novelty in alliance (Kok et al., 2020), knowledge quality (Wang & Yang, 2016), knowledge complexity and embeddedness (Silveira et al., 2017), and linkage of knowledge with other DCs (Monteiro et al., 2019). Therefore, understanding and shaping the knowledge base and capitalization on existing knowledge (De Silva et al., 2018) are important in the upspringing of KBDCs. Knowledge integration and activity coordination (Klessova et al., 2020); knowledge generation, diffusion, storage, and application (Ode & Ayavoo, 2020); inclusive knowledge absorption and knowledge impact (Robertson et al., 2021) were seen as foundations for KBDCs also. In other reviewed papers, this was considered as the strategic alignment of KM affecting the corporate value creation (Costa & Rezende, 2018).

The organizational KM process (Sánchez et al., 2015), management practices (Urban & Matela, 2022), proactive management, and preparation for predictive and analytical readiness (Chirumalla, 2021) are elements of the KM that fetch KBDCs. Coherent routines involving actions to develop skills and motivation in pre-production, production, and post-production capabilities (Sinkovics et al., 2018; Tou et al., 2019) is the essence of KM. Routines underlying the ecosystem such as leader sensing, seizing, and reconfiguration capabilities (Linde et al., 2021); tacit knowledge creation process (Kucharska, 2022; Li Sa et al., 2020); and enhancing knowledge absorption capacity (Khan et al., 2022) are the responsibilities required for the strategic management. This implies the significance of appropriate capability management (Froehlich et al., 2017).

It was also found that KM usage affects user satisfaction (Wang & Yang, 2016). That means, the top management support affects knowledge-enabled capabilities (Mikalef, van de Wetering, et al., 2021). Strategic thinking (Costa & Rezende, 2018), specifically, market orientation, responsive competitor orientation, and proactive competitor orientation (Schulze et al., 2022); proactive and responsive export market orientation (Faroque et al., 2022); learning and technology orientation (Schulze et al., 2022); exploitation–exploration orientation (Cenamor et al., 2019); knowledge application (Ode & Ayavoo, 2020); entrepreneurial orientation (Monteiro et al., 2019; Li Sa et al., 2020); innovation orientation (Farzaneh et al., 2022) that includes innovativeness in KM (Urban & Matela, 2022); and business model innovation (BMI) (Bocken & Geradts, 2020; Latifi et al., 2021; Molden & Clausen, 2021) are required as managerial capabilities to do resource reconfiguration in corporations through managerial sense-making for seizing opportunities and orchestrating capabilities (Poblete et al., 2022; Santos-Vijande et al., 2022).

All these factors highlight the importance of management and related features to create KBDC combinations from these available alternatives. For instance, managerial team with education, experience, and strong positional power (Camisón-Haba et al., 2019); cognitive surpluses (Costa & Rezende, 2018); team member knowledge attributes (Edmondson & Harvey, 2018); technological insight, latitude for strategic change, and business model (Penttilä et al., 2020); and CEO's tenure,

experience, cognitive characteristics like problem-solving, reasoning, language, and communication skills (Ferraris et al., 2022) are among the needed attributes of management.

Not only the managerial position personnel but also others labor force using their ability impact KBDCs (Hilsenrath & Pogue, 2017); and of their creativity, work experience, knowledge, motivation, the reward system, and validity of the suggestion system (González-González & García-Almeida, 2021; Münch et al., 2022) is also needed. Such factors are considered as intellectual/human capital (Farzaneh et al., 2022). Intra-organizational cross-border mobility of knowledge workers (Castellani et al., 2022) and their collective intelligence (Al-Omouh et al., 2022) were considered important here. Strategic human resource management such as selective staffing, intensive training, active participation, comprehensive performance appraisal, and performance based compensation found to mediate the KM and affects for knowledge-enabled DCs (Mikalef, Conboy, et al., 2021; Sánchez et al., 2015).

Factors in organization such as organizational design (Bocken & Geradts, 2020), temporary or agile structures (Poblete et al., 2022), system quality (Wang & Yang, 2016), autonomy (Silveira et al., 2017), and organizational ambidexterity (Crescenzi & Gagliardi, 2018) are helpful to amplify DCs over distributed organizational structure (Hilsenrath & Pogue, 2017). Financial, informational, and relational resources (Monteiro et al., 2019); networking capability (Cenamor et al., 2019); investment on R & D (Tou et al., 2019); and infrastructures (Münch et al., 2022) are also the resources from which KBDCs emanate from.

External knowledge sources compliment internal knowledge shortages (Hervas-Oliver et al., 2022); therefore, external knowledge absorption capacity (Hannen et al., 2019; Monferrer et al., 2021) plays a great role in building KBDCs. Socialization and internationalization of tacit knowledge (Muthueloo et al., 2017); social interaction and communication (Edmondson & Harvey, 2018); global knowledge sharing and transfer across firm boundaries and national boundaries (von Delft et al., 2019); crowd sourcing (Lenart-Gansiniec, 2021); and relational and network capability (Santos-Vijande et al., 2022; De Silva et al., 2022) are considered to leverage the initiation of KBDCs borrowed from outside. In other words, *partnerships* with others (Mikalef, Conboy, et al., 2021); mainly *supply chain* capabilities such as its flexibility, agility, efficiency, and alertness (Shin & Park, 2021); and *stakeholders* enhance KBDCs (Münch et al., 2022). To adequately exploit the KBDCs from such networks, using value chain actors' resources (Ho et al., 2019); having relationship and contract management capabilities (Karimi-Alaghehband & Rivard, 2020) or alliance management capability (AMC) (Dhaundiyal & Coughlan, 2022); congenital inter-organizational learning (Yli-Renko et al., 2020); prior experience on network exploration and exploitation capabilities (Faroque et al., 2021, 2022); use of knowledge gained from suppliers, customers, universities, and research institutes (Duong et al., 2022); and buyer leadership in supply chain (SC-LMX) (Shin & Park, 2021) improve the presence and intensity of knowledge collaboration helpful in building KBDCs (Belitski & Mariani, 2022). But R&D alliance termination hurts the KBDCs (Hohberger et al., 2020).

Technology in general (Penttilä et al., 2020) and its successful reconfiguration (Karimi-Alaghehband & Rivard, 2020) and digital applications quality (Fellnhöfer, 2021) in particular are very important sources of KBDCs in existing world. Different IT-related capabilities such as big data analytics capability (BDAC) (Khan et al., 2022; Mikalef et al., 2020; Mikalef, van de Wetering, et al., 2021); digital platform capability (Cenamor et al., 2019); AI solutions adoptions (Mikalef, Conboy, et al., 2021); e-business pro-activeness (Al-Omouh et al., 2022); social media resource and capabilities (Marchand et al., 2021); data-driven service development (Kaiser et al., 2021); data intelligence (Zeng, 2022); capabilities of digital servitization (Münch et al., 2022); use of specialized technologies like advanced sensors (Kaiser et al., 2021); and other different capabilities on information technology outsourcing (ITO) such as *sensing*, *seizing*, and *orchestrating* capabilities (Karimi-Alaghehband & Rivard, 2020) need not be overlooked to gain sustainable competitive advantage in present business environment. Planning for digital maturity for each function

(Chirumalla, 2021), digital strategy, and digital transformation leadership (AlNuaimi et al., 2022) are some of the essential issues for KBDCs derived from technologies such as IT.

According to Zeng (2022), there are three sets of distinct integrated capabilities helping to bring KBDCs, creating capabilities, transforming capabilities and governance capabilities. This is said to be *generative* capabilities such as knowledge acquisition, inheritance, and updating (Guo et al., 2022) or *reconfiguration* capability (Huikkola et al., 2022) in some reviewed papers. Therefore, we can say different other DCs besides knowledge absorption capability (Hilsenrath & Pogue, 2017), which means consolidation of the *first DCs*, viz., capability to identify environmental contexts (*sensing*), capability to seize/incorporate opportunities (*seizing*), and capability to manage threats and transformation (*reconfiguring*) (Froehlich et al., 2017); DCs support other operational, marketing, and technological capabilities (Mikalef et al., 2020); exploratory (*adaptation* and *absorption*) capabilities (Monferrer et al., 2021); *innovation* capability in using innovation inputs (Molden & Clausen, 2021), which involve four forms of innovation capability mix; citizen and expert focus, citizen-oriented management, peer governments and provider focus (Barrutia et al., 2022); relationship and innovative capabilities (Huang & Huang, 2020); or relational governance mechanisms of DCs (Ashiru et al., 2022), were found to serve as a glue to form KBDCs with the core competencies derived from the knowledge-based resources of a firm. Other origins that were found to be relevant bases of KBDCs involve product quality (Wang & Yang, 2016); firm location in regions (Hervas-Oliver et al., 2022), and local identity embeddedness (Penttilä et al., 2020), which bring positional and market advantage (Ho et al., 2019) and need to be considered to attain KBDCs.

#### 4.3. Contextual factors affecting KBDCs

The importance of the environmental factors both internal and external to strategy was pronounced in the strategic management literatures, and KBDCs are not special to be affected by contextual factors. This review identified many factors that found to affect KBDCs, therefore. For example, enabling contexts (Costa & Rezende, 2018) or contextual factors such as environment, task, time, and leadership (Edmondson & Harvey, 2018) affect cross-boundary teaming for knowledge integration. The role of time or timing in knowledge sharing (Ahokangas et al., 2022) also advocated. These and other situational factors in this review were categorized as firm-level and external factors.

Firm-level factors, particularly resource investment, cross-functional communication, incentives, and AI governance, seriously affect knowledge-enabled DCs (Mikalef, Conboy, et al., 2021). Organizational firm size (Belitski & Mariani, 2022; Marchand et al., 2021), organizational agility (AlNuaimi, Kumar Singh, Ren, Budhwar, Vorobyev, et al., 2022), firm type (family or non-family) (Duong et al., 2022), and subsidiary embeddedness (Ferraris, Degbey, Singh, Bresciani, Castellano, Fiano, Couturier, et al., 2022b) determine the generative capacity of KBDCs. Firm's potential and realized absorptive capacities leverage the availability of external knowledge (Crescenzi & Gagliardi, 2018); dynamic interplay between resource realignment modes (building digital capabilities, leveraging existing capabilities, and releasing decaying capabilities) helps in renewal of strategic capabilities (Huikkola et al., 2022); and flexibility orientation (Khan et al., 2022) has a positive influence on KBDCS. However, a firm alliance portfolio (Hohberger et al., 2020), and experiential knowledge negatively affect KBDCs (Yli-Renko et al., 2020).

Learning and growth rate of firms (Chi et al., 2016), team member interactions (Edmondson & Harvey, 2018), and team learning (Pandey et al., 2019) also play their role. This is mainly concerned with the organizational culture involving learning culture and climate of mistake acceptance (Kucharska, 2022); culture of innovativeness, risk-taking, and pro-activeness (Santos-Vijande et al., 2022); spiritual climate facilitating learning in teams (Pandey et al., 2019); and the architecture for participation (Tou et al., 2019) when combined with collective engagement found to affect the outcomes of KBDCs (Zeng, 2022). There might be several external factors that interplay as a conditioning force and as environmental triggers of sense-making such as new technologies, global competition, market trends, and properties of local business ecosystem (Penttilä et al.,

2020). Public innovation intermediaries perform two different roles such as knowledge integration and network building (De Silva et al., 2022). Economic circumstances and regulatory frameworks (Münch et al., 2022); interdependence and sub-national network co-ordination (Zeng, 2022); and market dynamism and change (Faroque et al., 2021) are among the external factors effecting DCs derived from knowledge.

#### **4.4. Strategic effects of having KBDCs**

KBDCs involve capabilities in knowledge creation, knowledge diffusion, knowledge absorption, and knowledge impact that by itself impacts firm innovation performance and competitive advantage (Robertson et al., 2021). In this section, the review tried to sort the consequences of applying KBDCs that based their origins on knowledge resources of the organizations combined—based on the parameters of sustained competitive advantages, resources capacity, and firm performance.

This review identified that KBDCs have so many advantages and opportunities to the strategic management and sustained competitive advantages. It amplifies firm's customer orientation (Li Sa et al., 2020), which is helpful in bringing organizational agility in times of crises like COVID-19 (Al-Omouh et al., 2020). This helps firms to enhance service functionality and optimization to the preferences of customers (Kaiser et al., 2021). In some instances, this may be accompanied by business model innovation (BMI), which can significantly affect firm's competitive advantage (Latifi et al., 2021). The agglomeration of both internal and external knowledge brings radical and incremental innovations (Hervas-Oliver et al., 2022), which is agility to fit situations (Khan et al., 2022). According to Ferraris et al. (2022), it is said to be strategic dexterity by which Multi-national Companies (MNEs) and their subsidiaries embedded KBDCs in order to cope up with dynamic and demanding situations. For example, Amazon resulted in success of building self-propagating new capabilities leading to supra-functionality beyond economic value of satisfying the shifting customer preferences (Tou et al., 2019).

Knowledge-based practices that capitalize on existing knowledge bring network-based internal value and gain access to global markets that in turn enhance financial value and non-financial value such as knowledge asset, network or social capital, and market (De Silva et al., 2018). Such an optimized and balanced KM profile results in extraordinary corporate value creation (Costa & Rezende, 2018). It also determines the transformation of projects into successful entrepreneurial innovation and new value (Camisón-Haba et al., 2019). When employees are given chance to make use of their creativity, knowledge, and motivation, it will generate innovative suggestions among frontline employees as seen in hospitality industries (González-González & García-Almeida, 2021). The integrative capabilities, i.e., creating capability, coupled with its governance help in identifying new and novel opportunities and drive sustainable growth in a different country (Zeng, 2022). This facilitates the companies' innovation ambidexterity as indicated in Farzaneh et al. (2022). It resulted in the success of building self-propagating new capabilities leading to supra-functionality that ultimately gives the company an opportunity of a skyrocketing increase in market capitalization (MC) seen empirically in Amazon (Tou et al., 2019). KBDCs are very important to bring collaborative innovation and organizational sustainability (Al-Omouh et al., 2022).

In some empirical studies reviewed, KBDCs brought positive effects on organizational performance (Latifi et al., 2021). Firm performance in general (Li Sa et al. 2020) and international-export performance in particular (Martín Martín et al., 2022; Monteiro et al., 2019) will be enhanced by using KBDCs. The innovativeness as a result of KBDCs positively affects firm performance (Urban & Matela, 2022). Knowledge absorption capacities seriously determines innovation performance (Khan et al., 2022). Its effect was empirically tested in the study conducted by Dhaundiyal and Coughlan (2022) that alliance management capability (AMC) enhanced alliance performance. Moreover networking capabilities give corporations the chance to have market knowledge and improvement in performance (Faroque et al., 2022).



## 5. Conclusions & implications

This study tried to synthesize the current state of evidence on KBDCs back to theory and comment on the linkage of evidences based on the reviewed materials as the purpose of any systematic review (Siddaway et al., 2019).

### 5.1. Managerial theoretical contributions

Although Drucker was acknowledged for knowledge-worker productivity theory, KM theory origin dates back to the time of Marx (Rehman et al., 2021). Until recently, its concepts were not blended when scholars such as Kaur tried to integrate both DCs and knowledge-based view of a firm that gave birth to KBDCs to strategic management literature. In order to gain full understanding about KBDCs, we need to consider its multidimensionality (Kianto et al., 2018). To this end, this study synthesized the foundational sources of KBDCS, contextual factors affecting the weight of KBDCs in strategic management and the business outcomes of using KBDCs in business entities.

Firm-specific DCs embedded in human capital (HC) were widely recognized as the most important resource for superior firm performance (Andersén, 2021). According to the present review, the potential sources of KBDCs involve tacit knowledge resource and KM (von Delft et al., 2019); Martín Martín et al., 2022) and managerial attributes such as management team composition, educational status, experience and skills, positional power strength, technological insight, managerial tenure (Edmondson & Harvey, 2018; Camisón-Haba et al., 2019; Ode & Ayavoo, 2020; Ferraris et al., 2022; Urban & Matela, 2022), and intellectual/human capital and related factors (Al-Omouh et al., 2022; Chi et al., 2016; Farzaneh et al., 2022; González-González & García-Almeida, 2021; Hilsenrath & Pogue, 2017; Huang & Huang, 2020; Münch et al., 2022). Organizational design and structure also help in driving KBDCs from these intangible resources (Bocken & Geradts, 2020; Crescenzi & Gagliardi, 2018; Hilsenrath & Pogue, 2017; Poblete et al., 2022; Silveira et al., 2017; Wang & Yang, 2016). These variables were found to be influencing as indicated in the review in the same way to the theoretical underpinnings (Gupta et al., 2020).

Other resources such as financial and informational/intangible resources (Cenamor et al., 2019; Chirumalla, 2021; Monteiro et al., 2019; Münch et al., 2022; Tou et al., 2019), relational resources or social capital (Ho et al., 2019; Karimi-Alagheband & Rivard, 2020; Yli-Renko et al., 2020; Faroque et al., 2021, 2022; & Shin & Park, 2021), technology ownership and usage (mainly IT) (Al-Omouh et al., 2020; Cenamor et al., 2019; Khan et al., 2022; Mikalef, Conboy, et al., 2021; Mikalef et al., 2020; Mikalef, van de Wetering, et al., 2021), existing operational and dynamic capabilities (Froehlich et al., 2017; Monteiro et al., 2019; Mikalef et al., 2020; Molden & Clausen, 2021; Monferrer et al., 2021b; Huikkola et al., 2022), and other factors like product/service quality (Wang & Yang, 2016) and firm location (Hervas-Oliver et al., 2022) are identified as the foundations to KBDCs.

Besides the antecedents, firm internal factors such as firm size, type, potential, realized absorptive capacity, experiential knowledge, and organizational knowledge (Belitski & Mariani, 2022; Chi et al., 2016; Edmondson & Harvey, 2018; Latifi et al., 2021) were found to be dominant in amplifying determinants of its effects. New technologies, global competition, market dynamism and trends of change, local business ecosystem, public innovation intermediaries, economic circumstances, and regulatory factors (Faroque et al., 2021; Münch et al., 2022; Penttilä et al., 2020; De Silva et al., 2022; Zeng, 2022) are those external conditioning factors significantly affected the effectiveness of KBDCs. External knowledge resources compliment internal knowledge deficiencies (Hervas-Oliver et al., 2022)

Relating the consequences, the strategic outcomes of using KBDCs are categorized into three main parameters in this study. *Sustainable competitive advantage* was the first strategic outcome of employing KBDCs as indicated by customer orientation (Kaiser et al., 2021; Li Sa et al., 2020); organizational agility (Al-Omouh et al., 2020; Ferraris et al., 2022; Khan et al., 2022); incremental innovation (Hervas-Oliver et al., 2022); supra-functionality (Tou et al., 2019); and overall

competitive advantage (Latifi et al., 2021). *Improvement in corporate resource base* indicated by financial and non-financial value of firm (De Silva et al., 2018); extra-ordinary corporate value (Costa & Rezende, 2018); new value backed by entrepreneurial innovation (Camisón-Haba et al., 2019); innovation ambidexterity (Farzaneh et al., 2022); and market capitalization (MC) (Tou et al., 2019) were the other important effects of using KBDCs to the firm. Lastly, *firm performance* that is measured by innovation performance (Khan et al., 2022); international performance (Martín Martín et al., 2022); and overall firm performance (Urban & Matela, 2022). Understanding roots of KBDCs, both internal and external determinants of its effectiveness, and its central role in contemporary strategic management will be important for orchestration of resources and governance of organizational strategies (Sandberg et al., 2021). This was also verified in other theoretical synthesis of literatures in the field (Girardi, 2022). Consequently, thoroughgoing this factors will be theoretically important for understanding bases of contemporary organizational strategies (Kallmuenzer & Scholl-grisseemann, 2017; Sandberg et al., 2021). More importantly, it was also better to note that the demarcation between DCs and knowledge resources is very tiny, which is embedded in the knowledge-based both managerial and non-managerial position human resource management (Zhao, 2019).

### **5.2. Practical implications**

KBDCs bring important strategic benefits such as sustainable competitive advantage, improvement in firm value, and a significant performance improvements (Garavan et al., 2016). However, strategic managers and practitioners need some important points to ponder in recommending KBDCs to deploy in business entities because its alignment yields more opportunities (Costa & Rezende, 2018). Among the important sources of the KBDCs, employee-related managerial and non-managerial as well as external knowledge as social capital and network is a very important source. Therefore, top managers and teams' participation in decisions, asset specialization, and organizational governance are important drivers of KBDCs to be focused on Bontis et al. (2017). Knowledge sharing is also important to absorb external knowledge to orchestrate with internally available resources and governing of network members (Sandberg et al., 2021).

Environmental and status differences create diverse effects on the type of knowledge firms seek and the ways they acquire and integrate it (Nelaeva & Nilssen, 2022). This was also true as in the findings of this review. Both internal and external factors are significantly important to be considered in the strategic management using KBDCs. It is imperative for leaders and managers to have greater openness to changes in the environmental factors, and management innovation is needed to constitute a vital complement for technological innovation in that it is an enabler for innovation (Herden, 2020).

### **5.3. Future research directions**

In reviewed studies, DC was considered as either antecedent for knowledge resources in the organization (Klessova et al., 2020; Li Sa et al., 2020) or vice versa (Hannen et al., 2019; De Silva et al., 2022). This entails that scholars cannot agree on the issue, and therefore, a revision to conventional thinking on strategic management is needed (BERGH et al., 2016). Therefore, this review was obliged to recommend researchers about the causal relationships between DCs and organizational knowledge resources and hence the precursor is determined. The review results also signposted that using KBDCs results in sustainable competitive advantage; improvement in resource base; and improvement in firm's business performance. However, most of the reviewed studies could not be distinguished between business-level, corporate-level, or industry level-effects (Bocken & Geradts, 2020; Chi et al., 2016); some of the studies focused only on internal environmental factors (Camisón-Haba et al., 2019; Froehlich et al., 2017) and the limitations that arise from the use of discrete scales (Costa & Rezende, 2018; Monteiro et al., 2019) and limited in considering multiple capabilities because new capabilities will be gained through technological disruptions (Cenamor et al., 2019). Therefore, a comprehensive conceptualization by adding the complexity of all working on the concept of KBDCs is needed to redefine and revise the measurement model (Hohberger et al., 2020). That might be the second valuable line of research for future

researchers as it was located in Huang and Huang (2020) where they recommended three theories such as KBV, RBV, and CBV (competence-based view) blended into single model for closer approximation and advance the strategic management theory. Moreover, for issues involving DCs based on knowledge cross-sectional data representing single point in time may not adequately capture the dynamism of strategic variables in turbulent environments (Latifi et al., 2021). Therefore, longitudinal studies would be particularly desirable, given the dynamic changing nature of strategic management. Finally, most of the study data were collected from Europe and Asia; however, Africa, Latin, and Oceania were not adequately addressed in the reviewed metadata. Therefore, research may consider empirical works to fill the lack of data in these locations.

## 6. Limitation of the review

First, this study is limited to the objectives of the systematic review, which is focused on identifying the foundational origins of KBDCs, contextual determinant factors impacting the effectiveness of KBDCs, the strategic outcomes of using KBDCs to strategic management business entities, and hence indicating future lines of research in the field. Second, the studies included in the review are obtained from Elsevier database from which only openly accessed empirical studies published online from 01 January 2015 to 19 July 2022 were used as a sample. This is because systematic reviews are resource intensive (Nussbaumer-Streit et al., 2021), and some of the databases may not be accessed due to subscription restrictions. Finally, the reviewer was limited to thematic content analysis to organize the evidence from each study involved in this review.

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### Author details

Shimelis Tamirat<sup>1</sup>

E-mail: [ShimelisTamirat@wsu.edu.et](mailto:ShimelisTamirat@wsu.edu.et)

ORCID ID: <http://orcid.org/0000-0001-6531-1625>

Chalchissa Amentie<sup>2</sup>

<sup>1</sup> Department, College of Business & Economics, Wolaita Sodo University Wolaita, Sodo, Ethiopia.

<sup>2</sup> Department, College of Business & Economics Jimma University, Jimma, Ethiopia.

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