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Renewing the resource-based view: New contexts, new concepts, and new methods

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Abstract

The resource-based view is an enduring and impactful mainstay of research within strategic management and beyond. This editors' introduction to the special issue on "new directions for the resource-based view" accomplishes two main tasks. First, we describe the contributions offered by the seven articles contained in the special issue. Second, we explain the potential value to research of incorporating into resource-based inquiry new contexts (artificial intelligence and digitization, distributed organizations, and stakeholders and sustainability); new concepts (resource redeployment, market shaping through resources and capabilities); and new methods (text analysis and machine learning, formal models, policy capturing). The overall aim of this introduction is to help invigorate the resource-based view by spotlighting a series of promising new directions.

KEYWORDS

capabilities, firm performance, resource-based view, resources, sustained competitive advantage

1 | INTRODUCTION

At its core, the strategic management field is devoted to building greater understanding of positive and sustained firm performance (Hoskisson & Harrison, 2021; Nag, Hambrick, & Chen, 2007) along with value creation and capture (Brandenburger & Stuart, 1996). For over half a century, strategy scholars have pursued this issue and related questions from a variety of

theoretical viewpoints (such as agency theory, transaction cost theory, institutional theory, and game theory, among many others) while relying on a myriad of concepts (such as organizational structure, top management teams, diversification, and market entry, among many others).

Perhaps because it is well suited to address what causes firms to perform well on a sustained basis, the resource-based view of the firm (RBV) has been one of the strategic management field's biggest successes. Building on the foundational insights of Penrose (1959), Lippman and Rumelt (1982), Wernerfelt (1984), Barney (1986), and others, Barney (1991) presented the RBV as an emerging alternative to the externally focused work that had dominated the 1980s (e.g., Porter, 1980, 1985). The core concept within the RBV is strategic resources (Chi, 1994) which are distinguished from resources in general (such as cash) by having certain attributes: they are valuable, rare, inimitable, and nonsubstitutable (Barney, 1991). Examples of assets that can constitute strategic resources include patented technology, a unique organizational culture, and a strong brand name. Firms that possess such strategic resources can leverage them in order to enjoy sustained competitive advantages over rivals and profits that exceed industry norms (Peteraf, 1993).

Strategic management inquiry leveraging the RBV has grown tremendously in recent decades to become firmly entrenched as a central perspective for understanding organizations. Also, neighboring fields such as international business (e.g., Peng, 2001), entrepreneurship (e.g., Gillis, Combs, & Ketchen, 2014), supply chain management (Ketchen, Wowak, & Craighead, 2014), and human resource management (e.g., Hitt, Bierman, Shimizu, & Kochhar, 2001) have advanced by incorporating the RBV. Multiple meta-analyses have found support for the RBV's tenets across extant studies (Crook, Ketchen, Combs, & Todd, 2008; Crook, Todd, Combs, Woehr, & Ketchen, 2011; D'Oria, Crook, Ketchen, Sirmon, & Wright, 2021) and a series of narrative reviews have codified both the progress made under the RBV banner and unexploited opportunities (Armstrong & Shimizu, 2007; Barney & Arikan, 2005; Barney, Ketchen, & Wright, 2011; D'Oria et al., 2021; Kraaijenbrink, Spender, & Groen, 2010; Lockett, Thompson, & Morgenstern, 2009). It was with an eye toward these unexploited opportunities that the editors of the *Strategic Management Journal* commissioned this special issue on "new directions for the RBV."

2 | CONTENT OF THE SPECIAL ISSUE

We want to acknowledge the pivotal role that the late Mike Wright played in the creation of this special issue. Before Mike's untimely passing, he was deeply involved in conceptualizing the issue and composing its call for papers. Mike was universally respected by his peers, and his work during the early stages of this special issue matched his reputation.

In response to the call for papers, we received 96 submissions. This special issue includes seven of those papers. Not surprisingly for a special issue devoted to "new directions" of a seminal theoretical perspective in our field, five of the seven articles are theoretical. The remaining two articles make empirical and theoretical contributions. The articles tackle timely subjects, including firms in the digital economy, artificial intelligence (AI), strategic human capital, and firm stakeholders. The articles also analyze fundamental theoretical issues involving resources and capabilities.

Several themes run through the articles in this special issue. Many of the articles deal with the evolution of resources, including the articles on hyperscaling, resource search, resource

decay, and competitive resource dynamics. In a related vein, two articles that feature human capital, involving AI and workflow interdependence, address changes over time in which resources create value. These two articles also examine interactions among resources and capabilities, and specifically whether managerial and human resources are substitutes or complements for other types of resources and capabilities. In addition, the articles on stakeholder theory and competitive resource dynamics examine the relationship between resources and value creation and capture. The roles of important factors that affect value creation and capture, namely competitors and complementors, arise in the articles on competitive resource dynamics and hyperscaling, respectively. Several of the articles also provide new perspectives on well-established concepts such as the strategic factor markets paradox and the VRIN/VRIO characteristics of resources, while bringing in new phenomena such as digital technologies and the rising importance of firm stakeholders.

Below we summarize each of the articles, which relate to three broad categories of opportunities for research on the RBV involving contexts, concepts, and methods that are relatively new to the RBV or have not been applied extensively to it. Table 1 provides an overview of the contributions that each article makes in one or more of these three categories. After summarizing the articles, we explore additional opportunities for research on the RBV on new contexts, new concepts, and new methods.

2.1 | Articles in the special issue

Successful digital firms often grow large, yet their businesses remain relatively specialized. Giustiziero, Kretschmer, Somaya, and Wu (2023) investigate why this occurs in "Hyperspecialization and Hyperscaling: A Resource-based theory of the Digital Firm." The authors posit that when resource bundles have large advantages of scale, as is often the case for digital firms, the opportunity costs of expanding to other businesses are high. As a result, digital firms' resources may lead to both a high degree of business specialization ("hyperspecialization") and very large scale ("hyperscaling"). Using a formal model, the authors demonstrate that lesser business scope enables greater scale in specialized businesses even without reductions in market transaction costs. The model incorporates resource fungibility, resource accumulation costs, demand conditions, and the share of value captured by complementors. Based on their analysis, the authors argue that digital firms may remain less vertically integrated than the large industrial firms studied by Chandler (1990) and Penrose (1959). Beyond the insights that the model generates, the model provides a platform for further analysis of scalability in resource bundles.

AI is an important digital technology that managers increasingly seek to leverage. In addition, managerial resources have long been identified in the RBV as a fundamental source of differences in performance (Castanias & Helfat, 1991). The emergence of technologies that assist human decision-making, such as AI, challenges our understanding of the relationship between managerial resources and performance differentials. In the article on "AI and the Changing Sources of Competitive Advantage," Krakowski, Luger and Raisch (2023) study performance in chess tournaments that rely exclusively on human decision-making, and in tournaments that include AI either as an aid to human decision-making or as a full replacement for it. They find that human ability retains its role in explaining performance differences. However, the traditional player ability is no longer valuable when AI is used, while new kinds of human abilities, related to the use of AI, emerge as a source of performance differentials. Thus, even a widely available technology (AI), applied to a well-known competitive situation (chess), still presents

TABLE 1 Contributions of the special issue articles to new contexts, concepts, and methods

Article title and authors	Article summary	New contexts[a]	New concepts[a]	New methods[a]
Hyperspecialization and Hyperscaling: A Resource-based Theory of the Digital Firm Giustiziero, Kretschmer, Somaya, and Wu	The article develops a theoretical model in which digital firms' resources lead to both a high degree of business specialization ("hyperspecialization") and very large scale ("hyperscaling") due to high opportunity costs of expansion to other businesses.	Digital firms	Hyperspecialization and hyperscaling	Decision-theoretic modeling
Artificial Intelligence and the Changing Sources of Competitive Advantage Krakowski, Luger, and Raisch	The article finds that when AI is used to aid human decision-making in chess, AI makes traditional human abilities obsolete but new kinds of human abilities termed "human–machine capabilities" lead to performance differentials.	Artificial intelligence	Human–machine capabilities	
Unpacking the "O" in VRIO: The Role of Workflow Interdependence in the Loss and Replacement of Strategic Human Capital Kim and Makadok	The article finds that losing star employees in the NBA causes more harm when the workflow is individual-focused, losing nonstar employees causes more harm when the workflow is team-focused, and firm capabilities can mitigate both types of damage.		Workflow interdependence	
Value Rent and Profit: A Stakeholder Resource-based Theory Stoelhorst	The article develops a stakeholder-oriented resource-based framework that explains how economic profit and stakeholder payments emerge in the interplay of value creation and appropriation.	Stakeholders		Cooperative game theory logic
Resource Origins and Search Felin, Kauffman, and Zenger	The article proposes that firm-specific "search images" can help firms		Firm-specific search images	

TABLE 1 (Continued)

Article title and authors	Article summary	New contexts[a]	New concepts[a]	New methods[a]
	identify dormant resources in the external environment before they are evident to others even in seemingly efficient factor markets.			
Strategic Resource Decay Karadag and Poppo	The article develops a theoretical framework about the limitations of resource-driven competitive advantage that links resource characteristics to resource decay and replenishment.		Resource decay	
A Formal Framework for the RBV: Resource Dynamics as a Markov Process Wibbens	The article develops a formal framework for analyzing long-term competitive resource dynamics under uncertainty and shows how seemingly less attractive short-term resources may have a higher expected value of payoffs.		Long-term competitive resource dynamics	Markov modeling and stochastic processes

Abbreviations: AI, artificial intelligence; RBV, resource-based view of the firm.

[a]Refers to contexts, concepts, or methods that are relatively new to the RBV or not yet extensively applied to it.

opportunities for the emergence of human-based advantage, but one that can be disconnected from the previously useful human capital. The article shows the limits of any individual's judgment in the face of the generalization of AI in the chess setting. The best experts at winning no longer hold an advantage when expertise is supplemented by AI, while new kinds of expertise can now make a difference. This suggests that organizations facing the challenge of incorporating AI in their decision-making may have to ensure enough variety in the skill sets of their managers.

Beyond the interaction with AI, human resources interact in other ways within organizations. In "Unpacking the "O" in VRIO: The Role of Workflow Interdependence in the Loss and Replacement of Strategic Human Capital," Kim and Makadok (2023) examine the damage from losing star and nonstar employees under different contexts. They use a unique sample—National Basketball Association teams from 1992 to 2010; a total of 522 team-season data points. In 2001, the league changed its rules in ways that inherently increased the importance of teamwork and diminished the importance of star players. This resulted in 255 data points prior to the rule change and 267 post-rule change. The rule change allows Kim and Makadok to study whether workflow interdependence moderates the influence of resources on performance. They find that losing a star employee is more harmful when the workflow is individual-focused. This damage can be mitigated, however, if the organization possesses strong employee-recruitment capabilities. Losing nonstar employees is more costly when the workflow is team-focused; this damage can be mitigated if the organization possesses a strong capability for improving the skills of existing employees. One implication is that capabilities need to be developed that match an organization's preferred workflow approach and the organization's likelihood of losing star and nonstar employees. A more general implication is that organizations require appropriate organizational structures and processes to benefit from heterogeneous human resources. This article advances resource-based research by leveraging a clever research design to shed new light on perhaps the most understudied element of the well-known VRIO framework.

Employees are one type of a firm's stakeholder among many. In his article "Value, Rent, and Profit: A Stakeholder Resource-based Theory," Stoelhorst (2023) squarely addresses many of the implications for traditional resource-based theory created by the need to incorporate a stakeholder perspective into this theory. Based on the assumption that economic value can be created through co-specialized investments among stakeholders that generates team production, the paper reconceptualizes the purpose of the firm—as a governance structure to facilitate such team production—and generalizes concepts familiar in resource-based theory—including value, rent, and profits—from a non-stakeholder to a stakeholder-oriented version of resource-based theory. In so doing, the paper also links this new version of resource-based theory to the value creation and appropriation framework that has grown in importance in the field of strategic management (Brandenburger & Stuart, 1996; Lieberman, Balasubramanian, & Garcia-Castro, 2018; Lieberman, Garcia-Castro, & Balasubramanian, 2017).

In "Resource Origins and Search," Felin, Kauffman, and Zenger (2023) delve further into the fundamentals of resource-based theory by tackling the difficult question of how firms can locate resources with the potential to be valuable, rare, inimitable, and non-substitutable before competition for the resources bids up their prices—the well-known strategic factor markets conundrum (Barney, 1986). Drawing on insights from biology, the authors propose that firm-specific "search images" can help firms identify new resources before they are evident to others. A search image refers to the specification of a need or function that a not-yet-defined resource

could fulfill. Armed with one or more search images, an organization can undertake a more targeted search in the external environment to identify "dormant value" in resources. This perspective supplements prior research on the search for resources that have unique firm-specific value or complementarities with existing resources.

Most resource-based inquiry centers on how resources arise, how they are managed, and/or how they affect performance. In "Strategic Resource Decay," Karadag and Poppo (2023) flip the proverbial script by theorizing about how resources diminish and disappear. Surprisingly, this topic has received little attention in the past given that resources' end can be readily observed when, for example, a patent expires or a star employee retires. To advance understanding of strategic resource decay, Karadag and Poppo create a seven-part typology of patterns of decay via two dimensions: tradability (tradable or non-tradable) and depletability/perishability (depletable, perishable, depletable and perishable, or perpetual). The authors develop a series of propositions that future scholars can leverage via empirical testing. They also build important conceptual bridges with work on resource management and resources' performance that begin to articulate the role decay can play in investigations of these important topics. Overall, we hope that the solid conceptual foundation established by Karadag and Poppo will lead strategic resource decay to become a popular research focus in the coming years.

Giving formal foundations to the RBV is a quest that arguably started even before the RBV was articulated as such, with formal work investigating how chance could give rise to enduring advantages (Lippman & Rumelt, 1982). In "A Formal Framework for the RBV: Resource Dynamics as a Markov Process," Wibbens (2023) provides a toolbox to model firms' decisions and performance that places the state of resources and capabilities squarely at the center of the model. The assumption that all relevant past decisions can be summarized as a state variable gives the "Markov" moniker to the model, and zeroing in on resource characteristics as the essential state variables provides the connection to the RBV. In Wibbens' (2023) framework, firms make decisions to change their resource endowments, accounting for other firms' decisions. This setup can be readily extended to explore various mechanisms involving resource dynamics and competition. Wibbens provides a striking example of what the framework is capable of by exploring the "attractiveness paradox." Long-lived superior resources, which intuitively seem superior to hold, may be less profitable than shorter-lived ones. The model notably shows that they attract more attempts at displacement by competitors and are thus more costly to defend. This kind of insight arises by bringing together the full dynamics of resource evolution, including the susceptibility of resources to erosion and the optimal decision-making of the players, which accounts for competition, all tied together in the Markov process framework. Many more resource-related questions could be explored within this highly customizable framework.

As shown in Table 1, some of the articles incorporate new contexts, namely digital firms, AI, and firms' stakeholders. Some of the articles also use theoretical methods that are not often found in the literature on the RBV, namely decision-theoretic modeling, cooperative game theory logic, and Markov modeling and stochastic processes. The articles also develop or apply concepts that are new to the RBV: firm-specific search images, hyperspecialization and hyperscaling, resource decay, workflow interdependence, long-term competitive resource dynamics, and human–machine capabilities. In what follows, we discuss additional opportunities for research on the RBV of the firm, including but not limited to the topics covered in the articles in this special issue.

3 | OPPORTUNITIES FOR FUTURE RESEARCH ON THE RESOURCE-BASED VIEW

The RBV holds many opportunities for future research, some of which we highlight below. We begin with new contexts such as AI and digitization, distributed organizations, and stakeholders and sustainability, and some of the data and methods that may prove helpful for analyzing these contexts. Then, we turn to new concepts and new theoretical and empirical methods that hold promise for the RBV as a whole.

3.1 | New contexts

3.1.1 | Artificial intelligence and digitization

One exciting area for new applications of the RBV is the so-called "Digital Transformation"—the increasing digitization of products and services and the implications of this change for business strategy (Adner, Puranam, & Zhu, 2019). One stream of work in this area focuses on the effect that the digital nature of products and services has on the economics of competition. On the one hand—as exemplified by the Giustiziero et al. paper in this issue—the scale-free nature of digital offerings and the resulting negligible marginal costs (Levinthal & Wu, 2010), combined with the global reach of digital markets (Wormald, Shah, Braguinsky, & Agarwal, 2022) and various types of network effects associated with many digital contexts (Loh & Kretschmer, 2023; Parker & Van Alstyne, 2005; Zhu & Iansiti, 2012), suggests that digitization may create an impetus for hyperscaling, as a small number of firms (or potentially just one firm) come to dominate the market. On the other hand, digitization is also associated with lower costs of experimentation as entry barriers related to fixed costs are lowered (Jin & McElheran, 2017; Waldfogel, 2018), low-cost experimental techniques become available (Koning, Hasan, & Chatterji, 2022), and conventional knowledge constraints are overcome (Tajedin, Madhok, & Keyhani, 2019), as well as with improved access to detailed real-time customer data, suggesting the potential for greater learning-by-doing (Chen, Wang, Cui, & Li, 2021) and the opportunity for small and start-up firms to overcome their traditional disadvantages (Wormald, Agarwal, Braguinsky, & Shah, 2021) by targeting valuable niches in the market (Benner & Waldfogel, 2023; Dushnitsky, Piva, & Rossi-Lamastra, 2022). More work is needed to understand the factors that moderate the balance between these two effects of digitization—the drive to scale and the drive to differentiate (Cennamo & Santalo, 2013; Ellison & Fudenberg, 2003; Panico & Cennamo, 2022)—not only to understand the conditions under which one tendency may dominate the other (Schilling, 2002; Simcoe & Watson, 2019), but also to study the process through which digital markets evolve (Khanagha, Ansari, Paroutis, & Oviedo, 2022) and how this process compares to more traditional evolutionary models (Nelson & Winter, 1982). More work is also needed to examine how the strategies firms pursue—and the resources and capabilities they use to compete—vary with the nature of the impact of digitization (Helfat & Raubitschek, 2018). As the inevitability of winner-take-all outcomes in digital markets comes increasingly under question (Cennamo & Santalo, 2013; Simcoe & Watson, 2019), it seems likely that the competing pressures to scale and differentiate may create a segmented marketplace, with a few large firms serving mass-market preferences at scale while a plethora of smaller firms offer differentiated offerings to heterogeneous consumers—consistent with models of resource partitioning (Carroll, 1985), and technology

competition under heterogeneous demand (Adner, 2002; Adner & Levinthal, 2001; Adner & Snow, 2010). It would be important to examine the resources and capabilities that underpin such niche strategies, whether they be based on network structure (Afuah, 2013; Lee, Lee, & Lee, 2006), quality of complementors (Cennamo & Santalo, 2013; Llanes, Mantovani, & Ruiz-Aliseda, 2019), customization to niche preferences (Dushnitsky et al., 2022), or superior innovativeness (Panico & Cennamo, 2022). To what extent is the choice of strategy in a digital marketplace driven and enabled by the firm's existing complementary resources (Miller & Toh, 2022; Wang & Miller, 2020; Wormald et al., 2022)? Can (and should) firms redeploy resources from one segment to the other as market conditions change or technologies evolve (Kretschmer & Claussen, 2016)? And what would it take for a firm to successfully compete in both segments at once, either effectively customizing at scale, or pursuing "middle-tail strategies" that balance between segments (Benner & Waldfogel, 2023)?

More work is also required to investigate the implications of digitization on value appropriation and the resulting incentives to innovate. While digitization may boost innovation by lowering the costs of experimentation in some contexts (Benner & Waldfogel, 2016; Waldfogel, 2017) it may also make it harder for firms to profit from innovation by making firms less reliant on physical complementary assets and by reducing the tacitness of firm knowledge (Tajedin et al., 2019; Teece, 1986). Again, it is important to examine the conditions under which the net effect of these countervailing forces will be to increase or decrease the returns to innovation. More work is also required to examine alternative strategies firms may use to profit from innovation in such contexts (Teece, 2018), including how they may choose to redeploy or recombine complementary resources made redundant by digitization (Helfat & Peteraf, 2003).

A second, though related, stream of research on digital transformation emphasizes the use of big data and AI as a source of competitive advantage. One key insight from this work is that the data and information that firms have access to may increasingly be a critical basis of competition themselves, allowing firms to tailor their product and service offerings to individual customers and operate more effectively given the accuracy of their forecasts. On the surface, this may seem like a fairly straightforward application of the RBV, with data as a VRIN resource. Yet there are several characteristics of information that make it unique as a resource. First, while big data may be extremely valuable if firms have the capability to derive insights from it, the marginal value of a single piece of information is essentially zero. This means that individual data providers (i.e., customers) have negligible bargaining power, allowing firms to acquire for free a resource that, when aggregated, may be tremendously valuable. Second, well-known problems of information impactedness (Arrow, 1969) make data as a resource hard to trade through the market, despite data as a resource (and the algorithms to analyze it) being, by definition, fully codified. Third, much of the information used in big data applications is essentially a byproduct of an underlying commercial transaction, making data resources effectively co-specialized with other resources and capabilities of incumbent businesses. Moreover, integrating big data with other knowledge resources poses challenges (Grant, 1996). Fourth, in many instances, the mechanisms and institutions that govern the collection of information and the consent of parties to share information with the firm remain unclear. In particular, consumer privacy seems to be something of a merit good, with individual actors finding it difficult to assess the value of their own information and/or control the access to it they provide, resulting in privacy behavior that is often at odds with the individual's stated preferences (Acquisti, Brandimarte, & Loewenstein, 2015). These factors all represent substantial frictions in the factor market for information (Makadok & Barney, 2001) and must be studied in more detail. Specifically, while these factors may represent ex ante barriers to competition in the acquisition of data

resources (Peteraf, 1993) and therefore a source of potential competitive advantage to the holders of big data, they also represent a challenge for firms looking to capture value from the information they possess through market transactions, as well as a potential entry barrier to start-ups and other entrants. As such it would be useful to examine the strategies firms use to either maintain or overcome the competitive advantages arising from big data, as well as alternative governance arrangements they might consider to collect, manage, and own such data resources (Cockburn, Henderson, & Stern, 2018).

In addition to highlighting the role of data as a resource, research on digitization also emphasizes AI as an increasingly important capability. Here again, many unanswered questions remain. A key focus of existing work has been the relationship between AI and human capabilities, and whether AI capabilities complement or substitute firms' existing capabilities (Choudhury, Starr, & Agarwal, 2020). Indeed, the Krakowski et al. paper in this issue builds on this theme, showing how AI may augment decision-making, but only when combined with new co-specialized human capabilities. This research suggests the need for more work examining the effect of AI on the capability life cycle (Helfat & Peteraf, 2003), specifically, the ways in which a firm's existing capabilities must be modified to take full advantage of AI, and the extent to which these existing capabilities may be contributing to organizational inertia in adopting AI technologies (Brynjolfsson, Rock, & Syverson, 2018). More work is also needed to understand the opportunities and challenges of value appropriation from AI capabilities: both in terms of firms using AI-based capabilities while competing with firms with more traditional capabilities, and the use of third-party AI capabilities (Barach, Kaul, Leung, & Lu, 2019).

Another promising area of research is a better understanding of AI-based capabilities and their relationship to competitive advantage. For instance, if AI algorithms are susceptible to diminishing returns to scale (Varian, 2018), what market or technological factors determine the efficient algorithmic scale and how may this impact competitive advantage? Relatedly, how specialized or general to a given market can or should AI capabilities be, and how might this vary with the heterogeneity of demand, uncertainty of the market, complexity of activities, etc.? It is also important to consider the dynamics of AI-based capability advantage: while the codified learning reflected in AI algorithms may be a source of competitive advantage, it may also prove to be a source of core rigidity (Leonard-Barton, 1992) if algorithms are slow to adapt to changing inputs, and this may be especially problematic to the extent that algorithmic firms create their own self-fulfilling echo chambers, satisfying known needs of familiar customers, but missing emergent and potentially disruptive trends (Christensen & Bower, 1996). Insights from evolutionary theory (Nelson & Winter, 1982; Zollo & Winter, 2002) and from work on exploration and exploitation in organizational learning (March, 1991; Posen & Levinthal, 2012) seem especially relevant to understanding how the learning algorithms at the heart of AI may create or undermine competitive advantage.

3.1.2 | Distributed organizations

Another area of research that has seen growing interest in recent years has been the rise of distributed or "meta-organizations" (Kretschmer, Leiponen, Schilling, & Vasudeva, 2022), wherein multiple firms participate in a cooperative system to generate and share joint value (Adner, 2013). This work is closely related to the work on digital strategy in the previous subsection, in that while distributed organizations have existed for thousands of years, the rise of digital technologies has lent them a fresh impetus by enabling collaboration between large

numbers of organizations. Indeed, the rise of distributed organizations may be seen as the logical consequence of the tendency for digitization to lead to both hyperspecialization and hyperscaling (Giustiziero et al., this issue). Nevertheless, the two phenomena are conceptually distinct, with platforms and ecosystems predating and existing outside of digital contexts (e.g., railroads, newspapers, shopping malls, etc.). For our current purposes, we define such distributed organizations broadly to include both ecosystems—that is, "a system encompassing a set of actors that contribute to the focal offer's value proposition" (Kapoor, 2018)—and various forms of multi-partner alliances (Lavie, 2006) including consortia (Sakakibara, 2002), syndicates (Zhang & Guler, 2020), and standard-setting bodies (Ranganathan, Ghosh, & Rosenkopf, 2018; Rysman & Simcoe, 2008). Such organizations include some of the largest, most profitable corporations in the world—e.g., Apple, Google, and Facebook (all firms operating platform ecosystems)—and multiparty collaborations are increasingly seen as critical to solving key global issues, for example, the speedy development of vaccines to cope with the COVID-19 pandemic. As distributed organizations occupy an increasingly dominant position in the economy, it becomes imperative that strategy scholars examine the strategies firms use to compete in the context of such organizations.

From a resource-based perspective, distributed organizations reflect the familiar insight from the relational view that firms need not own resources to profit from them; they may also profit from the use of resources owned by others, so long as these resources are co-specialized to the focal firm in some way (Dyer & Singh, 1998; Dyer, Singh, & Hesterly, 2018). Not only may firms be able to appropriate some of the value from the resources they share with others, they may also enjoy spillover rents from non-shared resources (Lavie, 2006). While the original theoretical work in this area explicitly considered the role of multiparty collaborations (Dyer & Singh, 1998; Lavie, 2006), much of the subsequent empirical research—including recent work highlighting the potential for relational synergies in acquisitions (Feldman & Hernandez, 2022; Hernandez & Shaver, 2019)—has focused on dyadic relationships or network positions, leaving substantial opportunity for scholars to explore the creation, maintenance, and exploitation of shared and co-specialized resources between multiple and diverse actors, which lie at the heart of distributed organizations.

We can identify three key sets of questions that research on distributed organizations could explore in greater depth. First, how do actors (firms) in distributed organizations coordinate their resource investments (Cennamo & Santaló, 2019)? Specifically, how do they deal with the challenge of coordinated adaptation (Williamson, 1991) inherent in using a shared set of co-specialized resources (Dyer et al., 2018), especially in the face of technology disruptions (Adner & Lieberman, 2021)? Existing work in this area stresses the role of technical interdependencies between tasks and the associated complementarities between resources in shaping the evolution of firm investments (Adner & Kapoor, 2010; Agarwal & Kapoor, 2022; Dyer et al., 2018; Ranganathan & Chen, 2022), yet more needs to be done to understand both the formal and informal mechanisms through which such coadaptation of resources is coordinated, as well as the determinants of the technical architecture of interdependencies itself. Thus, it is important to consider the strategic and competitive forces that might shape the system of technical interdependencies, beyond the natural evolution of technologies (Ganco, Kapoor, & Lee, 2020). For instance, how do the relationships between firms in a distributed organization change as new actors join the ecosystem (Zhang & Guler, 2020) or as competition between distributed organizations pushes firms to choose one ecosystem over the other (Ranganathan et al., 2018) or to invest in multi-homing so as to remain redeployable across ecosystems (Li & Zhu, 2021)? What strategies may firms within an ecosystem adopt to best manage the inclusion

or exclusion of other actors so as to maximize value creation (Moeen, Agarwal, & Shah, 2020; Panico & Cennamo, 2022), and what dynamic and integrative capabilities may enable these strategies (Helfat & Raubitschek, 2018; Wormald et al., 2022)?

A second, related set of questions deals with the appropriation of value within distributed organizations. Existing work in this area highlights the role of bottlenecks within ecosystems in determining the distribution of value (Hannah & Eisenhardt, 2018; Jacobides, Cennamo, & Gawer, 2018), yet more research is required to understand how these bottlenecks emerge and, specifically, what strategies firms may pursue to influence these bottlenecks (Masucci, Brusoni, & Cennamo, 2020). Technical bottlenecks aside, there are also opportunities to evaluate the strategies firms use to capture value from innovation within distributed organizations, building on fundamental insights from work on profiting from innovation in traditional firms (Teece, 1986). Thus, researchers could examine the role of complementary resources in allowing firms to capture value from co-specialized investments (Miller & Toh, 2022; Toh & Agarwal, 2023; Toh & Miller, 2017), the use of partial redundancy to maintain bargaining power (Barach et al., 2019), and the value of higher-order capabilities to profit from ecosystem innovation (Helfat & Raubitschek, 2018). Moreover, researchers could look at the challenges of value appropriation not only from the perspective of the platform owner or the dominant firm in an ecosystem (Kapoor & Lee, 2013; Zhang, Li, & Tong, 2022), but also from the perspective of firms providing complementary offerings (Kapoor & Agarwal, 2017) and those simply trading on or with a platform (Barach et al., 2019; Zhu & Liu, 2018).

A third set of questions related to distributed organizations focus on the choice of governance forms. While much of the existing work takes the presence of an ecosystem or distributed organization for granted, a fundamental comparative governance question to ask is: under what conditions is a distributed organization more efficient or effective at managing co-specialized resources than a diversified business (Aggarwal, Siggelkow, & Singh, 2011; Dyer et al., 2018)? From a resource-based perspective, the answer to that question is likely to depend upon the nature of resources, including the extent to which they are co-specialized or independent, the level of uncertainty and potential opportunism (Lavie, 2006), and the nature of interdependencies both within the set of shared resources and between shared and non-shared resources (Aggarwal et al., 2011). More specifically, the performance of alternative governance forms is likely to vary with the extent to which the interdependencies between them are sequential or reciprocal (Ganco et al., 2020), the relative modularity of these interdependencies (Dyer et al., 2018; Ethiraj & Levinthal, 2004), and the extent to which the sharing of resources cuts across these modules. A better understanding of these relationships is important to understanding how best to design distributed organizations that appropriately mirror the nature of the underlying activities (Aggarwal et al., 2011; Colfer & Baldwin, 2016). Additional work is also required to more clearly distinguish between different types of distributed organizations. The general space of distributed organizations includes, among others: multi-sided platforms that serve as transaction marketplaces, technology platforms where a single firm controls the dominant technology, and standards-based ecosystems where a group of firms join together around a common core (Cusumano, Gawer, & Yoffie, 2019). More work is required to understand the comparative benefits and challenges of these different forms of distributed organization, including the processes through which they arise (Simcoe & Watson, 2019), their implications for innovation (Kapoor & Lee, 2013; Ranganathan & Chen, 2022), and the nature of resources and capabilities that are consequently best managed by each of these different forms of distributed organizing. In exploring these questions, researchers could also examine new emerging forms of distributed organization, such as blockchain-based and other decentralized autonomous

organizations (Hsieh & Vergne, 2023; Lumineau, Wang, & Schilke, 2021) or co-innovation platforms (Madsen & Cruickshank, 2022).

Addressing these questions will require scholars to embrace a wide range of methodologies. On the conceptual side, the collaborative nature of activities in distributed organizations, coupled with the inherent tension between cooperation for value creation and competitive for value capture in such contexts, makes them an ideal setting for the application of cooperative game theory models (Chatain & Plaksenkova, 2019). At the same time, the multi-actor nature of such organizations, as well as the central role of interdependence, lends itself to the use of agent-based simulations (Aggarwal et al., 2011; Ganco et al., 2020). On the empirical side, more work is needed to specify the exact nature of technical interdependencies between resources and to map these to the drivers and consequences of various distributed organizing arrangements, potentially including the use of matching models to account for the mutual selection of actors within an ecosystem (Chatain & Mindruta, 2017; Mindruta, 2013). More empirical work is also required to understand the nature of coordination mechanisms within distributed organizations, including such mechanisms as intra-firm contracting (Magelssen, 2020; Magelssen, Rich, & Mayer, 2022) or the use of internal courts of appeal within ecosystems (Chu & Wu, 2023; Liu & Weingast, 2017).

3.1.3 | Stakeholders and sustainability

Another exciting area for new RBV research is understanding firms' efforts to manage stakeholders and address environmental, social, and governance (ESG) challenges. Recent years have seen a growing call for firms to proactively engage with social and environmental issues, based on the recognition that, left unaddressed, such issues may threaten the fundamental sustainability of individual businesses as well as the economic system at large. An important contribution to this literature is the New Stakeholder Theory (McGahan, 2021), which argues that the key stakeholders of the firm are the providers of strategic resources (Barney, 2018) and that stakeholder management is thus the process of credibly committing to sharing value with these resource providers, in order to induce them to make firm-specific investments that will boost overall value creation for the firm (Klein, Mahoney, McGahan, & Pitelis, 2019). The Stoelhorst paper in this issue builds on this idea, highlighting the team nature of production within firms and the resulting need for co-specialized investments by multiple stakeholders.

The New Stakeholder Theory represents a promising direction for new research based in the RBV, not least because several key theoretical issues with the perspective remain unaddressed, providing opportunities for additional scholarship. First, while the theory is based on firms making credible commitments to stakeholders, it is unclear how such commitment may be achieved. A stakeholder making a firm-specific investment would logically have cause to fear opportunism on the part of other stakeholders (Williamson, 1975, 1985)—including, but not limited to, the firms' shareholders—and this concern is likely to be especially pressing for stakeholders who have hitherto been marginalized or exploited. Moreover, while much of the existing work in this area assumes that the value creation from a given combination of resources as well as the relative contribution of each resource can be determined ex ante, this is unlikely to be the case.

As work in both evolutionary theory (Denrell, Fang, & Winter, 2003; Nelson & Winter, 1982) and entrepreneurship (Foss, Klein, Kor, & Mahoney, 2008; Knight, 1921) has long emphasized, the value of novel resource combinations is inherently uncertain ex ante, reflecting

nothing more than the subjective judgment of the entrepreneur (Kaul, Ganco, & Raffiee, 2021; Klein, 2008). Indeed, were this not the case, then co-specialized resources could simply be traded on the market and would neither need to be internalized within the firm, nor be a potential source of competitive advantage (Barney, 1986, 1991; Kaul, 2013). It is thus unclear how firms could commit ex ante to value-sharing arrangements with stakeholders when they would not yet know whether or how the efforts of these stakeholders would contribute to value creation, nor is it evident that any such ex ante commitments a firm did make would prove satisfying to stakeholders ex post (Blyler & Coff, 2003). Future work could explore these challenges, potentially drawing on research examining resource accumulation by entrepreneurs (Burns, Barney, Angus, & Herrick, 2016; Clough, Fang, Vissa, & Wu, 2019). Future research could also focus on the use of various kinds of relational contracts (Gibbons & Henderson, 2012; Poppo & Zenger, 2002) and the use of overarching purpose (Gartenberg, Prat, & Serafeim, 2019; Gartenberg & Zenger, 2022) or ethical claims (Bernacchio, Foss, & Lindenberg, 2022) as alternative modes of recruiting stakeholders.

A second, related set of questions pertains to the effect of stakeholder management on organizational adaptation and innovation. Even if firms could successfully commit to value sharing with stakeholders at a given point in time—whether through formal contracts (Dorobantu & Odziemkowska, 2017; Odziemkowska & Dorobantu, 2021), community partnerships (Gatignon & Capron, 2023), governance positions (Stoelhorst & Vishwanathan, 2022), or other, more relational arrangements (Gartenberg & Zenger, 2022; Gibbons & Henderson, 2012)—what would this mean for their ability to adapt over time? Could stakeholders once entrenched in firm governance be easily removed once they were no longer contributing to value creation (Klein et al., 2019), or would the entrenched influence of such stakeholders compromise a firm's ability to innovate and adapt (Hansmann, 2000; Williamson, 1985)? More generally, what would it mean for firm innovation if the uncertainty bearing that was traditionally the function of investors (Knight, 1921) were to be shared with a set of stakeholders who, because of their very vulnerability, may be especially risk-averse?

Third, while much of the new stakeholder theory assumes (at least implicitly) that stakeholders are able to bargain and make credible commitments on their own behalf, this may not always be true. Given the long-term nature of the issues involved, the key stakeholders for many ESG initiatives are future generations, who, by definition, cannot be party to negotiations in the present. Moreover, in many cases, stakeholder participation requires not just collaboration between stakeholder groups but also successful collective action within each stakeholder group (i.e., among employees, customers, etc.) and that might be hard to achieve, given the incentives for free-riding (Olson, 1965). In many cases, stakeholders may also lack the information and expertise necessary to judge whether the actions of the firm are truly in their best interest (Luo & Kaul, 2019), especially when the stakeholders investing in specialized resources are not the ones directly benefiting from the firm's ESG efforts (Kaul & Luo, 2018; Luo, Kaul, & Seo, 2018). Relatedly, while current work on ESG often assumes that what is "good" is unequivocal and well-understood, social and environmental issues are often contested (Mohliver, Crilly, & Kaul, 2022) and defining what constitutes public interest may be challenging (Arrow, 1951). More research is thus required to understand how groups of stakeholders can come together to bargain for or invest in collective resources, especially where the benefits from these resources are non-excludable (Ostrom, 1990, 2010). More research is also required to examine the alternative governance arrangements that may be needed to act on behalf of stakeholders who cannot bargain for themselves, including the role of government regulation and nonprofits (Luo & Kaul, 2019). In particular, there are exciting opportunities for researchers to

study public–private partnerships (Kivleniece & Quelin, 2012; Quelin, Cabral, Lazzarini, & Kivleniece, 2019), for-profit collaborations with nonprofits (Odziemkowska, 2022), and hybrid organizations (Battilana & Lee, 2014; Battilana, Sengul, Pache, & Model, 2015), examining how such entities invest in, share, and maintain key resources and capabilities.

Further, to the extent that untapped opportunities to create additional value by sharing value with hitherto excluded stakeholders do exist (Klein et al., 2019; McGahan, 2021), it would be interesting to think about the organizational capabilities and structures required to identify and take advantage of such "win–win" arrangements. In fact, one might think of the ability to pursue such sustainable strategies as form of dynamic capability (Eisenhardt & Martin, 2000; Teece, 2007) and study which firms, if any, possessed such a capability, and how it was created and maintained.

These conceptual issues aside, more work is also needed to study the empirical implications of the new stakeholder theory; specifically, we need much more work empirically examining the social or nonfinancial impact of corporate sustainability and ESG initiatives (Barnett, Henriques, & Husted, 2020; Margolis & Walsh, 2003). Much of the existing research relies on standardized one-size-fits-all indices of social performance (e.g., KLD, Asset4) whose relationship to welfare outcomes on the ground is questionable at best (Chatterji, Levine, & Toffel, 2009). Future work could focus on more granular and context-specific measures of social and environmental performance, for example, oil spills (Luo et al., 2018) or rainforest preservation (McGahan & Pongeluppe, 2021), potentially drawing on insights and measures from the UN Sustainable Development Goals. In doing so, future work might also pay more attention to the potential unintended consequences of ESG efforts, such as how they may enable firms to cut corners in other areas (Luo et al., 2018), how they may exclude some stakeholders and leave them worse off (Lazzarini, 2020), or how they may negatively impact government functioning (Margolis & Walsh, 2003).

3.2 | New concepts

In addition to new contexts for applications of the RBV, emerging theoretical concepts in which resources and capabilities figure prominently include resource redeployment and market shaping. These theoretical concepts hold considerable promise for research on the RBV.

3.2.1 | Resource redeployment

Firm resources and capabilities are fundamental drivers of diversification. Beginning with Penrose (1959) and Rumelt (1974), scholars have argued that firms diversify into other businesses when they can share underutilized or expandable resources. For example, Penrose (1959) observed that as firms grow, management becomes more efficient and some of this resource becomes available for use in additional businesses. Then, Rumelt's (1974) finding that related diversified firms had higher financial performance than unrelated diversifiers led to a large stream of research showing that resource relatedness often forms a profitable basis for diversification (Palich, Cardinal, & Miller, 2000). Related diversified firms can share resources among businesses, which reduces costs per unit through economies of scope (Panzar & Willig, 1977; Teece, 1980) or increases sales per unit of inputs, or both.

A more recent resource-based approach to diversification has instead focused on the redeployment of resources between businesses (Folta, Helfat, & Karim, 2016). Helfat and Eisenhardt (2004) proposed that when a firm redeploys resources from low margin or low growth businesses to related higher margin or higher growth businesses, the firm achieves *inter-temporal economies of scope* through lower unit costs across businesses over time. Similarly, a firm can profit by redeploying capabilities from one business to another (Helfat & Peteraf, 2003). Levinthal and Wu (2010) then observed that non-scale free resources, defined as those with capacity constraints, are especially likely to be redeployed rather than shared among businesses due to capacity constraints. Sakhartov and Folta (2014, 2015) subsequently connected resource redeployment with real options theory, noting that firms' existing resources have real options characteristics when the resources hold the potential for redeployment.

Although initial empirical research has provided evidence consistent with the foregoing arguments, more research is needed that directly traces the effect of resource redeployment on firm performance. In particular, it is important to correctly specify the appropriate counterfactual when examining the benefits of redeployment. The theoretical argument for intertemporal economies of scope rests on the claim that resources may be more efficiently redeployed within the firm than through the market (Helfat & Eisenhardt, 2004; Levinthal, 2017): it follows that empirical work must examine not only whether redeployment of resources is beneficial for performance, but also whether it is more beneficial than if the resources had been redeployed through the market (Sohl & Folta, 2021). Therefore, when extending research on resource redeployment to encompass between-firm redeployment, scholars must take account of transaction costs among other considerations (McGrath & Singh, 2016). In addition, relatively little research examines how firms manage the tradeoff between resource redeployment and resource sharing, which is a critical avenue for future research.

The real options approach to resource redeployment also has implications for business exit. Lieberman, Lee, and Folta (2017) argued that resources provide real options for a related diversified firm not only to enter new businesses by redeploying resources but also to exit newly entered businesses if they turn out to be less promising than anticipated, because the firm can redeploy the resources to another business in the company. Thus, related diversified firms may be more likely to both enter and exit businesses. Although Lieberman, Garcia-Castro, and Balasubramanian (2017) and Lieberman, Lee, and Folta (2017) provided examples consistent with this logic, testing it empirically presents an opportunity for future research. In addition, the observation that business exit does not necessarily imply resource divestment suggests that more research is warranted on the largely unexplored link between business exit and resource retention. Further, Lieberman, Garcia-Castro, and Balasubramanian (2017) and Lieberman, Lee, and Folta (2017) study suggests the potential for more work connecting resource redeployment to work on industry evolution and market entry, adding potentially new dimensions to how firms may choose to adapt to or shape the emergence of new market opportunities (Aggarwal & Wu, 2015).

As an alternative to complete exit, a firm may partially exit one business and redeploy the available resources to another business (Helfat & Eisenhardt, 2004). Thus, the redeployability of resources provides firms with the flexibility to expand their more attractive businesses while shrinking less attractive businesses (Chang & Matsumoto, 2022; Dickler & Folta, 2020; Dickler, Folta, Santaló, & Giarratana, 2022). The flexibility provided by the redeployability of resources can also help firms adapt to external or internal constraints. For example, the redeployment of labor among businesses can help firms to compensate for strict labor protection laws (Belenzon & Tsolmon, 2016). In addition, human resource redeployment may enable firms to

more easily transfer tacit knowledge across businesses by transferring people (Stadler, Helfat, & Verona, 2022). Additional research on the redeployment of different types of resources would expand our understanding of how redeployment enhances flexibility.

Research on resource redeployment has highlighted not only the benefits but also the adjustment costs of transferring and repurposing resources (Hashai, 2015; Helfat & Eisenhardt, 2004; Sakhartov & Folta, 2014, 2015). Although these costs are lower in firms with related businesses, we know relatively little about the extent to which adjustment costs may erode the benefits of resource redeployment and under which conditions. We also know relatively little about the size of the costs of coordinating shared resources (Chen, Kaul, & Wu, 2019) relative to redeployment costs, which affects the net benefits of resource redeployment versus resource sharing.

Firms that regularly use resource redeployment may also have capabilities for redeployment, and it would be helpful to better understand how these capabilities develop, how firms use them, and their performance outcomes. Such capabilities include those for identifying new business opportunities that would benefit from resource redeployment, transitioning resources from one business to another, making decisions to redeploy versus divest resources, and managing tensions between resource redeployment and resource sharing. We would also benefit from understanding where redeployment capabilities reside in organizations, and how this interacts with organization design. To the extent that resource redeployment involves delegation to the business units, this introduces the potential for agency costs, which is another area ripe for future research.

Although the focus of much of the existing work has been on the redeployment of resources triggered by exogenous changes in product market demand (Helfat & Eisenhardt, 2004; Levinthal & Wu, 2010; Sakhartov & Folta, 2014, 2015; Wu, 2013), redeployment may also be triggered by internal technological discoveries (Kaul, 2012) or by shocks to factor market conditions (Berry & Kaul, 2021), and more research on these alternative drivers of redeployment would be welcome. A number of empirical contexts for resource redeployment could be further investigated, including multinational firms, platform companies, and private equity and venture capital firms.

For example, as part of cross-national arbitrage (Berry & Kaul, 2021), multinational firms benefit from redeploying resources among their business units in different countries as opportunities in these countries change (Berry, 2010). In this context, resources serve as real options (Chang, Kogut, & Yang, 2016). Platform companies also face evolving market opportunities and threats, and it would be helpful to better understand the extent to which, and how, these firms use resource redeployment to cope with a changing external environment. In addition, related to our earlier point about the appropriate counterfactual, not all resource redeployment takes place within firms. For example, other entities such as private equity firms may broker the redeployment of resources across companies (Kaul, Nary, & Singh, 2018; Nary & Kaul, 2022), and venture capital firms may redeploy nonfinancial resources among their portfolio companies. Business groups may redeploy nonfinancial resources among their subsidiary companies as well. The success of such entities suggests the need to study the market frictions that constrain the redeployment of resources through the market in more detail, an effort that connects back to the long tradition of research into the ex ante and ex post limits on competition for resources (Barney, 1986; Peteraf, 1993).

Redeployment is one way that resources, capabilities, and firms evolve—a broader topic that several articles in this special issue address, as noted earlier. New longitudinal empirical research could take the resource or capability as the unit of analysis and study their patterns of

evolution through not only resource redeployment but also other forms of resource and capability growth and transformation within firms (Helfat, 2000; Helfat & Peteraf, 2003) and across firms (Hoetker & Agarwal, 2007). In addition, longitudinal analysis of firms' business portfolios could trace the effect of resources and capabilities on firm performance and performance heterogeneity among firms over time. Research that investigates how external shocks affect redeployment and other modes of resource and capability evolution, and how firms differ in their responses to these shocks, may also provide one way to causally link resource and capability evolution to firm performance.

3.2.2 | Market shaping through resources and capabilities

Firms often alter their resources and capabilities to adapt to changes in the external environment. However, firms also shape their external environments, and resources and capabilities are likely to play an important role.

Market shaping occurs when a firm (or a group of firms) creates or alters the payoff structure not only for itself but also for other firms in a business context, including competitors, complementors, buyers, or suppliers. A payoff structure maps firms' actions or decisions or attributes such as resources and capabilities to the resulting payoffs (Gavetti, Helfat, & Marengo, 2017). A firm (or group of firms) may shape the payoff structure for various actors by influencing factors in the market and nonmarket environment (Ahuja, Capron, Lenox, & Yao, 2018; Capron & Chatain, 2008), and by influencing cognitive (e.g., perceptions) and noncognitive factors that affect payoffs (Pontikes & Rindova, 2020; Rindova & Courtney, 2020). Market shaping may come from both established and entrepreneurial firms, often through their efforts to create new technologies, products, and industries (Moeen et al., 2020). Thus, in closely related research in entrepreneurship on opportunity creation, the structure of economic opportunities is endogenous to entrepreneurial action and resources (Alvarez & Barney, 2007).

Firms may use their resources and capabilities to shape markets (Helfat & Winter, 2011; Teece, 2007; Teece, Pisano, & Shuen, 1997), and market shaping may alter the payoffs to resources and capabilities (Helfat, 2021). As an example of the former, a firm in the nascent personal genomics market used its knowledge of the new technology (a resource) to work with regulators to set the rules governing the sale of the product for all firms in the industry (Gao & McDonald, 2022). As another example, Apple used its product design and other capabilities to reshape the market for mobile phones (Helfat, 2022). Shaping actions, in turn, may change the payoffs to resources and capabilities. For example, the introduction of integrated circuitry in minicomputers, pioneered in part by industry incumbents, made capabilities for the design, programming, and assembly of transistor-based minicomputers obsolete (Tushman & Anderson, 1986).

To date, theoretical analyses of market shaping have been conceptual or have relied on simulations (e.g., NK modeling in Gavetti et al., 2017), and the relatively sparse empirical work has relied on case analysis (e.g., Patvardhan & Ramachandran, 2020; Vinokurova, 2019). Future empirical research could explore which types of resources and capabilities form the basis for market shaping, how firms use them, and the conditions under which efforts to shape markets are successful or fail. It would also be helpful for empirical research to examine how market shaping changes the payoffs to resources and capabilities in both factor (resource) markets and product markets. To this end, prior qualitative and quantitative empirical studies of nascent industries and industries that underwent technological discontinuities could be reinterpreted

through a resource-based shaping lens, which may yield additional insights. In addition, large sample studies, perhaps within industries, could investigate the antecedents of acts of market shaping, including resources and capabilities, and trace the effects of market shaping on other firms in the market using a difference-in-differences empirical methodology.

3.3 | New methods

Beyond new contexts and concepts, new methods can enrich the RBV, including text analysis and machine learning, theoretical modeling of various types, and policy-capturing analyses. The empirical and theoretical methods discussed below are either relatively new to the RBV or have yet to be applied extensively in resource-based analyses.

3.3.1 | Text analysis and machine learning

In addition to their implications for firm strategies discussed earlier, digitization and AI also offer substantial opportunities for new methodologies of strategy research. First, the digitization of communications and interaction within and between firms offers new opportunities for scholars of strategy and organization to study patterns of behavior that may hitherto have remained unobserved. For instance, researchers with access to data on internal email traffic (Kleinbaum, 2012; Srivastava, Goldberg, Manian, & Potts, 2018) or, more recently, data on Zoom calls, could study intra-firm networks of communication and coordination. Similarly, researchers could use data documenting movements of firms' executives to study interactions between firms, for instance, using cell phone data to examine face-to-face interactions between acquirers and targets (Testoni, Sakakibara, & Chen, 2022).

Second, the combination of digitization and AI creates opportunities to quantify and analyze new forms of data about organizations. A classic example is the use of various text analysis techniques, through which researchers convert text documents into quantitative measures. While early work in this area relied primarily on word counts based on pre-defined dictionaries (Eggers & Kaplan, 2009; Uotila, Maula, Keil, & Zahra, 2009), scholars have increasingly used the power of AI algorithms to produce more sophisticated representations of unstructured text, such as the use of topic modeling (Choi, Menon, & Tabakovic, 2021; Kaplan & Vakili, 2015) and Word2Vec models (Carlson, 2022). These models have been applied to a variety of different sources of unstructured data, including letters to shareholders (Gamache, Neville, Bundy, & Short, 2020), earnings calls (Benton, Cobb, & Werner, 2022; Crilly, 2017; Guo, Sengul, & Yu, 2021), patent descriptions (Kaplan & Vakili, 2015; Kuhn, Younge, & Marco, 2020; Miric, Jia, & Huang, 2023), and online comments (Corritore, Goldberg, & Srivastava, 2020; Marchetti & Puranam, 2020), among others. More recently, scholars have also used machine learning techniques to analyze visual data, studying facial images (Choudhury, Wang, Carlson, & Khanna, 2019), body language (Dávila & Guasch, 2022), and even eye movements (Meißner & Oll, 2019) to quantify non-verbal cues.

These techniques are valuable both because they enable researchers to study micro-level concepts of attention and cognition in a granular way (Eggers & Kaplan, 2009; Guo et al., 2021) and because they allow for quantification and comparison of complex concepts such as strategy (Carlson, 2022), culture (Corritore et al., 2020; Srivastava et al., 2018), or communication style (Choudhury et al., 2019). Future work could continue to build on the increasing sophistication

of these techniques, using them to represent and quantify other key strategy concepts; in particular, these methods might be used to measure intangible resources and capabilities that are hard to quantify using traditional methods. Future work could also triangulate across different media, for example, text, video, and voice, to provide more holistic measurement. Combined with the granularity of digital data, these methods are especially valuable for empirical research on RBV because they provide a rich opportunity to measure resources and capabilities independent of their performance consequences, thus allowing researchers to overcome a long-standing critique of RBV as being empirically tautological (Priem & Butler, 2001).

Third, machine learning techniques provide new ways of analyzing data to help surface complex relationships between variables of interest (Choudhury, Allen, & Endres, 2021; Shrestha, He, Puranam, & von Krogh, 2021). Such methods may be especially important when trying to understand the performance effects of combinations of interdependent and co-specialized resources, in so far as measures of individual capabilities or resources involved may interact with each other in complex ways. The use of machine learning algorithms to analyze data may also be especially valuable for scholars moving away from hypothesis testing toward more inductive or abductive approaches to theory development (Behfar & Okhuysen, 2018; King, Goldfarb, & Simcoe, 2021; Sætre & Van de Ven, 2021), though in doing so scholars must be wary of discovering potentially spurious relationships.

Fourth, just as digitization lowers the barriers to experimentation for firms, it also lowers the barriers for researchers to run field experiments. The digitization of transactions means that experimental researchers can not only more easily randomly assign online test subjects to different experimental conditions without risk of contamination, but they can also more closely track the response of subjects to different conditions (Burbano, 2016, 2021; Lee, Adbi, & Singh, 2020). Further, while early work in this area often used experimental subjects on MTurk or other similar platforms to test relatively narrow treatments, field researchers in strategy can (subject, of course, to IRB approval) potentially create multiple virtual organizations that engage in strategic actions similar to real firms in online marketplaces, and gauge the response of real market participants.

3.3.2 | Formal models

The RBV has been a fertile ground for the development of formal models drawing on cooperative game theory (CGT), especially when combined with an initial noncooperative stage (e.g., for resource development) in a biform game (Brandenburger & Stuart, 2007). Early such work used CGT to model competition and resource advantage beyond the model of Ricardian rents (Peteraf & Barney, 2003), giving additional richness to the link between value capture and value creation under resource heterogeneity, and focusing on firms developing resources for themselves. Findings in this line suggested a two-way relationship: not only may different resources meant different levels of value capture, but competition to capture value may also cause heterogeneity in resource development (e.g., Chatain & Zemsky, 2011).

As the RBV develops in new directions, CGT-based research can help explore these new domains. Notably, formal models have a role in drawing out the implications of key resources being owned, controlled, or accessed by different stakeholders. This speaks not only to the management of resources belonging to a common pool, but also to resource strategy in business ecosystems as access to complements is paramount for value creation. In these cases, formal models can help answer questions about who captures the returns from resources and their

combinations and about the implications of different governance structures, tying to classic questions of firm boundaries. Moreover, this also highlights the underlying problem of discovering the value of resource combinations (Lippman & Rumelt, 2003), suggesting the need to incorporate imperfect information in CGT models (e.g., Bryan, Ryall, & Schipper, 2022).

When several actors interact with the same resources, the question of the variety of their goals needs to be addressed. The value created by resources is not necessarily fungible, and all actors are not necessarily motivated by value capture. It is possible to build models that can account for these differences as in Chatain and Plaksenkova (2019), where market-based actors, motivated by value capture, are strategically interacting with actors whose goals are not commercial, with implications for resource development and management. Efforts in this direction have been quite ad hoc but seem necessary to complement the insight that many resources that matter are shared by different entities.

In addition to cooperative game theory models, there is room for other types of formal theory development related to the RBV. While there is a long history of noncooperative game theory in the RBV (e.g., Makadok, 2003; Makadok & Barney, 2001) several opportunities to build on this initial work remain. In particular, many of the new contexts and concepts described earlier in this introduction might benefit from more formal treatment, including, but not limited to: formal models of firms strategically engaging in CSR (Asmussen & Fosfuri, 2019; Kaul & Luo, 2018; Morgan & Tumlinson, 2019) or negotiating with a range of stakeholder preferences (Heyes & Martin, 2017; Mohliver et al., 2022); models of firms transacting with platforms (Barach et al., 2019; Chu & Wu, 2023) and ecosystems (Panico & Cennamo, 2022); and formal models of economies of scope and resource redeployability (Levinthal & Wu, 2010; Reuer & Sakhartov, 2021; Sakhartov, 2018), and related models of resources and capabilities as real options (Kogut & Kulatilaka, 2001). The Guistiziero et al.'s paper in this issue, which uses a formal model to understand the impact of digitization on firm scale and scope, is an excellent example of the potential for game theoretic formal models to bring new theoretical insight to these growing areas.

Beyond analytical models, there is also considerable opportunity for formal work using agent-based and related types of simulations, notably those based on evolutionary and behavioral theories. Specifically, there are important opportunities for scholars to move beyond traditional simulation models built on NK models of organizational adaptation (Levinthal, 1997) or multi-armed bandit models of exploration exploitation (Posen & Levinthal, 2012). One important opportunity in this area is to think more carefully about demand heterogeneity and its impact on the development of resources—a topic that has been the subject of some formal models (Adner & Levinthal, 2001; Adner & Zemsky, 2006), but where simulations would allow for more realistic behavioral assumptions and a less deterministic view of innovation.

Relatedly, future work could also take inspiration from early evolutionary economics models (Nelson & Winter, 1982) and examine the evolution of resources and capabilities within and across a population of firms. The Wibbens paper in this special issue is a promising early step in that direction. In addition, history-friendly evolutionary models that ground simulations in the features of a real-world context (Malerba, Nelson, Orsenigo, & Winter, 2016) can be applied to the evolution of firms and their resources and capabilities, as in the history-friendly simulation of firms' capabilities and strategic choices in the U.S. minivan market (Engler, Cattani, & Porac, 2020). Beyond modeling competition between firms with heterogeneous resources, as evolutionary models have typically done, these models could be extended to incorporate the potential for cooperation between firms, thus setting the stage for more formal work examining the creation and evolution of ecosystems (see Ganco et al., 2020 for a promising early

example). Such work would combine the ability to rigorously model the extent and nature of interdependence of NK models (Aggarwal et al., 2011) with the flexibility to consider multiple independent agents following different decision rules. Future work could also use agent-based simulations to think about collective action problems, including cooperation among stakeholders with divergent agendas, or models of firms pursuing multiple goals simultaneously (Albert & Csaszar, 2023) thus bringing more rigor and insight to existing work in stakeholder theory. As already mentioned, simulation models might also be useful to further explore market shaping (Gavetti et al., 2017).

Finally, there are exciting opportunities to combine formal theoretical analysis with empirical work. While a few recent studies have sought to develop simple theoretical models of resources and capabilities and test them empirically (Chatain, 2011; Kaul & Wu, 2016; Wibbens, 2019), such direct applications of formal modeling to empirical analysis remain sparse. Moreover, while the estimation of structural models has become increasingly popular in other disciplines, such as economics and finance, their application in strategy research remains limited (Grennan, 2014), and this represents another important opportunity for future research in our field.

3.3.3 | Policy capturing

Among the more vexing challenges when using the RBV is that two of its key concepts are difficult to measure. One is resources. As Godfrey and Hill (1995, p. 523) note, "the power of the theory to explain performance persistence over time is based upon the assumption that certain resources are by their nature unobservable, and hence give rise to high barriers to imitation...In short, if there are no unobservable resources, the RBV loses much of its explanatory power." Second, sustained competitive advantages are notoriously difficult to measure; this helps explain why many studies simply draw a link between strategic resources and performance. Such a conceptualization is underspecified, however, and does not fully capture the causal chain underlying the RBV. Yet, as Ketchen, Hult, and Slater (2007, p. 962) note, "measuring this concept is difficult, but it is needed in order to completely test the RBV."

We suggest that policy capturing studies are well suited to navigate these murky waters. These designs, also known as vignette experiments, involve presenting subjects with hypothetical but realistic scenarios and asking subjects how they would react to the situation described. As such, policy capturing combines elements of experimental and survey design. A key limitation of these designs is that they simulate, but do not measure, actual choices. A significant positive aspect is, if well designed, they maximize internal validity and thus facilitate causal inference. Given these strengths, they fit well in multimethod designs alongside archival analyses that by their nature struggle to tap into underlying mechanisms.

Policy capturing studies have a long history within strategic management research dating back at least to Thomas and McDaniel (1990) and Thomas, Clark, and Gioia (1993) wherein hospital executives were presented with carefully structured scenarios and asked to make interpretations of the strategic issues described. Variance in the interpretations across the informants was tied to differences in subsequent hospital strategies and performance, both of which were measured archivally. In two recent examples, Connelly, Ketchen Jr, Gangloff, and Shook (2016) used policy capturing to assess how investors view different types of CEO successors in the wake of corporate misconduct, and Zorn, DeGhetto, Ketchen, and Combs (2020) used the

method to capture the extent to which directors are biased in favor of poor performing CEOs that they helped hire.

To the best of our knowledge, policy capturing studies have not been used in conjunction with the RBV. This appears to offer significant opportunities to build knowledge. For example, studies could be constructed that specify the nature of strategic resources and sustained competitive advantage enjoyed by firms in particular settings. Depending on the hypotheses of interest, the subjects who react to the stimuli presented could be top executives (as in the case of the Thomas & McDaniel, 1990, Thomas et al., 1993 studies and Zorn et al., 2020), investment professionals (as in Connelly et al., 2016), stock analysts, regulators, activists, or other key stakeholders. More generally, the intangible nature of many resources puts a premium on creative designs—as exemplified by Kim and Makadok's (2023) study of professional basketball teams—and policy capturing studies can be important components of that effort.

4 | CONCLUSION

Four decades have passed since Wernerfelt (1984) introduced the RBV into strategic management research and into the language of business. The RBV's impact inside the strategic management field and in a wide array of other fields has been immense. While many theories leveraged in strategy research are imported from other fields, the RBV is "home grown" and thus should be a source of pride for strategic management scholars. Looking to the future, it is logical to wonder if the RBV will continue to play a key role in inquiry for another four decades. Will the RBV remain vibrant in 2064 or will it be relegated to the ash heap of research history? We believe that the RBV will continue to be an important guide for researchers for many years to come to the extent that new contexts, new concepts, and new methods are brought to bear over time.

DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no datasets were generated or analyzed.

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