

DYNAMIC CAPABILITIES IN CRISES: A STATE OF THE ART REVIEW

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ABSTRACT

Dynamic capabilities (DCs) theory has achieved notable fame in the field of management. Studies have demonstrated that firms' performance may be short-lived without DCs, significantly when their environment drastically changes. When it comes to crises, firms are under tremendous pressure to survive. With DCs, firms can effectively respond to crises. Nevertheless, there are a plethora of studies on DCs. A study is essential to integrate key research findings on DCs to leverage DCs for crises effectively. However, the existing research appears to be in an embryonic phase as studies based on narrow search criteria reviewed DCs, and their findings are contextualized, fragmented, and thus not generalizable to crises. Hence, we systematically review and synthesize DC literature to date in context to crises using adapted review methodology guidelines of Tranfield. We identify and analyze 46 articles from 10 journal databases to develop a comprehensive framework that describes DCs' features for crises. We finally highlight research gaps and propose future research avenues and questions to strengthen DCs' theoretical knowledge in crises.

Keywords: Systematic Literature Review, Dynamic Capability, Dynamic Capabilities Theory, Strategic Management, Crisis.

INTRODUCTION

In the past two decades, management scholars have increasingly focused their research on dynamic capabilities (DCs). While the origin of DCs is in strategic management, it has made significant progress in other management fields (Schilke et al., 2018). A search on the Scopus database using the word DCs reveals that the number of articles published on DCs rose from a single digit of 7 (the year 1994) to 4,559 (as of December 31, 2020). DCs come into the picture as unique resources and capabilities argued by the resource-based view to gain competitive advantage are inadequate in a rapidly changing environment. Resources and capabilities must adapt to the changing environmental conditions (Petit & Hobbs, 2010), for which DCs come into the picture. An extensive DC literature has pointed out that DCs support firms to perform in a dynamic environment (Sunder et al., 2019; Baia & Ferreira, 2019).

When it comes to environmental conditions, the recent COVID-19 outbreak is an example of an adverse condition or a crisis that threatened firms' survival worldwide (Wang et al., 2020). To a great extent, a crisis can negatively impact a firms' performance (Parnell, 2014). With DCs, firms can effectively respond to crises (Guo et al., 2020; Nair et al., 2014). However, the academic knowledge of DCs on crises is dispersed around in the abundant DC literature in different formats of publications. It is challenging to understand the theoretical DC construct's applicability for various types of crises, which we believe is a significant literature gap. Thus, a systematic synthesis of the prior literature will provide fruitful future research directions that will

advance the scholarly knowledge of DCs in crises and its applicability for practice. We acknowledge that there are remarkable literature review articles published in the DC field. However, these articles focus on specific particulars. For instance, scales (Silva de Araújo et al., 2018), performance (Baia & Ferreira, 2019), sustainability (Buzzao & Rizzi, 2020; Amui et al., 2017), processes/antecedents/outcomes (Eriksson, 2014), re-evaluation of DCs (Wojcik, 2020; Gremme & Wohlgemuth, 2017), managerial capabilities (Helfat & Martin, 2015), and specific methodologies like bibliographic coupling (Vogel & Güttel, 2013). Although Eriksson (2014) review gave more visibility by outlining processes, antecedents, and outcomes; shortlisted articles were up to the end of 2009, and DCs' focus was generic. To the best of our knowledge, among the DC literature reviews, only two, by Sunder et al. (2019) and Schilke et al. (2018), integrate the findings of prior literature from the perspective of academic and managerial purposes. But these extensive reviews focus on DCs in generic and do not focus on nor highlight DCs for crises. Furthermore, both Sunder et al. (2019) and Schilke et al. (2018) limit their review articles to top management journals. However, articles not published in top journals can still add substantial value to the DCs knowledge pool (For example, Goncalves & Adalberto, 2017). Hence, it is apparent that there are limited specific reviews on DCs in crises.

Based on narrow search criteria, many articles reviewed DCs, and their findings are contextualized, fragmented, and thus not generalizable to crises. It is unclear about the vital role that various variables play during crises. For example, the relevant moderating variables that influence the performance/survival. Furthermore, from a practice perspective, it is unclear how DCs' knowledge is applicable for making decisions during a crisis, for example, designing a survival strategy. There is a need to curate DCs findings with particular reference to crises, thereby enabling researchers to understand better how DC theory can be applied to handle crises.

A systematic literature review (SLR) integrates the research findings and performs a critical evaluation of the existing DC literature. Apart from providing transparency, a critical evaluation of prior studies will help us outline the future research agenda in context to DCs for crises (Kushwah et al., 2019). DCs are not restricted only to the strategic management field but also published in most management fields with different aims, focus, and scopes (Schilke et al., 2018; Eriksson, 2014). DC literature shows the advancement of knowledge and the extent to which studies are interdisciplinary and interdependent among the different management fields. Thus, SLR is an obvious choice compared to other types of reviews that focus on narrow and specific criteria. For example, specific journals or authors (Sahu et al., 2020). There is a lack of SLR on DCs in the context of crises, and this article aims to close this gap with a thorough and comprehensive SLR on prior DC literature. Our SLR does not focus only on one management field, such as strategic management but instead considers all management fields.

Based on the SLR rationale, this article aims to address four research questions (RQs), namely, RQ1: What is the research outline of the existing DCs literature in the context of crises? RQ2: What are the vital research themes on DCs in the context of crises? RQ3: What are the limitations and gaps of the existing DCs literature in the context of crises? RQ4: What are the future research directions for DCs in crises? We intend to answer RQ1 through a descriptive summary of the published articles. For the rest of the RQs, a systematic synthesis of the articles using protocols outlined by Schilke et al. (2018). The remainder of the article is structured as follows. The next section outlines the background of DC literature. The following section explains the methodology. Then, we present the current state of knowledge. The last section highlights future research directions and appraises the limitations of this article.

LITERATURE REVIEW

1990-1999: Foundation Phase

The DC literature has extensively grown over the last three decades. The time-horizon from 1990 to 1999 points out the foundation phase of DC literature. Teece and Pisano published the seminal article on DC in 1994. The term dynamic in DCs refers to the capacity of the firm to renew its existing competencies to handle a changing environment, and the term capabilities refer to the vital role of strategic management to integrate, adapt, or reconfigure the firm's internal and external competencies as well as resources to match the changing environment (Sunder et al., 2019). Teece, along with Pisano and Shuen, further elaborated DCs by providing a theoretical framework in 1997. In the late 1990s, DCs' thinking was strengthened by testing DCs' impact on firms' performance and researching various factors that influence DCs' development. Further, different theories and approaches got integrated with DCs.

2000-2009: Growth Phase

In the year 2000, Eisenhardt & Martin (EM) argued an alternative view about DCs, contradictory to Teece, Pisano, and Shuen (TPS). Kay et al. (2018) explain that both these approaches differ in logic, reasoning, assumptions, and theoretical underpinnings. The majority of scholars in DC literature have either oriented to TPS or EM approach. TPS approach focuses on firm strategy, performance, technology, while the EM approach focuses on firm internal issues, information systems, and processes. EM approach looks at DCs as common attributes found across firms as best practices, as Kay et al. (2018) explained. Building either on TPS or EM approach, various authors extended the conceptual understanding of DCs. Research to understand the evolutions of DCs and their antecedents, mediators, and moderators took place. Several discrete DCs were focused on and tested. DCs' interdisciplinary articles with various management fields started getting published, and the different roles that DCs can take (for example, the role of a mediator between operational capabilities and performance) got examined. Lastly, research on DCs for crises got initiated. In summary, during this time-horizon, there was an increase in DCs' understanding across various settings.

2010-2020: Enlargement Phase

There was a titanic shift in the number of articles published during this phase compared to the last two. A search in the Scopus database using DCs word indicated 58 articles for 1990-1999, 461 articles for 2000-2009, and 2571 articles for the 2010-2020 phase. The search was limited to articles and excluded reviews, conference papers, and others. During this phase, the theoretical understanding of the DC construct was strengthened, and so the empirical evidence. DCs got integrated across various aspects of business and settings. Also, DCs research was undertaken increasingly across various management fields. For DCs in crises, there was an increase in the number of articles published during this phase. Lastly, the TPS approach remained dominant in empirical evidence and DC construct testing from 2000 until 2020.

METHODOLOGY

Although several scholars propose different SLR approaches, they all in common follow Tranfield et al. (2003) review guidelines: plan, execute and report the review (Kushwah et al.,

2019). To answer our RQs, we follow Dhir et al. (2020) SLR methodology process, which adapts to Tranfield et al.'s (2003) review guidelines. Dhir et al.'s (2020) review process has two stages: data extraction and research profiling. The data extraction stage consists of planning, executing steps, and research profiling consists of reporting steps (Behera et al., 2019). Since the DC literature is extensive, a precise set of criteria is required to extract articles relevant to the context of crises. The data extraction stage consists of inclusion and exclusion criteria, selecting databases, review protocol, and quality evaluation. We believe that these precise steps extract relevant articles and provide a strong foundation for conducting a comprehensive content analysis. Thereby, provide sound answers to RQ2 to RQ4. The second stage, research profiling, provides a descriptive summary of the shortlisted articles and addresses RQ1.

Stage 1: Data Extraction

We mainly used the Scopus database for selecting the articles/studies. Past publications have extensively used the Scopus database for conducting SLR (Dhir et al., 2020). Along with Scopus, we also utilized eight journal databases and google scholar for selecting articles. The keywords used for searching the databases included: ("dynamic capabilities" OR "dynamic capability") AND ("crises" OR "crisis"). The databases' names, search fields, and the number of articles shortlisted for each database are in Table 1.

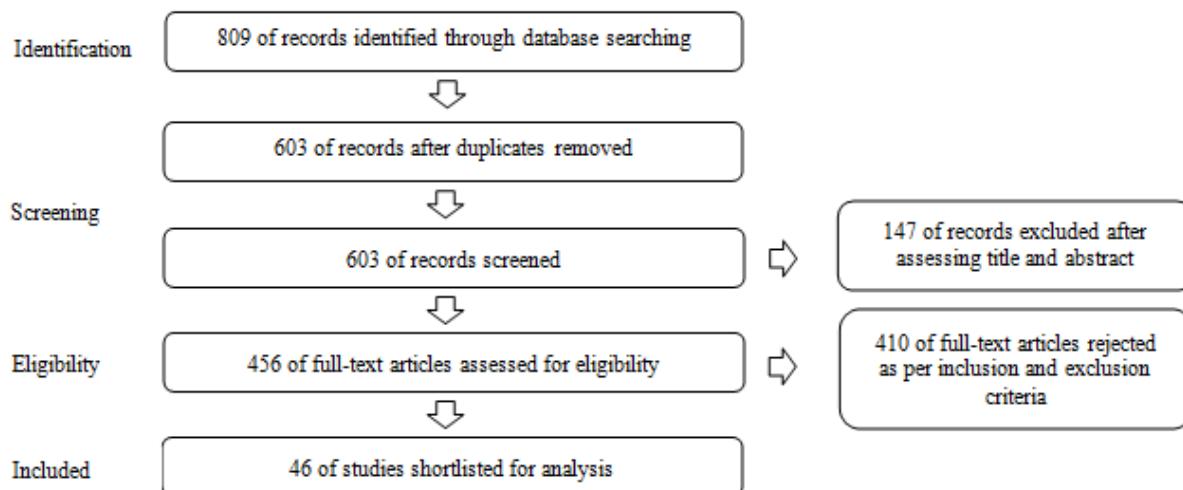
**Table 1
DOCUMENT SEARCH FIELDS**

Database	Search fields	Date of search*	Articles included
Scopus	Document search using article title, abstract, keywords	17.11.2020 18.11.2020 19.11.2020	41
Business Source Complete (EBSCO)	Advance search using title, abstract	20.11.2020	1
ABI/INFORM (ProQuest)	Advance search using document title, abstract	20.11.2020	1
Wiley Online Journals	In resources for researchers, advanced search using title, abstract, keywords	20.11.2020	1
Emerald Insight	Advanced search using title, abstract	20.11.2020	0
Elsevier Online Journals Collection	Advanced search using title, abstract or author specified keywords	20.11.2020	1
SAGE Humanities & Social Science Collection	Advanced search using title, abstract, keywords	20.11.2020	0
Taylor & Francis Online	Advanced search using title, abstract, keywords	20.11.2020	0
Springer Link	Advanced search using title, with all words, with exact phrase	21.11.2020	1
Google Scholar	Advanced search with exact phrase in the title of the article	21.11.2020	0
			Total = 46

Note* date.month.year (example, 17.11.2020 is 17th of November 2020)

The articles found through the review protocol (keywords, databases) got evaluated using inclusion and exclusion criteria. We used the following inclusion criteria: (a) articles published using empirical evidence, (b) review articles, (c) conceptual articles, (d) articles that focus on organizational performance, (e) articles published in the English language, (f) articles based on relevance, that is, DCs in crises, and (g) articles available from 1990 through November 21,

2020. Exclusion criteria: (a) duplicate articles, (b) conference papers/reviews, teaching cases, thesis dissertations, book reviews, books, notes, commentaries, (c) articles that focused on building DCs for town/city/country were ignored, and (d) articles not relevant to DCs and crises. We started our SLR using search keywords in the Scopus database. After which, we searched the remaining journal databases and google scholar for non-duplicate articles. We also conducted a citation chaining search to confirm that relevant articles are not left out. Figure 1 explains our article selection process.



Source: Adapted from Moher et al. (2009)

FIGURE 1
ARTICLE SELECTION PROCESS

We also performed a subjective evaluation of the quality of the shortlisted articles. We followed the four criteria outlined by Kushwah et al. (2019) and Behera et al. (2019). The quality evaluation (QE) criteria are as follows. QE1: The article contains empirical evidence. The possible answers (scores) are, Mixed (+3.5), Quantitative (+2), Qualitative (+1.5), and no evidence (0). QE2: The article evaluates the benefits and limitations. The possible answers (scores) are yes (+2), no (0), and partially (+1). QE3: The article output is justified. The scores are yes (+2), no (0), and partially (+1). QE4: Based on the publication sources. A score of (+2) if the addition of the citation numbers and the H-index is greater than 100. (+1.5) for 50 to 99, (+1) for 1 to 49, and (+0) for 0 or data is not obtainable. The addition of all the QE scores gives the total score. For this study, both the author and co-author independently calculated the scores and the differences got sorted out by discussing. We did not drop any of the shortlisted articles as they all exceeded more than fifty percent of the perfect score of 9.5 (Behera et al., 2019).

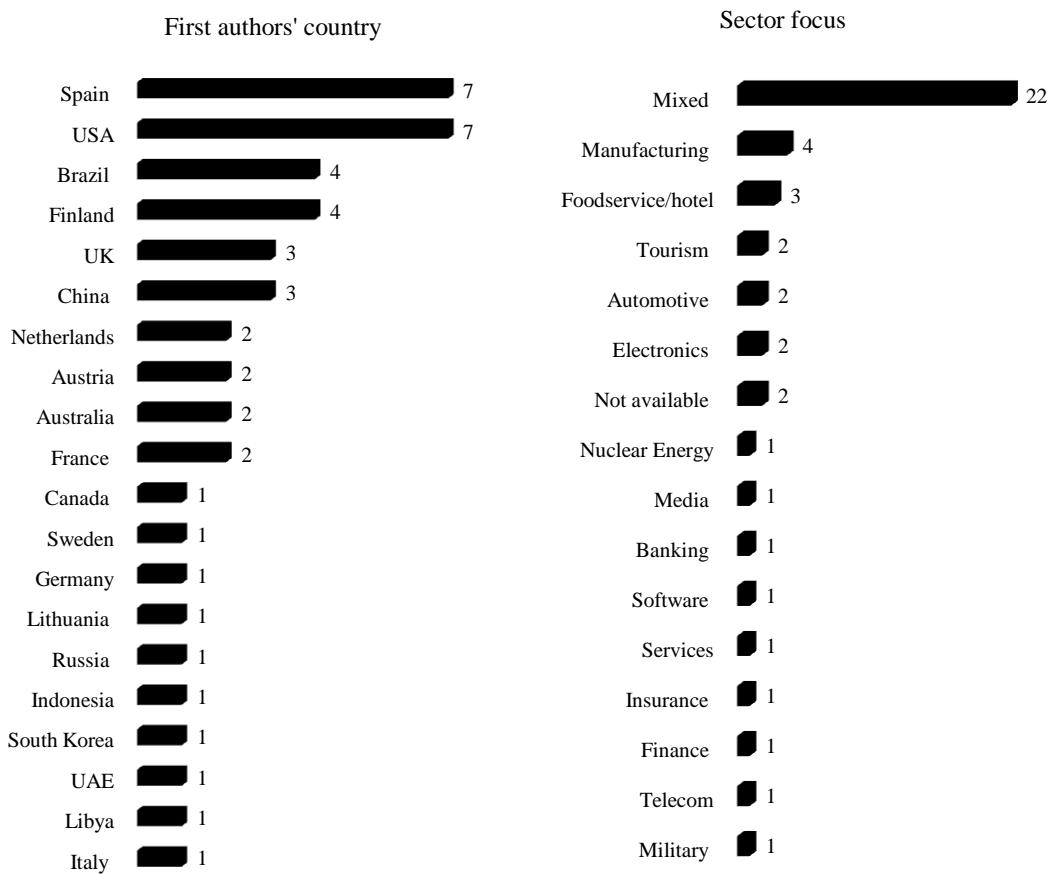
Stage 2: Research Profiling

The shortlisted articles' research profile consists of the year of publication, type of crisis, research design, geographical scope, first authors' country, and sector focus. This descriptive overview presents the direction and focus of the current publications, which can be a reference point for future scholars (Talwar et al., 2020).

Table 2 DISTRIBUTION OF ARTICLES INCLUDED		
Classification	Number of articles included	Percentage
Crisis Context		
Global financial and economic crises of 2008	19	41.30%
Individual country economic crises	7	15.21%
Public health crises of COVID-19	4	8.69%
Technological crises	3	6.52%
East Asian financial crises of 1990s	2	4.34%
Crises due to internal environment changes (example, exit of key employees)	2	4.34%
Crises due to external environment changes (technology, competition, and market)	1	2.17%
Civil war crises	1	2.17%
Dotcom crises (2008) and global financial crises (2008)	1	2.17%
Economic crises of 1998-99 and 2008-09	1	2.17%
European refugee crises of 2016	1	2.17%
Global financial crises of 2008 and Regulatory rules	1	2.17%
Military (Armed forces) crises	1	2.17%
Natural disasters: Floods	1	2.17%
Tourism crises (example, crisis due to a natural disaster)	1	2.17%
Year-wise Distribution of Articles Included		
2020	13	28.26%
2019	6	13.04%
2018	5	10.86%
2017	4	8.69%
2016	1	2.17%
2015	2	4.34%
2014	3	6.52%
2013	3	6.52%
2012	3	6.52%
2011, 2010, 2008	3	6.52%
2005, 2004, 2000	3	6.52%
Research Method		
Quantitative	25	54.34%
Regression analysis	14	
Structural equation modeling (SEM)	8	
Econometric modeling and analysis	2	
Cluster and regression analysis	1	
Qualitative (primary data source)	16	34.78%
Case study	14	
Archival data	1	
Expert interviews	1	
Conceptual	2	4.34%
Descriptive	2	4.34%
Mixed Method	1	2.17%
SEM and case study	1	
Geographical Scope*		
Spain	7	15.21%
UK	7	15.21%
USA	7	15.21%
Brazil	5	10.86%

Note: * Figures indicates countries with five and above articles only

Source: Adapted From Salim et al. (2019)



Note: Mixed value involves more than one sector

FIGURE 2 ARTICLES DISTRIBUTED BASED ON FIRST AUTHORS' COUNTRY AND SECTOR FOCUS

Researchers in the shortlisted articles examined a variety of crises. However, 41% of the articles focused on the global financial and economic crises of 2008. On publication year, only 12% of the articles got published before 2012. However, there was a massive upswing in 2020, with 28% of the articles published in 2020. On the geographical scope, seven articles (out of 46) focused on Spain, the UK, and the USA, which was the highest, followed by Brazil, focused by five articles. Two articles focused on multiple countries in Europe, two on multiple countries worldwide, and one exclusive on Asia-pacific countries. However, most of the articles focused on one country, and most focused on Europe, followed by Asia, South America, and Africa. On the research methodology, 54% of the articles employed quantitative methods followed by qualitative (34%), and less than 5% of articles were of conceptual and descriptive nature. However, only one article used a mixed methodology. On the sector focus, the majority of the articles (47%) focused on more than one sector, followed by manufacturing (8%) and the foodservice sector (6%). On the type of firms, 32% of the articles focused on large enterprises, 19% on small and medium enterprises, and 8% on new ventures. While 6% of the articles

focused on more than one type of organization, 32% of the remaining articles did not explicitly mention the type of organizational focus. Table 2 and Figure 2 present the research profile of the shortlisted articles.

Content Analysis: The Present State of Knowledge

We adopted the Schilke et al. (2018) protocols for performing a content analysis of the shortlisted articles. These protocols build on the essential elements of a theory given by Whetten (1989). That is, “*what, how, why, and who/where/when*”. These theory elements constitute the first layer. “*What*” refers to the DCs features and properties? “*How*” concerns the format of relationships between DCs and independent and dependent variables. “*Why*” is the assumption about causality that describes why DCs are associated with other variables. “*Who/where/when*” indicates the boundary conditions based on which anticipated relationships most and least probably will be right. The first-layer is condensed into a second-layer of specific concepts as follows. “*What*”: definition, underlying process, routinization, functional domain, capabilities hierarchy, and unit of analysis. “*How*”: Antecedents, consequences, and dynamics. “*Why*”: Mechanisms, theoretical assumptions, and theoretical integration. “*Who/where/when*”: Organizational factors, environmental factors, and time. Lastly, “*methods*” is added as an additional first-layer, condensed into empirical and conceptual. The second layer is fine-grained into a third layer. The third-layer outlines the themes (findings) of the shortlisted articles, as explained by Schilke et al. (2018).

We expanded the coding list by adding discrete DCs as a specific concept under the second-layer of “*What*”. The discrete DCs outline the various DCs used to tackle crises. We chose the Schilke et al. (2018) content analysis technique as it will comprehensively dissect the DC theory in context to crises and help us perform a systematic synthesis of the literature to outline both the present state of knowledge and future research directions.

Both the author and co-author coded the 46 shortlisted articles independently, and there was more than 95 percent agreement for the third-layer. Only the articles' explicitly mentioned information got coded under the third-layer, and we made no assumptions. The disagreement of around 5% got sorted through discussion to finalize the coding list.

The themes (findings) outlined in the third-layer are the present state of knowledge. Table 3 shows the coding blueprint and illustrates the themes for the theoretical underpinnings of DCs in crises. The second-layer specific-concepts such as definition, dynamics, theoretical assumptions, theoretical integration, and time are the theoretical underpinnings of the DC theory (Schilke et al., 2018).

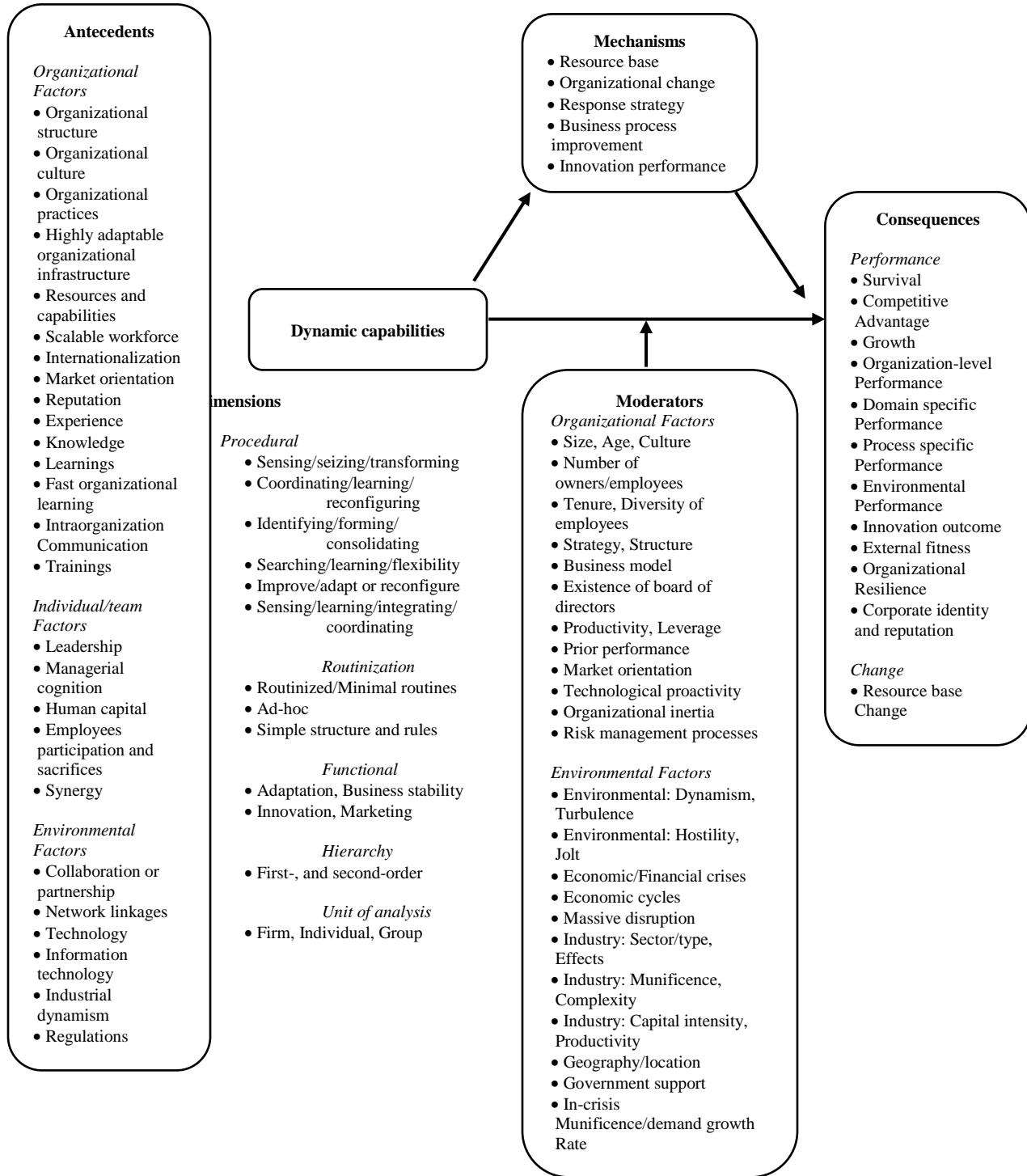
We developed an integrated framework consisting of themes (findings) related to ten second-layer specific concepts, namely, the underlying process, routinization, functional domain, capabilities hierarchy, unit of analysis, antecedents, consequences, mechanisms, organizational, and environmental factors. The framework establishes the features, critical influences, and the results of DCs in the context of crises and provides a comprehensive overview of the present state of knowledge (Schilke et al., 2018). Figure 3 shows the framework.

Table 3 CODING BLUEPRINT FOR THE THEORETICAL UNDERPINNINGS OF DC THEORY IN CRISES		
First-layer	Second-layer	Third-layer Themes or findings (article #)
What? DCs features and properties	Definition	Teece, 2007 (A1, A4, A6, A10, A16, A18, A29, A31, A37, A42) Teece et al., 1997 (A12, A17, A19, A26, A35, A38) Helfat et al., 2007 (A6, A10) Wang & Ahmed, 2007 (A10) Winter, 2003 (A13) Teece et al., 2016 (A15) Rufaidah & Sutisna, 2015 (A20) Griffith & Harvey, 2001 (A21) Helfat & Martin, 2014 (A22) Eisenhardt & Martin, 2000 (A23) Schwarz et al., 2010 (A24) Zollo & Winter, 2002 (A39) Pavlou & El Sawy, 2011 (A44, A45) Unspecified (A2, A3, A5, A7-A9, A11, A14, A25, A27, A28, A30, A32-A34, A36, A40, A41, A43, A46)
	DiscreteDC	Information technology management capability (A1, A4, A24); flexibility (A2, A39); innovation (A3, A8, A9, A19, A32, A42); marketing capability (A5); new product development and internationalization capabilities (A6); sensing, seizing, and capability to maintain relationships (A7); customer relationship management and corporate social responsibility (A8); entrepreneur and export market orientation (A11); strategic environmental practices (A12); crisis management capabilities (A13); exploitative or marketing capability, explorative or innovation and adaptive capability (A14); agility (A15, A35, A46); internal innovation efforts and external knowledge assets (A17); entrepreneur initiatives and network capability as sensing capability, product and niche market development as seizing capability, transforming, renewing, leadership as reconfiguring capability (A18); environmental proactivity (A21); asset management capability (A22); ambidexterity (A23); external DCs or capability to influence external firms' resource allocation, guanxi or relationships and impression management capability (A28); enterprise risk management (A29); regenerative and renewing capability (A30); sensing capability-modular organizing and lateral coordination (A34); organizational mindfulness (A36); hoshin kanri or policy management and top executive audits as second-order - core competency and core capability as first-order capabilities (A38); organizational reconfiguration (A40); qualification, renewal, and knowledge management (A42); leadership, strategic thinking, and organizational culture (A43); unspecified (A10, A16, A20, A25-A27, A31-A33, A37, A41, A44, A45)
How? Format of relationships between DCs and independent and dependent variables	Dynamics	Revolution or quick turnaround (A1-A3, A8, A35, A41) Short-term (A9) Evolution (A4, A6, A7, A10, A14, A18, A26, A30, A31, A39) Timing of effects (A5, A11, A12, A15, A17, A19, A21, A22, A25, A29, A32, A42, A46) Unspecified (A13, A16, A20, A23, A24, A27, A28, A33, A34, A36-A38, A40, A43-A45)
Why? Assumptions about causality that describe why DCs are associated with other variables	Theoretical Assumptions	Heterogeneity or uniqueness (A3, A5, A7, A8, A11, A15, A18, A19, A24,

		A31, A35-A37, A40, A43) Bounded rationality (A10, A14, A22, A36) Managerial agency (A10, A22, A35) Unspecified (A1, A2, A4, A6, A9, A12, A13, A16, A17, A20, A23, A25-A30, A32-A34, A38, A39, A41, A42, A44-A46)
Theory Integration		Digitalization theory (A1) Behavioral theory (A3) Marketing innovation theory (A3) Resource based view (A5, A7, A10, A12, A14, A15, A17, A18, A21-A24, A26, A27, A29, A31, A35, A37-A39, A42, A43) Theory of gradual internationalization (A5) Porter's five forces theory (A7) Institutional theory (A8, A35, A36) Resilience (A10, A22) Evolutionary economics (A10, A14, A22, A30, A32, A39) Organizational inertia (A10, A31) Organizational learning theory (A5, A10, A13, A15, A16, A18, A26, A32, A34, A35, A39, A40, A42, A43) Contingency theory (A12, A14, A21, A39) Ambidexterity theory (A14, A34) Human capital theory (A17) Internationalization process theory (A18) Risk management (A29) Schumpeterian view on innovation (A30) Threat rigidity theory (A34) Innovation diffusion theory (A36) Stakeholder theory of crisis management (A37) Competitive theory (A38) Transaction cost economics (A39, A40) Knowledge based theory (A40) Unspecified (A2, A4, A6, A9, A11, A19, A20, A25, A28, A33, A41, A44-A46)

Note: Adapted From Schilke et al. (2018)

A1-Guo et al. (2020); A2-Evans & Bahrami (2020); A3-Wang et al. (2020); A4-Bez & Chesbrough (2020); A5-Ledesma-Chaves et al. (2020); A6-Colombo et al. (2020); A7-Jasskelainen & Yanatma (2020); A8-Batat (2020); A9-Heinonen & Strandvik (2020); A10-Jiang et al. (2019); A11-Urbano et al. (2019); A12-Seles et al. (2019); A13-Mansour et al. (2019); A14-Tirado et al. (2019); A15-Pereira et al. (2019); A16-Kaltenbrunner & Reichel (2018); A17-Zouaghi et al. (2018); A18-Khan & Lew (2018); A19-Ahn et al. (2018); A20-Sarjana et al. (2018); A21-Ayerbe & Francia (2017); A22-Fainshmidt et al. (2017); A23-Frank et al. (2017); A24-Yoshikuni & Albertin (2017); A25-Kuzmin & Guseva (2016); A26-Macpherson et al. (2015); A27-Alonso-almeida et al. (2015); A28-Glattstein & Lei (2014); A29-Nair et al. (2014); A30-Makkonen et al. (2014); A31-Nedzinskis et al. (2013); A32-Park & Shin (2013); A33-Koskinen et al. (2013); A34-Waard et al. (2012); A35-Nijssen & Paauwe (2012); A36-Wolf et al. (2012); A37-Radway et al. (2011); A38-Witcher et al. (2008); A39-Chung & Beamish (2005); A40-Macpherson et al. (2004); A41-Rosenbloom (2000); A42-Costa & Pereira (2020); A43-Simon (2010); A44-Hernández-Linares et al. (2020); A45-Moreno et al. (2020); A46-Arora et al. (2020).



Source: Adapted from Schilke et al. (2018)

FIGURE 3
INTEGRATED FRAMEWORK OF DCs FOR CRISES

Future Research Avenues

This section identifies the literature gaps and recommends future research avenues to advance DC research in crises. For doing so, we first did a content analysis of the limitations and potential future research areas suggested by our shortlisted articles. We followed the Schilke et al. (2018) protocols highlighted in the previous section. The suggested future research areas and limitations by the shortlisted articles and their respective second-order specific concept were linked together to form the coding blueprint. We then used the coding blueprint as a foundation and evaluated the pertinent research gaps.

We observed many of the limitations and future research areas suggested by the shortlisted articles were taken up by successive research. Thus, we focused on the unanswered issues and new areas that we believe will benefit from subsequent research. Research on the unanswered issues and new areas will advance DCs' knowledge both on academic and managerial fronts. Thus, we recommend the unanswered issues and new areas as future research avenues, and we discuss them in the next paragraphs.

DCs Features and Properties

Definition: Nearly 44% of the shortlisted articles did not explicitly state the DC definition. However, this may not be a pertinent gap. Schilke et al. (2018) mention that lack of definition leads to uncertainty and deprive DCs of understanding.

Underlying process: Two shortlisted articles suggested investigating the underlying process. However, we believe the suggestion given by Schilke et al. (2018) is pertinent and can extend to crises. Exploring the linkages, overlapping, and arrangement between the underlying processes can be a new future research area. For example, sensing/seizing/transforming. Thus, we propose, RQ1.1: How are the DC underlying processes associated with each other in crises?

Routinization: Four shortlisted articles suggested investigating routines that create DCs. However, we observed that around 28% of the shortlisted articles focused on routines for creating DCs for crises, whereas only around 9% of the shortlisted articles on minimal routines/ad-hoc/simple structure and rules. Crises do not occur regularly, and in some cases, it may be one-time. For example, the last known affected public health crises compared to the recent COVID-19 crises was the Spanish Flu, which happened nearly 100 years back. For unforeseen crises like COVID-19, we believe that ad-hoc based DCs may play a vital role in the survival of an organization than routine-based DCs developed over time based on organizational routines. The development of ad-hoc based DCs is a pertinent gap and an unanswered issue. We propose, RQ1.2: How can an organization develop ad-hoc based DCs to tackle unforeseen crises? Case-based studies of successful and failed organizations may unlock the ad-hoc based DCs development.

Functional domain: Around 83% of the shortlisted articles focused on organizations' adaptation for crises, around 7% on innovation, and 2% on business stability. However, only a meager 2% focused on marketing. Impact of DCs on an organization's individual functional departments and exploring various functional domains such as strategic alliances, mergers, acquisitions, and new product development to develop DCs are pertinent gaps and unanswered issues. Thus, we propose, RQ1.3: What is the effectiveness of DCs on operations, finance, and human resource department during crises? RQ1.4: How can strategic alliances, mergers, acquisitions, and new product development support DCs' development to tackle crises?

Hierarchy: 70% of the shortlisted articles focused on discrete DCs, 7% on second-order DCs. We observed that out of three shortlisted articles on second-order DCs, two were conceptual, and one used mixed methodology. Hierarchy outlines that first-order capabilities (or DCs) reconfigure zero-order (or operational) capabilities, second-order DCs reconfigure first-order capabilities, and higher-order capabilities alter second-order DCs (Schilke et al., 2018). An empirical understanding of second-order and high-order DCs are pertinent to research gaps for crises. We propose, RQ1.5: What are the various second-order and higher-order DCs that can help organizations tackle different types of crises? RQ1.6: What is the effectiveness of second-order and higher-order DCs on performance parameters such as survival, adaptation, and others during crises?

Other capabilities: We agree with the suggestion of our shortlisted article, Jiang et al. (2019), on the investigation of constraints that impede DCs development. Insight on why some organizations survive crises while others do not will advance DCs' knowledge. We propose, RQ1.7: What are the specific constraints that impede the crisis DCs development and performance?

We also agree with the suggestion of our shortlisted article, Hernández-Linares et al. (2020), who proposed investigating DCs on SMEs, which is an unanswered issue. SMEs lack financial and non-financial resources vital for their survival (Falkner and Heibl, 2015). Thus, we propose, RQ1.8: Given resource constraints, how can SMEs build DCs to tackle crises?

Sunder et al. (2019) DCs review article identified a total of 81 discrete DCs. Table 3 on discrete DCs, indicates that there is scope to take up several discrete DCs listed by Sunder et al. (2019) in the context of crises. We propose, RQ1.9: What are the various attributes that classify discrete DCs and different types of crises? Further, research on new areas like investigating the effect of a single discrete DC tackling multiple crises provides a cost-effective solution to organizations. We propose, RQ1.10: What is the effectiveness of a discrete DC on multiple crises? In the new areas, we believe that research on costs/investments is relevant, especially for SMEs. We propose, RQ1.11: What are the various costs/investment aspects of developing and maintaining DCs to tackle crises? Table 2 identified different crisis contexts of the articles. However, research on crises driven by competition and market conditions is limited. We propose, RQ1.12: What are various attributes of DCs which can tackle competition-driven and market-driven crises?

Unit of analysis: Shortlisted articles investigated on firm, individual, and group levels. Hence, future researchers can consider exploring crisis DCs beyond firm boundaries (Schilke et al., 2018).

Format of Relationships

Antecedents: Shortlisted articles suggested several antecedents to investigate. However, there is an overwhelming study on antecedents for crises. Few suggestions given by our shortlisted articles remained unanswered, for which we propose, RQ2.1: How can policy, finance, and customer reactions shape DCs to tackle crises? We also propose new avenues of research, RQ2.2: What specific traits may classify antecedents and different types of crises? RQ2.3: What are the various antecedents that can shape a single discrete DC which can tackle multiple crises? We concur with Schilke et al.'s (2018) arguments on the importance of antecedents' interaction and extend it to crises and propose, RQ2.4: How do antecedents interact with each other to shape DCs to tackle crises?

Consequences: Our shortlisted article, Moreno et al. (2020), suggested investigating non-financial measures such as objectives attainment, stakeholder, and customer satisfaction, and it remains unanswered. Thus, we propose RQ2.5: What is DCs' impact in crises on objectives attainment, stakeholder, and customer satisfaction. Further, discrete DCs not listed in Table 3, their effects on financial and non-financial measures remains a gap.

Dynamics and time: DCs focus on strategic change, and hence, the dynamics that explain DCs' development along with time are essential aspects (Schilke et al., 2018). For crises, two sets of views emerged that explained dynamics. While one set of shortlisted articles stressed that DCs evolve, another small number of shortlisted articles went with a view that DCs develop on a short-term/quick turnaround/revolutionary. However, shortlisted articles were single case studies and conceptual. From an evolutionary perspective, shortlisted articles talked about the various development stages, and for quick-turnaround/short-term, shortlisted articles explained the variables that, when changed, develop DCs. However, quantitative-based studies are required further to validate these conceptual and single case study articles, we propose, RQ2.6: For (a) evolutionary (b) short-term dynamics perspectives, what is the impact of DCs on the performance of an organization?

Many shortlisted articles tested the effects of DCs over different time-periods. For example, before or after and during the crises. However, the reasons for getting mixed results (positive and negative) remains unanswered. We propose, RQ2.7: Why is the performance effect of DCs for time-periods different?

Causality Assumptions

Mechanisms: We believe there is a need for further research on mechanisms as only 24% of the shortlisted articles examined a few mechanisms through which DCs affect performance. Except for the resource base, the other mechanisms (see Figure 3) are insufficiently-specified. We also extend Schilke et al.'s (2018) arguments; that is, no articles researched the mechanisms through which firms can alter their external environment to enrich their performance nor the mechanisms from the antecedents' perspective. Thus, we propose, RQ3.1: What are the various mechanisms through which organizations can alter their external environment to perform better against crises? RQ3.2: What are the various mechanisms through which antecedents shape DCs for crises?

Boundary Conditions

Moderators: Shortlisted articles extensively investigated the various organizational and environmental factors as moderators. However, we observed the non-investigation of moderated mediated relationships. That is, factors moderating the relationship between DC and mechanism or mechanism and consequence or both. Moderated mediated relationships will unearth the moderators' exact position in strengthening the relationship between DCs and consequences for crises.

We concur with the suggestions of two shortlisted articles, Jiang et al. (2019) and Wolf et al. (2012), on investigating environmental turbulence levels, which remains unanswered. That is, moderators can take U-shape, inverted U-shape, or shape-flip for different environmental turbulence levels (Richard et al., 2016). The various moderation effect shapes will broaden our understanding of DCs' success and failure. For example, in U-shape, DCs will enhance

performance at low and high levels of environmental turbulence. Thus, we propose RQ4.1: What is the effect of different environmental turbulence levels on crisis DCs and its consequences?

Methods

We observed that only one shortlisted article (Makkonen et al., 2014) used a mixed-method. We recommend scholars use mixed-methodology, which is, combining both qualitative and quantitative methods. The qualitative method assists in the exploratory research and helps to understand the phenomenon in depth. The quantitative method deals with the confirmatory part. Mixed-method gives a complete picture of DCs for crises.

Around 35% of the shortlisted articles pointed out that their findings are not generalizable. Also, around 9% of the shortlisted articles used a single-case study. With a single-case study, findings are highly contextualized and thus lack broader generalizability. Thus, we recommend scholars test current DCs' findings on crises for different countries, industries, and crises to address the generalizability issue.

Around 20% of the shortlisted articles highlighted the issue of operationalizing the DC construct. We believe that the DC construct should have items specific to the type of crisis instead of generic items, which may address the operationalization issue. Thus, there is a need to adapt existing scales of the literature to crises context. We see building reliable and valid DCs scales for different types of crises as an avenue for future research.

Few shortlisted articles mentioned issues with causality, excluded variables, and response. However, shortlisted articles that used quantitative methods can get further strengthened by addressing some apparent pitfalls such as multicollinearity, endogeneity, and common method bias as they may pose significant problems in inferring the results appropriately.

CONCLUSION

This study presents an SLR on DCs for crises. Our review suggests that the number of empirical articles on DCs for crises has risen sharply in recent years, showcasing scholars' strong interest in applying DCs for crises. Our SLR evaluated the shortlisted 46 articles on several parameters like DCs features and properties, the format of relationships between DCs and independent and dependent variables, causality assumptions that describe DCs association with other variables, boundary conditions on which anticipated relationships will be most and least probably right and research methods employed. Our SLR developed an integrated framework and amalgamated the extant knowledge of DCs for crises. We believe that our future research questions and avenues will encourage scholars to advance the body of knowledge on DCs for crises.

In terms of limitations of the study: First, we did not search web of science (WOS) database. There is a possibility; we may have missed few relevant articles available on WOS. However, Scopus and the remaining nine journal databases that we used (See Table 1) contain a majority of the journals, and hence, our SLR is exhaustive. Second, although our SLR followed vigorous protocols for shortlisting articles, we did not include thesis reports, book chapters, conference papers, and grey literature. Despite few limitations, we believe our study has given enough food for thought for future scholars to advance DCs research on crises.

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