

TOWARD DIGITAL DYNAMIC CAPABILITIES - A THEORETICAL EXPLORATION

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ABSTRACT

Internet/Management of Information System study is a burgeoning, cross-disciplinary field in business and technology. Its development always accompanies evolving industry change, so it seems that the best strategy is not to use only existing theories for researching on-going phenomena and future evolution of Internet related issues. Alternatively, theorists in this particular field have a strong tradition of drawing from diverse aspects of social science such as human behavior, economics, strategy, and general management to derive rich discussion to address practitioners' concerns.

New theories are continuously brought into this field, particularly those that dominate in other areas with different contexts. The exposure this contributes to theory in the Information System/Internet context could potentially yield critical insights and provide feedback for further refinement of theories.

This paper provides a brief review of the dynamic capability framework then incorporates the latest expansion of IT capabilities. This brings the Enterprise 2.0 system architecture into the discussion of popular management frameworks. Such an extension is expected to generate a more detailed categorization of digital dynamic capabilities. First, the key terminology of digital dynamic capabilities is presented. Second, the importance of organizational and environmental factors is emphasized in dynamic capabilities analysis. Finally, future empirical research with digital dynamic capabilities is considered.

Keywords: Dynamic Capability, Enterprise 2.0, Organizational Capability of IS, Digital Competitive Advantage, Information System Resource, Digital Dynamic Capability.

1. INTRODUCTION

Based on the perspective of the resource based view (RBV)^{1, 2, 3}, the dynamic capabilities framework^{4,5} is introduced to further complement competitive advantage research from the strategic positioning and competitive force-oriented view of industrial organization economics^{6,7}.

The visibility of dynamic capability research was raised with the boom of global competitive battles in high-technology industries in the late 1990s, especially in IT and semiconductors sectors. In contrast to traditional industrial sectors, these high-tech enterprises reflect unique strategies often led by intensive R&D investment to formulate difficult-to-imitate internal and external competence. This is enhanced by aggressive intellectual property stances to extend the “winner takes all” effect. Among companies, IBM demonstrates a great example of an organizational transformation strategy from a struggling hardware seller to a successful broad range IT solutions provider⁸. With the recent development of web2.0, searching technology enabled Enterprise 2.0, an innovative IT organizational capability, to expand across not only IT-intensive industries but also many traditional sectors. I am interested in the challenge of revisiting the dynamic capabilities framework, using the context of Enterprise 2.0 to explore the potential convergence of a digital dynamic capabilities framework.

1.1 Dynamic capabilities

Like most theories and frameworks, dynamic capabilities endure strict academic scrutiny. From the origin of this concept, the value of interpreting dynamic capability as part of organizational competitiveness analysis incurs a rather diverse response. In regards to defining the concept of dynamic capabilities, different schools interpret it with different orientation and emphasis. There are even more complicated and broad debates on the subject of precise terminology categorization. In order to position this paper with a clear and systematic structure, I start with the summary of key terminology interpretations. I then endeavor to expose both the normative and descriptive implications of dynamic capabilities in the following sub-chapters.

1.2 The value of dynamic capabilities

Dynamic capability stems from the RBV, with emphasis on building competitive advantage through capturing entrepreneurial rents rooted in Schumpeterian economics and special concerns of efficiency and effectiveness advantages⁴. Further development followed with classification of moderate dynamic and high-velocity markets in defining the concept, with a special emphasis on learning mechanisms as the guide to dynamic capability evolution⁵. Still, academia and industries remain skeptical about

the practical implications of dynamic capability. It is a question of whether paying for efforts to build such a capability is a genuine managerial option⁹. These concerns are drawn from conceptual research in traditional industries, and I complement this stream of arguments with the hyper-paced, changing IT industry and organizational IT-intensive application context. In this context, rapid and unpredictable market change dominates the spectrum of technology and business model innovation, coupled with seamless human, organization, and information capital exchange at a global scale. Market leaders have no choice but dynamic capability to⁴“integrate, build and reconfigure internal and external competencies to address rapidly changing environment”⁴. Purely possessing stocks of technological and strategic assets alone no longer seems enough to maintain industry leadership.

While the RBV focuses on Ricardian economics where rent is accrued based on scarce firm-specific resources, strategic dynamic capability resources are heterogeneously distributed across firms and assumed stable over time. Hence, competitive advantage rests on a firm’s idiosyncratic and difficult-to-imitate resources³. This theoretical approach substitutes alternative assumptions in analyzing competitive advantage, besides the strategic positioning analysis of the Porterian school of industry attractiveness which was popular at the time. Notwithstanding, just as RBV substitutes the weakness of the competitive force analysis with an emphasis on firm-level resource heterogeneity, dynamic capability addresses the void left by RBV’s static and stable assumptions on resource bundles.

As noted above, with the emergence of the 21st century information age, dynamic information technology innovation culminated with tremendous world-wide success of the Google searching service and its diffusion into corporate structure, digital infrastructure, enterprise management, and business model innovation. The integration of IT platforms into corporate management brings new research opportunities; addressing the needs of effective coordination and timely redeployment of internal and external competence is required for most modern enterprises. The assumption of static resources is no longer suitable.

Dynamic capability is defined by the two words: dynamic and capability. The term dynamic⁴ “refers to the capacity to renew competences so as to achieve congruence with the changing business environment; certain innovative response are required when time-to-market and timing are critical, the rate of technological change is rapid, and the nature of future competition and markets difficult to determine”⁴. The term capability emphasizes⁴ “the key role of strategic management in appropriately adapting, integrating and reconfiguring internal and external organizational skills, resources, and functional competences to match the

requirement of a changing environment”⁴. The value of dynamic capabilities research is becoming increasingly important for several reasons: 1) A timely synthesis of broad RBV research from core competence¹⁰ to architectural competence¹¹. 2) An innovative expansion into emerging high-tech industries with “dynamic” focus on organizational capabilities development and industrial commonalities identification⁵. 3) The fixed tautological critique of RBV by articulating resources, processes, capabilities and core capabilities into empirically valid terms such as valid adaptive capability, absorptive capability, and innovative capability¹².

1.3 The concepts of dynamic capabilities

Since the importance of dynamic capability has been acknowledged, I will start to explore the concepts of dynamic capabilities. Similar to how RBV had been labeled as a tautology with true primary assertions but inattention to the actual resource based competitive advantage analysis mechanism¹³ and empirical grounding⁵, dynamic capabilities also require additional concept clarification.

Dynamic capabilities are viewed as the basis for analyzing unique value-creating strategies¹⁴, as well as the⁵ “drivers behind the creation, evolution, and recombination of other resources into new sources of competitive advantage”⁵. All terms from “architectural competence”¹¹ to “capabilities”¹⁵ collectively examine issues regarding capability emergence and evolution of firms over time.

More fundamentally, since Coase’s famous seminal work on “the nature of firm”¹⁶, generations of scholars have engaged in research to identify the essence of internal economic activities that are not available from markets. Transaction cost economics¹⁷ provides a theoretical framework to economize the “make or buy” choice faced by organizations. Internal organization is a domain of unleveraged or low-powered incentives; the rewards are determined at the group and organizational level, not at the individual level. Indeed, firms’ capabilities need to be understood not in terms of physical assets on balance sheets, but, more importantly, in terms of organizational structure and managerial process: IT-enabled intangible assets¹⁸ which support productive activity. Brynjolfsson and Saunders¹⁸ argued for this IT impact on organizational intangible capital development.

The three original units of analysis in the dynamic capabilities framework are processes, positions, and paths. The following empirical research further defines the framework with additional identifiable properties⁵. Organizational process includes three main functions:

coordination/integration, learning, and reconfiguration. Positions represent the firm's specific assets, which include tangible assets like plants and equipments, as well as intangible assets which include difficult-to-trade knowledge, intellectual property, human capital, brand equity, etc. Path determines the firm's origin and inherited value which guide a firm's ability to compete and choose strategic movements⁴. Based on this framework, latest research projects further configure the framework to address respective industrial concerns^{19,20}. Even though there are limited empirical studies from the perspective of IT industries, there is a clear need for further research from the RBV analysis of IT²¹. Theory-wise, the Net-Enabled Business Innovation Cycle (NEBIC) has been introduced as an applied dynamic capabilities theory²² to complement the dynamic capabilities argument. Wheeler summarized the latest net-enabled organizations' value creation process with an integration of IS and strategy research. This framework initializes the "net-enablement" concept as the external factor to develop dynamic capability in the digital network economy. This is done by depicting the four sequenced constructs: choosing new IT, matching economic opportunities with technology, executing business innovation for growth, and assessing customer value. The NEBIC framework yields a logically consistent and falsifiable basis for future digital competitive advantage research²².

1.4 Terminology discussion:

The dynamic capability framework shares some arguments similar to the interpretation of other RBV theories; it is even more interesting to compare the subtle terminology differences from different schools of insights. The section below is organized to serve this purpose.

1.4.1 Resource and Capability

As the heart of RBV research, resource and capability are commonly regarded as specific to firms and unchanging³. They have common features that are valuable, rare, and isolated from imitation or substitution²³. Meanwhile, they are distinct from each other, for resources are regarded as an observable asset that can be valued and traded. Examples of this are brand and land. Capability, on the other hand, is not observable and cannot be valued. It changes hands only as part of its entire unit. A mixture of human capital, organizational capital, and managerial/coordination skills are involved in examples such as Toyota's kaizen production system and Dell's just-in-time logistics system. To avoid tautological critique, the dynamic capability framework emphasizes resources as firm-specific assets that⁴ "are difficult if not impossible to imitate. Trade secrets and certain specialized production facilities and engineering experience are examples. Such assets are difficult to transfer among firms because of transactions costs and

transfer costs, and because the assets may contain tacit knowledge.”⁴ As such, resources form the basis of unique value-creating strategies and related activity systems that address specific markets and customers in distinctive ways. This leads to competitive advantages and has been widely recognized as the core competence.

Same as with the definition of capability, the dynamic capabilities framework emphasizes the importance of “dynamic.” This requires that firms have the ability to self-adjust in order to address rapidly changing environments and reveals how firms transfer resource advantage into general competitive advantage¹². Furthermore, Eisenhardt and Martin⁵ identify the specific processes in dynamic capabilities: ⁵ “some dynamic capabilities integrate resources as product development routines by which managers combine their varied skills and functional backgrounds to create revenue- producing products and services. Other dynamic capabilities focus on reconfiguration of resources within firms. Transfer processes including routines for replication and brokering, still other dynamic capabilities are related to the gain and release of resources. These include knowledge creation routines whereby managers and others build new thinking within the firm.” Helfat and Peteraf²⁴ further argue “the concept of capability as a set of routines implies that in order for the performance of an activity to constitute a capability, the capability must have reached some threshold level of practiced or routine activity. At a minimum, in order for something to qualify as a capability, it must work in a reliable manner. Taking a first cut at an activity does not constitute a capability.” Such routines based views⁹ will be touched upon in following sections.

1.4.2 Resource/Capability Development Mechanism

As the RBV states that a firm's resources can sustain superior economic performance only if the resources are inimitable, mechanisms to isolate resources, develop capabilities to prevent imitation, and achieve capability-level competitive advantage are becoming key for success.

Some scholars argue that three general isolating mechanisms prevent the imitation of resources and capabilities: property rights, learning and development costs, and causal ambiguity²³. Property rights rely on law enforcement against competitor infringement, which applies to most resources. Learning and development costs inhibit the copying of both resources and capabilities; they offer an important perspective on competitive heterogeneity²³.

From another perspective, the notion of a certain rationality or coherence to processes within a system was also coined by Nelson and Winter²⁵ as organizational routines. Through understanding routine-based

organizational capability, this provides a new perspective to understand the competition issues between a market incumbent and an entrant. In particular, disruptive innovation theory is derived from this perspective to theorize the entrant's competitive strategy by introducing a new value proposition²⁶. However,⁴ "the routines concept is a little too amorphous to properly capture the congruence amongst processes and between processes and incentives that are defined in organizational economics", as argued by Teece, Pisano and Shuen⁴. Learning is defined as "a process by which repetition and experimentation enable tasks to be performed better and quicker. It also enables new production opportunities to be identified."⁴ In the original framework, the authors further identify key characteristics: ⁴"(1) Learning involves organizational as well as individual skills. 2) The organizational knowledge generated by such activity resides in new patterns of activity, in routines or a new logic of organization, includes collaboration and partnership as vehicles for new organizational learning."⁴

Following scholars strive to define a more detailed framework to link learning mechanisms to the evolution of dynamic capabilities. These efforts complement the development and adaptation of organizational routine based research. The role of (1) experience accumulation, (2) knowledge articulation, and (3) knowledge codification processes in the evolution of dynamic capability are identified. The argument is made that²⁷ "dynamic capabilities are shaped by the co-evolution of these learning mechanisms. At any point in time, firms adopt a mix of learning behaviors constituted by a semiautomatic accumulation of experience and by deliberate investments in knowledge articulation and codification activities"

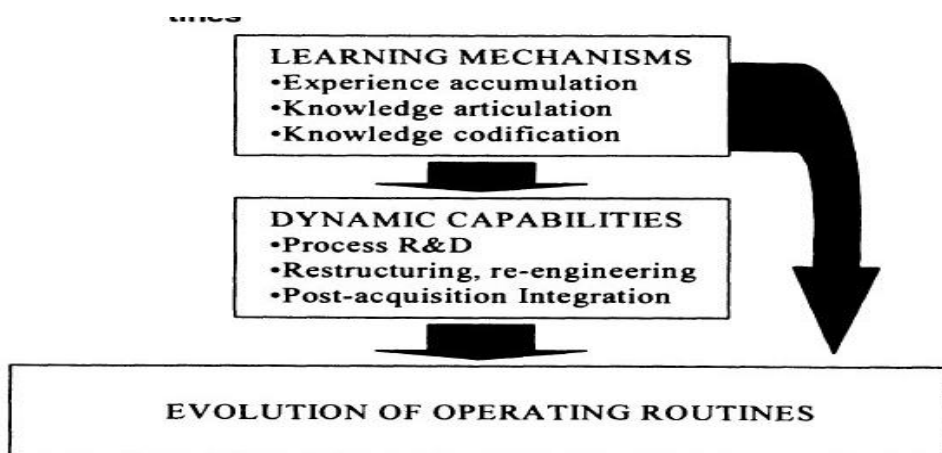


Figure.1 Learning, Dynamic Capabilities, and Operating Routines

There are abundant empirical studies to testify the learning mechanism for dynamic capabilities development. Eisenhardt and Martin⁵ summarize the specific functional practices. Repeated practice as an important learning mechanism has been theorized for learning curves in a manufacturing industry study²⁸. Similarly, repeated practice in a bank acquisition case²⁹ and even broader cross-industry study of alliance has found the evidence that codification knowledge could greatly facilitate routine building³⁰. Mistakes and pacing of experience also play an important role in the evolution of dynamic capability⁵.

In summary, dynamic capability complements the premise of RBV with further theoretical and empirical explorations, though several issues surrounding the dynamic capability framework remain uncertain. It nonetheless provides an opportunity to dig into the theoretical origin of the “dynamic” changing industry construct. In subsequent chapters, I will incorporate the enterprise 2.0 framework into dynamic capabilities discussions. The overarching formulation of a digital dynamic capabilities framework will be raised for further theoretical and empirical exploration.

2. Enterprise 2.0

First coined by McAfee³¹ and enhanced by frontier IT strategy scholars^{32, 33, 34, 35}, Enterprise 2.0 is quickly becoming the buzzword in the MIS field. I will first provide an overview of this concept in the following sections, then identify key digital dynamic capabilities within the Enterprise 2.0 architecture.

2.1 Overview

The boom of ubiquitous web2.0 technology penetrating Internet services has resulted in intensive web applications to facilitate interactive information sharing, user-customized design, and open collaboration on a global scale. Practitioners are increasingly interested in applying web2.0 technology into corporate life. By running the same technology in an organization’s intranets and extranets, Enterprise 2.0 helps unveil the black box of intangible organizational capital¹⁸.

From antecedent sociology research, the collective intelligence³⁶ of a group of people could possibly yield richer and more accurate information than any individual within the group possesses. One great function of enterprise 2.0 technological structure was developed to harness the “wisdom of crowds”³⁷ inside the enterprise. The social software platforms installed by companies intend to organize employee communities in a different way from traditional hierarchical enterprise structure. In virtual enterprise 2.0 communities, structures are designed to be as flat as possible, and by doing

so, empowered individuals are encouraged to heighten their ability to act autonomously and increase information free flow and knowledge creating and sharing mechanisms.

More specifically, SLATES (search, links, authoring, tagging, extensions, signals) has the main functions needed to realize enterprise 2.0³⁸:

- Search: allowing users to search for other users or content
- Links: grouping similar users or content together
- Authoring: including blogs and wikis
- Tags: allowing users to tag content
- Extensions: recommendations of users or content based on profile
- Signals: allowing people to subscribe to users or content with RSS feeds

As stated above, enterprise 2.0 was born in a dynamic environment. It provides a toolbox for enterprises to capture strategic assets embedded in the ocean of organizational intangible capital. How does enterprise 2.0 impact dynamic capabilities? What are the digital dynamic capabilities? What is the relationship between digital dynamic capabilities and firm performance? The discussion below answers these questions.

2. 2 Identify the digital dynamic capabilities

Before addressing concerns with the digital dynamic capabilities framework, I will first clarify the key terms of the modified framework.

2.2.1 Digital Processes

Digital processes are defined as enterprise 2.0 technology enabled managerial and organizational processes. This is distinguished from general organizational processes, as this term is focused on IT process building and includes IT enabled integrated infrastructure coordination and experience learning.

Coordination: Just as the integration of price systems generally coordinates the economy, integration of external resources and relationships with corporate activities is also recognized in recent strategic management literature. Empirical study proves that IT infrastructure provides the resources for feasible innovation and continuous improvement of products³⁹. These unique characteristics of IT infrastructure enable firms to implement the right applications to render different values²¹. My approach of digital oriented coordination is focused on the way internal management and production is enhanced by the enterprise 2.0 toolbox. For example,

McAfee³⁸ points out six organizational strategies to maximize enterprise 2.0 technology enabled productivity output. Empirically, the notion of leveraging social media tools to thrive in Internet viral marketing provides an interesting perspective to elaborate on the digital coordination process. Research on e-business value creation⁴⁰ and online strategy⁴¹ dig deeper into the theoretical landscape.

Learning: In Teece, Pisano and Shuen's framework⁴, learning is broadly defined as⁴ "a process by which repetition and experimentation enable tasks to be performed better and quicker. It also enables new production opportunities to be identified." To make the definition clearer, I emphasize that enterprise 2.0 adoption requires organizational and individual communication, education, and virtualization as the digital learning mechanisms to build dynamic capabilities. Experience accumulation, knowledge articulation and knowledge codification²⁷ are derived from organizational routines based mechanism²⁵ for dynamic capabilities buildup. This is respectively incorporated into the digital learning framework: communication is the specific representative of organizational behavior under routine operating discussion⁴². Communication refers to efforts needed to implement the enterprise 2.0 toolbox at the enterprise level to coordinate the gap between early adopter and reluctant adopter. Education refers to human capital training. It penetrates the ambiguous definition of knowledge articulation where²⁷ "only a small fraction of articulable knowledge is actually articulated, and that organizations differ substantially on the degree to which they transform potentially articulable knowledge into articulated statements"²⁷. Enterprise 2.0 is invented to address organizational knowledge transfer skills. Virtualization is coined to simplify organizational capital digitalization. Existing literature has emphasized the knowledge codification in organizational knowledge diffusion⁴³; my approach is to focus on more specific and empirical studies of virtualization as the knowledge codification mechanism in building digital dynamic capabilities.

2.2.2 Digital Positions

The strategic posture of a firm is not only determined by the previously mentioned processes, but also by its specific assets. This includes both specific tangible physical assets and intangible knowledge assets⁴. The RBV theorists tend to contend that IT is a commodity, due to the fact that IT technology is widely accessible and can be purchased and duplicated by competitors⁴⁴. Such views of technology ignore the synergistic benefits of integrated systems²¹. Hence, I will focus on articulating enterprise 2.0-generated organizational assets to be specific "structural assets" in the original framework.

Enterprise 2.0-generated intangible asset: Following from the general definition⁴ “the formal and informal structure of organizations and their external linkages have an important bearing on the rate and direction of innovation, and how competences and capabilities co-evolve”⁴. Enterprise 2.0 technologies enable cross-firm boundaries collaboration, flattened governance mode, and firm-specific timely knowledge sharing. This collectively reflects an important dimension of “digital position” held by the firm. Cross-firm boundaries collaboration is observed through the increasing number of open-collaboration projects backboneed by enterprise 2.0 infrastructure. Boundaries of the firm are blurred with intensive internal and external cooperation. Additionally, flattened governance brings challenges to the traditional hold of authority and managerial control philosophy. Empirical IT governance studies⁴⁵ validate modern enterprises’ IT governance strategy. This is noted here as an important aspect of the digital dynamic capabilities framework. Firm-specific timely knowledge sharing is required by most knowledge-intensive industries as a complementary concept to the learning mechanism in dynamic capabilities evolution. It focuses on the seamless sharing, editing, and cooperation created by enterprise 2.0 technologies.

There is also growing evidence that competitive advantage often depends more on firms’ superior deployment of information system capabilities than information system assets⁴⁶. From the dynamic capabilities perspective, this advantage is embedded in firms’ idiosyncratic capabilities to address the emerging challenges. This is particularly important for IT-intensive industries.

2.2.3 Digital Paths

Path dependency has not been fully recognized in economics theory, however, in management study “bygone are rarely bygone”⁴. In particular, with the enterprise 2.0 technologies paved digital path, organizational and individual cognitive structure involves complicated process formation. Due to the side effects of network externalities⁴⁷ from previous IT platform adoption, management of the digital path will be a very interesting part of digital dynamic capabilities research.

Competition in traditional industry is not simply judged by technological advancement. Many empirical examples testify that inferior technology can prevail in markets because of “lock-in”⁴⁸. The digital path shares common path features with technological “lock-in” effects, however, unlike traditional technology, enterprise 2.0 is a human behavior based, self-adjusting technology. Like most IT technologies, it is expensive to build but shares little marginal cost to copy. Such features will greatly impact the evolution of digital dynamic capabilities.

3. Towards digital dynamic capabilities

Traditionally, IS resources rarely have a direct influence on sustained competitive advantage; instead, they are part of the complex chain of assets and capabilities that lead to sustainable competitive advantage⁴⁹. Skeptics contend that the value of IT exists only when it leverages or enables pre-existing firm resources⁵⁰; the enabling role of IT is illustrated by three organizational intangibles: customer orientation, knowledge assets, and synergy²¹. My modified pattern complements the traditional view by leveraging the enterprise 2.0 technology architecture. Enabled firm-specific, intangible resources are often tacit and idiosyncratic; nonetheless, they are deeply embedded in the organization's social context. How can the impact of digital dynamic capabilities on a firm's performance in the highly turbulent Google era be evaluated? One bold proposition emerges from the preceding discussion: Enterprise 2.0 capabilities directly affect the firm performance.

3.1 General direct effect

Despite the widely held belief that IS resources are critical to a firm's survival and growth²¹, there is limited discussion around the mechanism of linking IS resources/capabilities to a firm's performance. Instead, with the discussion of the "productivity paradox"⁵¹, controversy over the business value of IT resources/capabilities investment is dominant in many IS scholars' thoughts. I argued the proposition here: Enterprise 2.0 capabilities directly affect a firm's performance. Like IT investment per se, adopting a digital dynamic capabilities perspective does not predict any sustainable advantage. Rather, the investment creates digital dynamic capabilities that determine the firm's performance. This is in contrast to the view of IT resources/capabilities as complementary assets. I argue that rare and firm-specific intangible assets accumulated during Enterprise 2.0 implementation are likely to serve as direct factors for performance and even long-term sustainable competitive advantage. More specifically, internal organizational factors and external environmental factors collectively determine the degree of relevance.

3.2 Organizational factors

Organizational fit reflects one organization's commitment to adopt Enterprise 2.0, usually including human capital investment, firm structure reconfiguration, corporate culture change, and a series of resource allocation and authority redesigns. Such processes are painful and risky. Similar empirical evidence from Enterprise Resource Planning (ERP) system implementation verifies the influence of organizational factors on overall success⁵². Other organizational factors such as firm size, employee

demography, and top management commitment may also influence how organizational fit affects a firm's formation and practice of overall digital dynamic capabilities. The extent to which these organizational factors play requires future empirical test and could become a new research direction.

3.3 Environmental factors

The organization's operating environment is critical to digital dynamic capabilities. Environmental turbulence, munificence, and complexity⁵³ are viewed as the three environmental dimensions contributing the most to environmental uncertainty. They are thus most likely to consistently influence a firm's performance over time⁴⁹. I argue that digital dynamic capabilities have a stronger influence on IT-intensive industries because of their turbulent, fast changing market nature⁵. In traditional stable business environments, advantages achieved are usually sustained for an extended period of time⁵⁴. Such promise is simply unmet in IT-intensive industries; many advantages are short-lived and a market entrant can overthrow an incumbent overnight. The ability to respond to market change and sense developing trends with Enterprise 2.0 enabled digital dynamic capabilities is critical to distinguish superior performers from market followers. There is still a lack of empirical study by researchers validating such propositions.

4. Future research

The digital dynamic capabilities framework is narrowly defined to fit into a particular context and explains the relationship between a firm's performance and other relevant dependable variables with an enterprise 2.0 technologies structure. Such definition has the advantage of avoiding the more actionable managerial implications of the general RBV based framework. As Wade and Hulland⁴⁹ point out, reliance on a high level of abstraction may inappropriately combine distinct resources under a single label, thereby weakening the true relationship validity. While narrow definitions help to fine-tune the understanding of "resource specificity" and its impact on performance in given setting, "the danger of using resources with particular forms of capabilities that are overly narrow will suffer in twofold: any resultant findings are difficult to generalize to new context; and potential implication might become lengthy for practical research use"⁴⁹.

First, methods for maintaining a fine balance between enterprise 2.0 architecture articulations and digital dynamic capabilities generalization might be a potential research direction for future IS scholars. Secondly, given that the enterprise 2.0 technologies architecture incorporates both information technology attributes (asset/resource-based) and extensive organizational and technological system application (capabilities-based), a

mixture of resources and capabilities around the productive use of enterprise 2.0 will result in interesting conceptual and empirical exploration. This is part of my initial work. Finally, performance advantage measurement requires empirical testing to evaluate the digital dynamic capabilities-based strategic competitiveness analysis. Dynamic capabilities are convincingly defined as a special IT resource that carries enormous productivity power but also may misfire in the wrong hands⁵⁵. A set of industrial phenomena wait to be examined with this new framework. Once the role of the dynamic capabilities framework has been comprehensively explored and defined, it could potentially be leveraged as an important pattern of the RBV School of analysis.

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