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The Impact of EA-Driven Dynamic Capabilities, Innovativeness, and Structure on Organizational Benefits: A Variance and fsQCA Perspective

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Abstract: Enterprise Architecture (EA) allows firms to create value on the firm and operational levels. This paper argues that firms' EA-driven dynamic capabilities lead to innovative value-creating actions and, ultimately, improve organizational benefits. Hence, we propose a theoretical model that explains how these dynamic capabilities enable the innovativeness of firms. Moreover, we explain the contingent role of an organic firm structure and its relation to firm innovativeness. Data within this study is collected from 299 CIOs and IT managers. This study uses a variance-based approach and a complementary fuzzy-set qualitative comparative analysis (fsQCA) to analyze the model's hypothesized relationships. Our study outcomes demonstrate a positive relationship between EA-driven dynamic capabilities and firms' innovativeness as well as between innovation and organizational benefits. Our post-hoc analyses using fsQCA reveal various circumstances in which organic firm structure and valuable, rare, inimitable, and non-substitutional (VRIN) firm resources are particularly relevant for firms to obtain high levels of firm innovativeness.

Keywords: enterprise architecture; dynamic capabilities; EA-driven dynamic capabilities; innovativeness; organic firm structure; organizational benefits; fuzzy-set qualitative comparative analysis



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1. Introduction

Modern firms struggle to keep up with the rapidly changing technology and business landscape [1,2]. This is where the concept of Enterprise Architecture (EA) comes into play. Analyses of Gartner show that EA has now reached the phase 'Climbing the Slope' on the Hype Cycle [3]. What this means is that we better understand what benefits EA can bring to the enterprise. However, EA's broad market applicability and relevance are not yet clearly paying off. EA's focus has now changed toward EA-enabled business models and operations, and delivering value under continuously changing conditions is now center stage.

EA is typically conceptualized as the firms' organizing logic or blueprint [4]. As such, it describes "what is going on in the firm" right now (often described as the "as-is" situation) in terms of data, process, and information systems (IS) and information technology (IT). EA is also used to describe "what should be going on" (often described as the "to-be" situation) in the business and IS/IT landscape following the firms' ambitious (digital) strategies and goals. Based on the unfolding gap-analysis, EA provides a roadmap with accompanying agile IS projects and programs to achieve this target from the current state [4–6]. Firms are currently embracing EA to leverage their digital investments and facilitate flexible integration of IS/IT assets and resources with business processes to obtain an advantage over competitors [6–8]. In practice, EA facilitates firms to translate business strategy into

design, daily operations, and master emerging complexity across the enterprise [6]. EA can be a valuable asset to the firm, as it can unlock the true potential and business value of all firm's digital initiatives that require enterprise-wide integration of large numbers of heterogeneous and frequently changing systems and information structures [9]. EA has become crucial for firms that operate in turbulent business environments. Recent work showcases the central role of EA during firms' digital transformation, where it actively supports decision-makers in making adequate decisions concerning the radically changing business and IT landscape as part of the digital transformation [10,11].

However, despite valuable scholarly contributions in the EA domain, there is still a pressing need for empirically validated work that advances our current understanding of EA benefits and value created by EA-driven capabilities [12]. These capabilities mobilize business, IS/IT assets, and resources in alignment with the firm's strategic objectives [4,13–16]. The lack of empirically validated work is problematic as the current knowledge-base only delivers provisional conceptions on how EA-based capabilities cultivate organizational change, innovation, and business and IS/IT benefits [17–20].

We ground this work within the dynamic capability view (DCV), a leading strategic management framework [4,7,21], and argue that the firm's innovativeness—the ability to introduce innovation to a firm's business processes and ability to use the latest technological innovations for new product development [22,23]—depends on its EA-driven dynamic capabilities. Similar to Shanks et al. [4] and Van de Wetering [16], we consider such EA-driven capabilities as dynamic capabilities [21,24]. These dynamic capabilities help firms sense possible business and IT opportunities and transform and deploy these initiatives and opportunities while ensuring that their assets and resources align with the strategic goals and market needs [4,16,21,24].

The IS and management scholarship has evolved considerably in recent decades. However, there seems to be consensus concerning the key attributes of successful firms in fast-changing economies. Scholars showed that firms' dynamic capabilities and organizational design are two salient and strategic factors that profoundly affect firms' innovativeness levels [25–32]. These studies support the view that designing organic, firm structures is a crucial strategic choice for firms that complements dynamic capabilities as a key driver of the innovativeness of firms [29,30,33]. Hence, in addition to the EA-driven dynamic capabilities construct, in this study, we, therefore, extend the core argument and claim that the firm's organic, firm structure influences the firm's innovativeness.

Organizations that adopt an organic and decentralized structure are typically more innovative than those with a rigid and formalized structure [34]. Such organizations embrace a culture of informality with decentralized decision making, resulting in their ability to be agile and quick in sensing external business environments, seizing the opportunities and reconfiguring their resources to improve existing products, processes, and services or develop new ones based on the latest technologies [22,23,35]. Hence, a firm's organizational structure is an important concept to consider alongside EA-driven dynamic capabilities in exploring the influence of a firm's innovations on organizational benefits.

Hence, this study unfolds the critical intermediate abilities and organizational capabilities (innovativeness) in the value path consistent with previous, dynamic, capability literature, showcasing the direct and indirect effects of dynamic capabilities on other organizational benefits [36–38].

Therefore, the current study aims to address the pressing need for empirically validated work in this particular domain and tries to deliver a foundational concept of how EA-based capabilities contribute to the firms' benefits, and, thereby, enhances our understanding in four ways. First, we unfold the theorized relationships between EA-driven dynamic capabilities and innovativeness using data from 299 CIOs, IT managers, and lead enterprise architects of Dutch firms. The firm's innovativeness (partially) mediates the relationship between EA-driven dynamic capabilities and organizational benefits. Second, our study shows how firms that have embraced organic organization structures and, thus, a culture of informality and decentralized decision-making will be better equipped to

enable EA-driven value activities and, thus, inventiveness. Third, this study unfolds the path through which dynamic capabilities add value to organizational benefits. Finally, it is essential for modern firms to co-evolve their business and IT resources and capabilities to maintain a competitive edge [39]. Hence, we also investigate the particular conditions and circumstances under which the firm can unlock EA's value and drive digital and process innovations given their available valuable, rare, inimitable, and non-substitutional (VRIN) resources [40] and the firm structure [41–44]. From the DCV, it can be deduced that firms need to design their organization in such a way as to build dynamic capabilities for innovation [29,45,46]. However, there is no consensus in the literature on how this inter-relationship looks like [29,47,48]. It is evident that there needs to be coherence between dynamic capabilities, resources, and the organizational structure to drive innovativeness. Therefore, this study opts for an appropriate practical methodology that rigorously discovers complementarities between these elements and how they—as patterns—lead to innovativeness [26,49].

Based on the above four objectives, this study addresses the following three research questions:

- (1) To what extent do the firm's EA-driven dynamic capabilities and organic firm structure influence its level of innovation?
- (2) To what extent does the firm's innovation level impact organizational benefits?
- (3) Which unique configurations of EA-driven dynamic capabilities shape a firm's innovativeness?

This paper is organized as follows. First, we outline the theoretical background and review the core theories relevant to our work. Then, we synthesize the core literature on EA-based capabilities and, subsequently, develop the hypotheses that underlie the research model. Next, we describe the empirical study, including the data collection, analyses, and the measures used in this study. Finally, we outline the work's empirical results by first confirming our model's reliability and validity and then testing the developed hypotheses by drawing on a sample of 299 CIOs, IT managers, and lead architects. This study continues with a fuzzy-set qualitative comparative analysis (fsQCA) [50,51] to unfold the particular circumstances in which an organic firm structure is particularly relevant for firms. Finally, we discuss our study findings and conclude the study.

2. Background and Theoretical Foundation

This study highlights the role of the firm's resource-based and dynamic capability-based view in developing our research model and associated hypotheses. As such, we build upon foundational theories and scholarship to examine the impact of EA-driven dynamic capabilities on value-creating activities and, ultimately, organizational benefits.

2.1. Synthesis of EA-Based Capabilities

EA research has a longstanding tradition going back to the late 1980s and early 1990s, primarily focusing on capturing various angles and notations of the IS/IT structure, enterprise systems, databases, business functions, processes, and stakeholders [52]. As such, much of the early research focused on logically structuring and classifying representations of enterprises and promoting the primarily prescriptive nature of these artifacts [19]. Table 1 shows some recent work on the survey, case study, and conceptual work that focus specifically on EA capabilities or EA-based capabilities. This table demonstrates that the characterization of EA capabilities, the conceptualized range, and reach differ. In addition, plenty of work remains conceptual. However, in recent years, more quantitative empirical work emerged. Furthermore, studies on EA-based capabilities focus on the diverse value paths through which organizational benefits can be achieved by taking on the perspective of service capabilities, EA deployment functions, and teams, as well as the competences to govern business-driven, value-oriented enterprise transformation. Finally, it can be synthesized from this table that the impact of EA and EA-capabilities is indirectly related to

organizational benefits through other intermediate results and organizational (EA-induced or based) and operational capabilities.

Table 1. Summary of representative EA-based capabilities studies.

Study	Research Aim and Objective(s)	Characterization of EA Capability	Nature of Study	Main Study Outcome
Hazen et al. [7]	Examine how EA capabilities are linked to firm performance.	EA strategic orientation and EA assimilation as dynamic and operational capabilities.	Survey	EA-based capabilities enhance firm agility and indirectly increase firm performance.
Frampton et al. [53]	Explains how firms achieve benefits with EA.	EA as a service provision function and comprise EA assets and capability.	Conceptual	EA service provision resources are associated with business value indirectly via EA-enabled firm capabilities.
Someh et al. [54]	Explore how EA capability is related to organizational benefits.	Integrated use of firms EA artifacts, together with guidance and roadmaps to achieve the organization's desirable state.	Conceptual	EA capability can lead to exploiting existing resources and increasing flexibility, agility, and business-IT alignment.
Foorthuis et al. [20]	Investigate how EA practices and intermediate outcomes contribute to organizational and project benefits.	EA-induced capabilities represent the outcomes of the firms' EA. They have a foundational role in obtaining EA-related end goals.	Survey	EA and EA practices operate through key intermediate results, namely project compliance with EA, i.e., architectural insight and EA-induced capabilities.
Tamm et al. [55]	Describe how EA capabilities enabled large-scale business transformation and add value.	Service perspective in delivering team-based value to facilitate and meet the needs of the business transformation.	Case study	EA capabilities enhance IT-related decision processes, project execution, and improved digital business platform.
Korhonen and Molnar [17]	Explore the nature of EA as capability and conditions for such a capability to constitute strategic value.	The strategic application of competencies to organize and utilize the EA resources toward desired ends.	Conceptual	EA as a strategic capability is key to govern business-driven, value-oriented enterprise transformation.
Toppenberg et al. [56]	Use of advanced EA capability in enhancing value from corporate acquisition processes.	EA capability enables an ongoing discovery of how a firms' current state relates to its future business needs.	Case study	EA capability contributes to different stages of the acquisition process by reducing complexities and difficulties.
Shanks et al. [4]	Empirically explaining how EA services bring benefits to the organization.	EA capability conceptualizes as a service provision that facilitates change in the firm using EA.	Survey	EA service and benefits are achieved through IT-driven and business-driven dynamic capabilities.

Some researchers argue that EA can be considered a capability and is a valuable organizational routine that drives IS/IT and business capabilities [4,7,57]. For instance, Shanks et al. [4] claim that EA-based capabilities are essential to leveraging EA advisory services within the firm. Specifically, EA service and benefits are achieved through IT-driven and business-driven dynamic capabilities. Therefore, the literature highlights the significance of EA-based and dynamic capabilities in creating benefits from EA. EA-based capabilities inform business strategies and the achievement of business objectives. They do so by evoking strategic and operational benefits and drive competitive firm performance. Specifically, through EA strategic orientation and EA assimilation as dynamic and operational capabilities, firms' business agility can be more competitive [7]. A recent scholarly contribution shows that EA, as a strategic capability, is vital to govern business-driven, value-oriented enterprise transformation [17]. Toppenberg et al. [56] concur with this particular view, as they show how EA capability contributes to different acquisition process stages by reducing complexities and difficulties. Foorthuis et al. [20] empirically demonstrate the value of EA-based capabilities in the process of achieving business goals and objectives. Therefore, the current status of EA-based capabilities identified in the literature shows that these particular capabilities enable firms to leverage their EA effectively [5,7], contribute to IT efficiency, IT flexibility [58], and operational capabilities [16], and drive alignment between business and IT [18].

2.2. EA-Driven Dynamic Capabilities

This study builds upon the dynamic capabilities view (DCV) [59,60]. The DCV is a leading theoretical framework that explains where firms' competitive advantage comes from in industries with high technological and market turbulence. Dynamic capabilities can be defined as a specific subset of capabilities that allow firms to integrate, build, and reconfigure internal and external resources and proficiencies to create new products and processes and respond to changing business environments [24,61]. Hence, these capabilities allow firms to manage uncertainty [46,60]. Notwithstanding its significance, the theory has been profoundly subjected to theoretical debate [24,59,60,62,63]. However, most empirical endeavors established positive relationships among these capabilities in recent years including firm's operational, innovative, and competitive performance measures [36,64,65].

This study builds on this particular DCV and previous EA-driven capability literature and argues that firms can successfully leverage EA only when they embed EA within the dynamic and organizational routines (i.e., dynamic capabilities), which can proactively sense environmental threats and business opportunities by implementing new strategic directions. We consider 'EA-driven dynamic capabilities' as dynamic capabilities that help firms identify and implement new business and IT initiatives to ensure that their assets and resources are current with the business's needs.

Starting from foundational conceptualizations of dynamic capabilities by Teece [59] and recent EA-based capabilities work [4,21], three related but unique capabilities can be gleaned, i.e., (1) EA sensing capability, (2) EA mobilizing capability, and a (3) EA transformation capability. The first capability, a sensing capability, highlights EA's role in a firm's processes to sense and identify possible new business ventures or even business (competitive) threats [4,36,56]. This capability also drives EA resources and services to enhance business operations and align with what stakeholders want. EA mobilizing capability can be considered a firm's capability to use EA in the process of evaluating, prioritizing, and selecting IT and business solutions and mobilizing resources accordingly, i.e., seizing the opportunities using EA [4,38,48,66]. The final capability is a transforming capability. In essence, this capability is considered the ability to successfully use the EA to reconfigure business processes and the technology landscape, engage in resource recombination, and adjust for and respond to unexpected changes [4,67,68]. Firms can cultivate these particular capabilities as a source of business values to support their strategy, business goals, and organizational benefits.

3. Model and Hypotheses

This study's research model contains four key constructs and the accompanying hypotheses. All the model's constructs and definitions are summarized in Table 2. Figure 1 shows the research model that will be empirically validated.

Table 2. Definitions of research constructs.

Research Construct	Definition	Key Resource(s)
EA-driven dynamic capabilities	Firms' ability to adequately leverage the EA to share, recombine, and recompose business and IT resources, and sufficiently address internal and external changes and achieve the firm's desired state.	Own definition
Innovativeness	Firm's ability to bring innovation to the firm's business processes and quickly use the latest technological innovations for new product development.	[22,23]
Organic firm structure	Organizational structure that embraces a culture of informality and is typically associated with decentralized decision-making, lateral relationships, and open communication, including a de-emphasis on formal rules and procedures.	[35,48,69]
Organizational benefits	The extent to which the firm has a higher competitive advantage than its competitors, increased value for customers, and the ability to detect and respond to opportunities and threats with ease, speed, and dexterity.	[4,70–74]

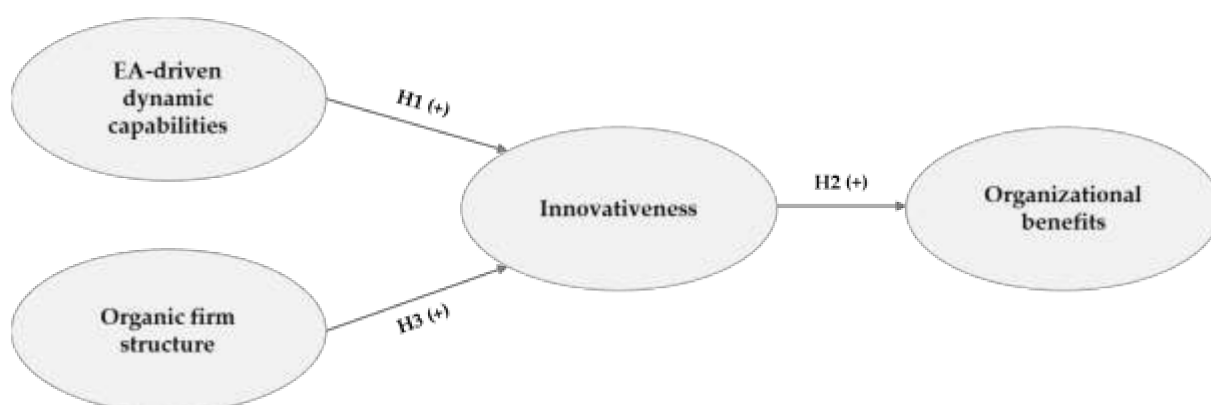


Figure 1. Research model. Figure 1 summarizes the research model and the associated hypotheses.

3.1. EA-Driven Dynamic Capabilities and Firm Innovativeness

Innovation is generally considered a necessary condition to meet highly volatile markets [60]. Therefore, innovation is a major concern for modern firms [75,76] that increasingly try to innovate the current marketplace using IS/IT resources [77]. The

literature documents that the innovation process has radically changed over the past two decades with the rise of new innovative technologies, Internet-of-Things, cloud computing, strategic digital options, smart assets, and Big Data analytics, among other innovative, enabling technology [78–80]. The literature also describes how many forms of innovation (e.g., business model and leadership) are related to each other [81]. A typical classification is based on the distinction between ‘things’ (i.e., products and services) or process changes in the firm’s value chain, thus, developing and delivering products and services at the firm level. We regard innovativeness as a higher-order operational capability that represents both these types of innovation as a process and product innovation as tightly associated and co-evolving over time [82,83].

EA-driven dynamic capabilities can help firms to achieve innovation in various ways. Previous research documented that they enhance firms’ ability to transform and exploit new customer and market knowledge, technological competence in crucial business processes, and enable new working methods [23,84]. These capabilities provide firms with the necessary means to orchestrate resources, enhance the firm’s operational functioning, and use state-of-the-art technology in business processes [4,17,23,85–88]. EA-driven, dynamic capabilities can proactively strengthen firms’ ability to sense, interpret, and pursue new IS/IT and technological innovations (e.g., IoT, big data analytics, robotics, mobile, cloud, AI) and enhance service and production methods and processes by using these technological advancements [36,82]. This way, firms can speed up the new product development process and novelty of new products introduced to customers [23,67,89,90]. The DCV goes well beyond heterogeneous firm resources and capabilities [91] and stresses the importance of basing a business strategy in strong dynamic capabilities [92]. Only dynamic capabilities support evolutionary fitness and innovativeness within the turbulent business ecosystem [47], which helps organizations to create value and prosper in the marketplace [93]. The claim is also acknowledged by the authors of Reference [46], who argue that strong dynamic capabilities are required for fostering innovativeness. Based on the above, we postulate the following hypothesis.

Hypothesis 1 (H1). *A higher degree of EA-driven dynamic capabilities will positively impact the firms’ innovativeness.*

3.2. Firm Innovativeness and Organizational Benefits

Some scholars regard innovativeness as a form of dynamic capability that is idiosyncratic in its details and path-dependent in its emergence [60,94]. However, this study positions innovativeness at the functional and operational level where resources and capabilities are brought together through EA-driven dynamic capabilities [67,95]. Innovativeness enabled by EA-driven dynamic capabilities influences organizational benefits in several ways, as previously documented in the literature [22,82]. The literature claims that innovativeness leads to better financial and operational results (e.g., return on investment, market growth, cost reduction) [96], enhanced levels of productivity, process efficiencies and effectiveness [97], and enhanced levels of customers’ perceived value [82]. This reasoning is supported by the authors of References [82,97], who argue that firms that possess greater levels of process innovation will have superior organizational benefits and sustained advantage than firms that do not. Moreover, the literature claims that innovativeness improves profitability and maintains a competitive edge in turbulent environments [67,98]. Hence, firms’ innovative abilities will decrease product life cycles, and, thereby, its associated operational and production efficiencies. It will also lead to more robust financial results (e.g., return on assets, return on sales, profit growth) as well as customer and market gains (e.g., cash flow from market operations, and the firm’s overall reputation) [99]. By using and deploying strong EA-driven dynamic capabilities, firms can have access to previously unavailable EA resources and sets of decision options, which can, ultimately, enhance their ability to innovate using EA and contribute to organizational benefits [60,68].

Following EA-based work and the DCV, we argue that enhanced innovation levels enabled through EA-driven dynamic capabilities render a firm more capable of consistently delivering technological competitiveness, higher novelty levels in processes, rapid product development, and higher numbers of new products to the market. These aspects can be considered the cornerstones of organizational benefits [23,46,67,82]. Hence, we propose the following hypothesis.

Hypothesis 2 (H2). *The firm's innovativeness positively impacts organizational benefits.*

3.3. Organic Firm Structure and Innovation

The firm's organizational (formal vs. informal) structure can profoundly impact employees' daily roles and responsibilities within an organization. The organizational structure can be considered the formal allocation of professional roles and administrative mechanisms to control and integrate work activities [100]. Understanding the impact of the organizational structure on benefit realization can be a tedious task. There is no such thing as a "one size fits all" structure so that, based on a single design, benefits and a run for innovation can be achieved immediately. Instead, the unique organizational structure differs depending on each organization's unique context, focus, strategy, people, and the firm's VRIN resources.

The firm's organizational structure can be classified on a mechanistic–organic continuum [35]. In the existing literature, this distinction is also referred to as bureaucratic–adhocratic [34]. A mechanistic firm structure refers to the extent that its behavior is standardized. Typically, under these structures, rules and procedures are formalized, and decision making is centralized [30]. These structures may lead to rigidity and inadequate interaction among stakeholders in strategic planning and implementation projects [30]. According to Mintzberg, a more decentralized and organic structure is better suited to firms' long-term strategic development [34]. Raynor and Bower [42] substantiated this claim and argued that firms should adopt a "dynamic" approach to structural design and cooperation among the firm's divisions depending on strategic circumstances. Sanchez and Mahoney [41] showed that decentralized design could facilitate cost efficiency and enhance adaptive coordination, thereby, increasing firms' strategic flexibility to respond to an environmental change.

On the contrary, increased formality, centralization, and rigidity typically associated with a more mechanistic organizational structure may impede flexible information processing behaviors within the firm [101]. A mechanistic firm structure may impede the tendency to let the process and product requirements of the situation, the individual's personality, and team identity define proper on-job behavior [43,48]. The extant literature supports the claim that firms with organic structures are better equipped to adapt to new product development processes [69]. Through organic firm structures, firms can better stimulate the exchange of innovative ideas and facilitate the interplay, interaction, and communication among individuals from different business units and departments. This interplay is crucial for all types of innovation [44]. Hence, we expect that organic firm structures drive firms to accumulate knowledge while simultaneously capitalizing on learning processes in process execution, enhancing process innovation, and advancing new product development [67,102]. Moreover, firms that lean more toward the organic continuum of organizational structures are expected to be more successful when implementing innovativeness [103].

Recent studies support the view that designing organic firm structures is a crucial strategic choice for firms that complements dynamic capabilities as a key driver of the innovation of firms [29,30,33]. Hence, in addition to the EA-driven dynamic capabilities construct, in this study, we, therefore, extend the core argument and claim that the firm's organic firm structure influences the firm's innovativeness. We, therefore, posit the following hypothesis.

Hypothesis 3 (H3). *Firms that have an organic firm structure will have higher innovativeness.*

4. The Empirical Study

4.1. Sample

We developed and pretested a survey and anonymously administered it to key informants within firms as part of a field study. We assured the respondents that their entries would be treated confidentially, and we would only report outcomes on an aggregate level [104]. Our target population includes senior business and IT managers and practitioners, including CEOs, CIOs, business and IT managers, and managing enterprise architects. A mailing list was obtained that included students (N = 235) enrolled in a course on strategic enterprise architecture management as part of their Master of Science in Information Sciences at a Dutch University. The Netherlands currently belongs to the top tier of European countries that drive economic impact using IT investment and innovations. According to the Dutch Digitalisation Strategy, Dutch firms are, therefore, in an appropriate position to use the various economic and social opportunities created by digitalization. Hence, Dutch firms are, therefore, forming a suitable sample and frame of reference for this research. This report, as retrieved from <https://www.government.nl> (accessed on 6 April 2021)/, is developed by the Ministry of Economic Affairs and Climate Policy of the Netherlands. The report reflects on what is needed for the Netherlands to be ready for the digital future.

Similar to Foorthuis et al. [20], we could not use a predefined sample that corresponds with our target population. Our industry segment distribution (see Table 3) is similar to that of other studies in this field [20,105].

Table 3. Sample demographics.

Element	Classification	N	Percentage of Sample
Nr. of employees	Less than 100 employees	49	16.4%
	101–300 employees	33	11.0%
	301–1000	40	13.4%
	1001–3000	43	14.4%
	Over 3000 employees	134	44.8%
Age of firm	0–5 years	12	4.0%
	6–10 years	26	8.7%
	11–20 years	32	10.7%
	20–25 years	23	7.7%
	Over 25 years	206	68.9%
Function	Chief information officer (CIO)	65	21.7%
	Chief executive officer (CEO)	18	6%
	Business and innovation manager	51	17.1%
	IT manager	119	39.8%
	Enterprise and business/IT architect	38	12.7%
	IT/business consultant	8	2.7%
Industry segment	Manufacturing	19	6.4%
	Wholesale/retail	15	5.0%
	Energy and utilities	8	2.7%
	Telecommunications	4	1.3%
	Finance and insurance	48	16.1%

Table 3. Cont.

Element	Classification	N	Percentage of Sample
	Publishing/news	1	0.3%
	Technology	43	14.4%
	Consumer business/goods	4	1.3%
	Basic materials (chemicals, paper, industrial metals, and mining)	4	1.3%
	Industrials (construction and industrial goods)	6	2.0%
	Oil and gas	1	0.3%
	Auto/car industry	4	1.3%
	Pharmaceutical	5	1.7%
	Legal	2	0.7%
	Transportation	8	2.7%
	Agriculture	2	0.7%
	Health Care	14	4.7%
	Education	23	7.7%
	Hotel industry	2	0.7%
	National government	30	10.0%
	Municipal governments	13	4.3%
	Real estate	2	0.7%
	Police	2	0.7%
	Consulting Services	33	11.0%
	other	6	2.0%

The students are all experienced professionals with 60% having more than 11 years of working experience. The students were also kindly invited to share the survey in their network with at least two experts. Data were collected between 17 October 2018 to 16 November 2018. Of the 669 responses, 299 questionnaires were identified as suitable for analyses as many entries were either (partly) incomplete ($N = 290$) or were unreliable ($N = 80$). Approximately 70% of the respondents were executive managers, i.e., CEOs, CIOs, IT, and business management. Most respondents work in the private sector (57%) and public sector (36%). Table 3 summarizes the sample demographics.

4.2. Measures

This study tried to include existing validated measures where possible.

The EA-driven dynamic capabilities construct is modeled as a second order higher-order construct (HOC) using the reflective-formative type II model [106,107]. Such a conceptualization uses a formative, higher-order construct composed of underlying first-order capabilities [21,108]. As such, the HOC, i.e., EA-driven dynamic capabilities, uses reflective, first-order latent constructs. The measurement items (or variables) are affected by the first-order latent construct, and they are interchangeable [109,110]. The items, thus, reflect the construct. The HOC, on the other hand, is conceptualized formatively. Hence, the three EA-driven capabilities represent a unique feature of the HOC. When a capability is removed from the model, it would considerably change the composition of the overarching construct [21].

Measures for the three EA capabilities were adopted from conceptual or previously empirically validated work. In addition, the constructs and items went through a rigorous validation process that comprises various consecutive steps [111]. Sample items for the EA

sensing capability include identifying new business opportunities or potential threats using EA and adequately evaluating the effect of changes in the baseline and target EA on the organization. EA mobilizing sample items include using EA to mobilize resources in line with a potential solution and using EA to review practices in line with business and IT best practices. Items for EA transforming include, for instance, the facilitating role of EA enabling to adjust for and respond to unexpected changes. Table 4 shows the final measurement items and the supporting literature for the three EA-driven dynamic capabilities.

Table 4. Final items for EA-driven dynamic capabilities.

Constructs and Items	Supporting Literature
EA sensing capability	
EAS1. We use our EA to identify new business opportunities or potential threats.	[4,36,112]
EAS2. We review our EA services regularly to ensure that they are in line with key stakeholders' wishes.	[4,36,112]
EAS3. We adequately evaluate the effect of changes in the baseline and target EA on the organization.	[4,36]
EAS4. We devote sufficient time enhancing our EA to improve business processes.	[36,112]
EAS5. We develop greater reactive and proactive strength in the business domain using our EA.	[36,66,112]
EA mobilizing capability	
EAM1. We use our EA to draft potential solutions when we sense business opportunities or potential threats	[4,38,66]
EAM2. We use our EA to evaluate, prioritize, and select potential solutions when we sense business opportunities or potential threats	[4,38,66]
EAM3. We use our EA to mobilize resources in line with a potential solution when we sense business opportunities or potential threats	[46,112]
EAM4. We use our EA to draw up a detailed plan to carry out a potential solution when we sense business opportunities or potential threats	[38,66]
EAM5. We use our EA to review and update our practices in line with renowned business and IT best practices when we sense business opportunities or potential threats	[48]
EA transforming capability	
EAT1. Our EA enables us to successfully reconfigure business processes and the technology landscape to come up with new or more productive assets	[4,67,68,112]
EAT2. We successfully use our EA to adjust our business processes and the technology landscape in response to competitive strategic moves or market opportunities	[4,72,112,113]
EAT3. We successfully use our EA to engage in resource recombination to better match our product-market areas and our assets	[36]
EAT4. Our EA enables flexible adaptation of human resources, processes, or the technology landscape that leads to a competitive advantage	[37]
EAT5. We successfully use our EA to create new or substantially changed ways of achieving our targets and objectives	[37]
EAT6. Our EA facilitates us to adjust for and respond to unexpected changes	[59,112,114]

Numerous variations have been used to measure the firm's innovativeness [115–117]. This study followed [23,116] and comprehensively captured key features of innovativeness, i.e., the number of innovations, the speed of innovation, and innovativeness levels (or novelty of technology used in key processes and first-to-market (early market entrants). These features transpose into two overarching domains of innovation, i.e., product innovation and process innovation [23]. Innovativeness is, therefore, modeled as a reflective HOC reflecting these two types of inventiveness. Sample items for product innovation include the newness (novelty) of new products and the number of new products first-to-market (early market entrants). Relevant aspects of process innovation include the extent to which firms have the novelty of technology used in key processes and the rate of change in key processes, techniques, and technology.

We adopted a five-item measurement scale for organic, firm structures from Reference [48]. This reflective construct measures the extent to which a firm is structured in organic versus mechanistic ways. This construct was measured using a 7-point Likert scale and uses a semantic differential-type scale where respondents are asked to evaluate the operating management philosophy of the respective organization. 1 closely resembles

mechanistic structures, whereas a score of 7 is associated with statements representing organic structures.

Finally, we follow Shanks et al. (2018) for organizational benefits and include a multi-dimensional construct for organizational benefits. This construct operates as a second order factor. Hence, as the EA-driven dynamic capabilities construct, it uses a reflective-formative type II model. It is, therefore, formed from three first-order benefits factors, i.e., process agility [73], competitive advantage (CA) [70,71], and increased value (VL) [74]. The concept of process agility concerns the firms' "ability to detect and respond to opportunities and threats with ease, speed, and dexterity" [118]. The current study adopts five validated items from Tallon and Pinsonneault [118]. A competitive advantage includes items like growth in market share, higher return on investment than competitors, and better profitability than the main competitors in the same industry. The third benefit factor is increased value, measured through customer satisfaction, customer loyalty, and business brand and image as compared to the competitors. All these measures were assessed on a 7-point Likert scale, ranging from strongly disagree (1) to strongly agree (7). We controlled for possible confounding relationships by adding several widely-used control variables in IS and management research, i.e., firm size and age, as they can have a significant influence on organizational benefits [72,118,119]. Firm size was measured by asking the class size of the firm (number of employees), i.e., 1. less than 100 employees, 2. 101–300 employees, 3. 301–1000 employees, 4. 1001–3000 employees, and 5. over 3000 employees. Firm age was measured through the following categories: 1. 0–5 years, 2. 6–10 years, 3. 11–20 years, 4. 20–25 years, and 5. over 25 years. All items can be found in Table 5.

Table 5. Constructs and measurement items.

Construct		Measurement Items	λ	μ	Std.
Constructs and measurement items for EA-driven dynamic capabilities					
To what extent do you agree with the following statements (1—strongly disagree, 7—strongly agree)? Mobilizing and transforming capability use the same Likert Scale.					
Sensing Capability	EAS1	We use our EA to identify new business opportunities or potential threats	0.77	3.83	1.61
	EAS2	We review our EA services regularly to ensure that they are in line with key stakeholder wishes	0.84	4.1	1.6
	EAS3	We adequately evaluate the effect of changes in the baseline and target EA on the organization	0.86	4.02	1.48
	EAS4	We devote sufficient time to enhance our EA to improve business processes	0.82	4.01	1.56
	EAS5	We develop greater reactive and proactive strength in the business domain using our EA	0.85	4.04	1.54
Mobilizing capability	EAM1	We use our EA to draft potential solutions when we sense business opportunities or potential threats	0.85	4.39	1.51
	EAM2	We use our EA to evaluate, prioritize, and select potential solutions when we sense business opportunities or potential threats	0.86	4.37	1.51
	EAM3	We use our EA to mobilize resources in line with a potential solution when we sense business opportunities or potential threats	0.88	4.19	1.45
	EAM4	We use our EA to draw up a detailed plan to carry out a potential solution when we sense business opportunities or potential threats	0.87	4.12	1.59
	EAM5	We use our EA to review and update our practices in line with renowned business and IT best practices when we sense business opportunities or potential threats	0.84	4.22	1.48

Table 5. Cont.

	Construct	Measurement Items	λ	μ	Std.
<i>Trans. Capability</i>	EAT1	Our EA enables us to successfully reconfigure business processes and the technology landscape to come up with new or more productive assets	0.85	4.4	1.45
	EAT2	We successfully use our EA to adjust our business processes and the technology landscape in response to competitive strategic moves or market opportunities	0.87	4.17	1.56
	EAT3	We successfully use our EA to engage in resource recombination to match our product-market areas and our assets better	0.83	3.95	1.47
	EAT4	Our EA enables flexible adaptation of human resources, processes, or the technology landscape that leads to a competitive advantage	0.84	3.88	1.5
	EAT5	We successfully use our EA to create new or substantially changed ways of achieving our targets and objectives	0.87	4.06	1.51
	EAT6	Our EA facilitates us to adjust for and respond to unexpected changes	0.8	4.02	1.46
Constructs and measurement items for innovativeness, i.e., process and product innovation					
How would you rate your organization's process and product in comparison to the main competitors in the same industry (1 = much weaker than competition; 7 = much stronger than competition)?					
<i>Product inn.</i>	PDI1	The level of newness (novelty) of new products.	0.86	4.62	1.40
	PDI2	The use of latest technological innovations in new product development.	0.79	4.57	1.37
	PDI3	The speed of new product development.	0.85	4.23	1.40
	PDI4	The number of new products introduced to the market.	0.87	4.35	1.30
	PDI5	The number of new products that is first-to-market (early market entrants).	0.87	4.11	1.43
<i>Process inn.</i>	PI1	The technological competitiveness	0.84	4.67	1.33
	PI2	The novelty of technology used in key processes	0.88	4.55	1.31
	PI3	The speed of adoption of the latest technological innovations in key processes	0.88	4.26	1.42
	PI4	The rate of change in key processes, techniques, and technology	0.88	4.19	1.36
Constructs and measurement items for organic firm structure					
Please evaluate the operating management philosophy of your organization. 1 represents statements relating to mechanistic structures whereas 7 is anchored with statements representing organic structures.					
<i>Org. firm structure</i>	OFS1	Tight formal control of most operations by means of sophisticated control and information systems—Loose, informal control, heavy dependence on informal relations and norm of co-operation for getting work done	0.70	4.15	1.66
	OFS 2	Strong emphasis on always getting personnel to follow the formally laid down procedures—Strong emphasis on getting things done even if this means disregarding formal procedures	0.83	3.94	1.67
	OFS 3	A strong emphasis on holding fast to true and tried management principles despite any changes in business conditions—A strong emphasis on adapting freely to changing circumstances without too much concern for past practice	0.87	3.99	1.55

Table 5. Cont.

	OFS 4	Strong insistence on a uniform managerial style throughout the business unit—Managers' operating styles allowed to range freely from the very formal to the very informal	0.82	4.51	1.64
	OFS 5	Strong emphasis on getting line and staff personnel to adhere closely to formal job descriptions—Strong tendency to let the requirements of the situation and the individual's personality define proper on-job behavior	0.80	4.40	1.65
Constructs and measurement items for organizational benefits					
Process agility	How would you rate your firm's process agility aspects in comparison to industry competitors (1. Much weaker than the competition–7. Much stronger than the competition)?				
	PA1	Expanding into new regional or international markets	0.7	4.35	1.33
	PA2	Responsiveness to customers	0.81	4.71	1.22
	PA3	Responsiveness to changes in market demand	0.88	4.55	1.17
	PA4	Customization of products or services to suit individual customers	0.68	4.87	1.28
	PA5	Adopt new technologies to produce better, faster, and cheaper products and services	0.7	4.4	1.3
Please choose the appropriate response for each item (1—strongly disagree, 7—strongly agree). During the last two or three years, we performed much better than our main competitors in the same industry in:					
CA	Growth in market share		0.86	4.65	1.33
	Profitability		0.91	4.54	1.35
	Sales growth		0.91	4.54	1.33
	Return on investment (ROI)		0.84	4.41	1.29
VL	Increasing customer satisfaction		0.91	4.88	1.27
	Increasing customer loyalty		0.92	4.76	1.27
	Enhancing business brand and image		0.87	4.84	1.34

4.3. Data Quality and Psychometric Property Assessments

Before assessing the structural model and testing the hypotheses, it is crucial to verify whether the data can be used and conformed to data quality criteria, such as non-response bias, common method variance, and sample size adequacy. Hence, this study accounted for possible non-response bias through T-tests where early and late entries were compared for the model construct. Outcomes showed no significant differences. A Harman's single factor test showed that there was not a single exploratory factor attributed to the majority of the variance. Hence, the sample was not affected by a common method bias [104]. Furthermore, the obtained data far exceeds the minimum threshold values to obtain stable PLS outcomes [120]. Moreover, an a-priori power analysis using G*Power [121] suggested that, with a conventional 80% statistical power and a 5% probability of error as input parameters, a minimum sample of 77 cases was needed. Our sample of 299 cases far exceeds the minimum requirement. The psychometric properties of the model can now be assessed.

Hence, all constructs were subjected to various reliability and validity tests using Partial Least Squares (PLS) structural equation modeling (SEM). First, the internal consistency reliability is investigated using Cronbach's alpha and the composite reliability estimations. All values exceed the minimum threshold of 0.7. Next, convergent validity was assessed using the average variance extracted (AVE) of the first-order latent constructs [122]. These particular values also exceeded the lowest recommended mark of 0.50 [123]. We also inves-

tigated whether all items loaded more strongly on their intended latent constructs than other constructs [124]. All items loaded more strongly on their construct. For discriminant validity, we used the Fornell-Larcker criterion [123] and ascertained that AVE's square root was larger than the cross-correlations [125]. In addition, discriminant validity was tested using the hetero trait: mono trait ratio of correlations (HTMT) [126]. Outcomes showed that all HTMT-values below 0.85 (upper bound) showcasing that discriminant validity is established between constructs. Finally, each of the included higher-order (formative) constructs was assessed using variance inflation factors (VIFs). All obtained VIF-values were well above the conservative threshold of 3.5. Hence, no multicollinearity is present within the research model [127] and the hypotheses can now be tested.

5. Quantitative Data Analysis

The model's hypothesized relationships were tested using Partial Least Squares (PLS) structural equation modeling (SEM). We used SmartPLS version 3.2.9. to estimate and model parameters [122]. PLS-SEM assesses both the measurement model, i.e., outer model [128] and the structural model (i.e., inner model) of the research model [125]. The PLS algorithm establishes latent constructs from factor scores and PLS, thereby, avoids factor indeterminacy [129]. Hence, scores can then be used in the following analyses [130]. PLS-SEM is appropriate for our analyses as our focus predicts as to whether the PLS algorithm assesses the explained variance (R^2) for all dependent constructs [129]. Figure 2 summarizes the structural model tests and the hypotheses testing with R^2 , their associated predictive values, the regression coefficients, and the associated T-values. As can be seen in the figure, all hypotheses can be confirmed as the path coefficient was significant while controlling for the non-significant effects of "size" ($\beta = 0.0021$, $t = 0.353$, $p = 0.72$) and "industry" ($\beta = -0.0011$, $t = 0.204$, $p = 0.84$). The estimated effect sizes (f^2), i.e., the specific contribution of exogenous constructs to endogenous latent constructs, are for EA-driven dynamic capabilities $f^2 = 0.21$, organic firm structure $f^2 = 0.09$, and $f^2 = 0.30$ for innovativeness.

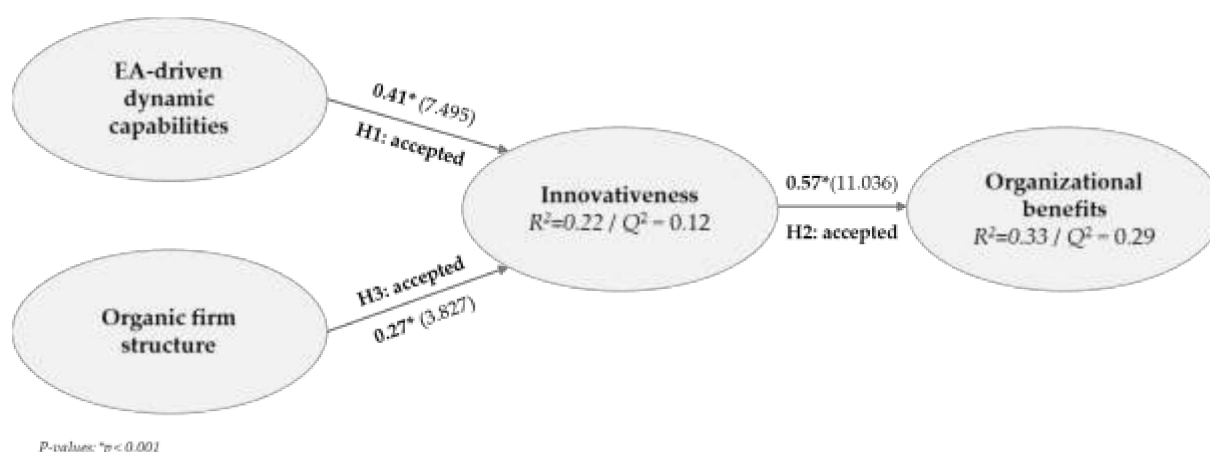


Figure 2. Structural assessment results.

To assess whether or not innovativeness fully or partially mediates the effects of EA-driven dynamic capabilities and organic firm structure on organizational benefits, we followed mediation guidelines [125]. Therefore, for EA-driven dynamic capabilities, the direct effect (thus, without innovativeness in the model) was positive and significant ($\beta = 0.33$, $t = 5.855$, $p < 0.00001$). This outcome fulfills the basic mediation condition [131]. Additionally, the direct effect of an organic firm structure on organizational benefits was positive and significant ($\beta = 0.22$, $t = 0.353$, $p = 0.010$). In a subsequent step, we included innovation in the model and assessed the significance of the indirect effects (i.e., mediating paths) integrally (thus including all mediating paths) through a bootstrapping approach

using a non-parametric resampling procedure [125,132]. At that point, results showed a less strong, but still significant relationship for the direct path (EA-driven dynamic capabilities $\rightarrow$ organizational benefits) ($\beta = 0.120$, $t = 2.665$, $p = 0.008$). For an organic, firm structure (organic, firm structure $\rightarrow$ organizational benefits), this outcome was insignificant ($\beta = 0.081$, $t = 1.350$, $p = 0.177$). Hence, it can be concluded that innovativeness partially mediates the effect of EA-driven dynamic capabilities as the direct and the indirect effect aim in the same direction (both positive and significant). The outcomes show that an organic firm structure is a key enabler of innovativeness, and that innovativeness fully mediates the effect of an organic, firm structure on organizational benefits.

Further results show that the included control variables showed non-significant effects: "size" ($\beta = 0.004$, $t = 0.067$, $p = 0.95$), and "age" ($\beta = -0.020$, $t = 0.362$, $p = 0.72$).

Result show that the model explains 2% of the variance for innovativeness ($R^2 = 0.22$) and 33% of the variance for organizational benefits ($R^2 = 0.33$). These particular effect sizes can be classified as moderate to large [125]. Finally, we used a blind-folding procedure in SmartPLS to evaluate the model's predictive power [125]. Obtained Stone-Geisser values (Q^2) for the endogenous latent constructs exceed 0, thereby showcasing predictive relevance [125].

6. FsQCA Configurational Analyses

This study employs fsQCA [50,51] to gain insight into the particular circumstances in which the organic firm structure is particularly relevant for firms. It adheres to the fact that an organic firm structure had an unusually small effect size. Moreover, VRIN resources are included as tightly associated with dynamic capabilities and can provide firms with a durable, competitive advantage [40,133].

FsQCA is a configurational approach that complements traditional regression-based approaches (including SEM) in the process while showing the particular conditions under which an outcome of interest is obtained in the data. Hence, it does so by examining the specific asymmetric relationship between various (antecedent) constructs and specific outcomes [50,134]. A single configuration can be defined as a specific combination of antecedent conditions and factors present in the data so that high levels of an outcome (i.e., innovativeness) are obtained [51]. FsQCA allows the predictor and outcome variables to be on a fuzzy scale rather than on a dichotomous (binary) scale. Furthermore, it enables the reduction of elements for each pattern. Therefore, configurations only include necessary and sufficient conditions. Therefore, a distinction between core, peripheral, and "do not care" aspects can be made. Within solutions, core elements have a strong causal condition with the selected outcome measure. For peripheral elements, there is a weaker association with the outcome [135]. As the first step, we defined the outcome and independent measures and calibrated them accordingly into fuzzy sets. These particular sets ranged from 0 to 1, with 0 indicating the absence of a set membership, while 1 denotes full membership. We used fsQCA 3.0 software [136] to calibrate the items and, likewise, used this procedure to set the membership based on three particular anchors of memberships using a seven-point Likert scale [137]. Hence, we followed particular guidelines for the process of generating fuzzy set-membership measures [138,139] and defined '6' as the full membership anchor (fuzzy score = 0.95), '3' as the anchor value for full non-membership, and '4.5' as a crossover point (fuzzy score = 0.50). The anchor for full non-membership was placed on 3 (fuzzy score = 0.05) instead of 2 due to the distribution of measurement values and the need to adjust scores to respondents' scores [140].

After the calibration process, the fsQCA software runs an algorithm to produce a truth table. This table includes all possible combinations of elements, and a row corresponds to a single combination. The number column highlights the frequency of cases of each combination. We have set a minimum of three cases and consider combinations with at least three empirical instances for configurational analysis. The degree of consistency is set to a recommended threshold of 0.75 [135,136]. Consistency is a value that ranges from 0 to 1 and reflects the degree to which a set-theoretic combination leads to an outcome [135], or

consistency is analogous to a correlation in statistical analysis [140]. Coverage concerns the empirical relevance of a consistent subset and helps determine the percentage of the outcome covered by the solutions [136]. Solution coverage indicates how much is covered by the solution terms and is comparable to the R^2 value [140]. Raw coverage indicates which alternative path can explain a particular percentage of the outcome. Unique coverage indicates the proportion that uniquely covers a specific outcome [136,141]. The obtained consistency and coverage values exceed the minimum thresholds [136]. A truth table algorithm is then applied to reduce the various combinations into a smaller set of configurations and identify various holistic, interconnected, equifinal solutions that are associated with innovativeness as an outcome [26,50,138]. Table 6 shows the fuzzy set analysis for high levels of innovativeness. The depicted black circles (●), and, in this case, core elements denote a condition's presence, the small crossed-out circles (⊗) indicate the absence of a particular element in the solutions, and peripheral elements and blank spaces indicate a "don't care" situation where causal conditions may be present or absent [50,136,142].

Table 6. Different configurations to achieve high levels of innovativeness.

Elements		Innovativeness Solutions						
		<i>i1</i>	<i>i2</i>	<i>i3</i>	<i>i4</i>	<i>i5</i>	<i>i6</i>	<i>i7</i>
EA-driven dynamic capabilities								
	Sensing	⊗		●	⊗	●		●
	Mobilizing		●		●	●	●	●
	Transforming	●	●	●			●	●
VRIN resources		●		⊗	●	⊗	●	
Organic structure			⊗	⊗	●	●		
Configuration assessment scores								
	Raw coverage	0.326	0.419	0.185	0.258	0.162	0.513	0.485
	Unique coverage	0.044	0.003	0.003	0.034	0.006	0.008	0.003
	Consistency	0.833	0.775	0.793	0.860	0.829	0.800	0.780
Overall solution consistency		0.748						
Overall solution coverage		0.661						

Outcomes show that achieving innovativeness levels stem from different combinations of capabilities, VRIN resources, and their interplay with the organizational structure. Specifically, the fsQCA results show seven possible solutions (*i1*–*i7*). The results showcase that at least one and, in one case, even three EA-driven dynamic capabilities are present as a core element, strengthening the previously outlined results. The first solution applies (*i1*) to firms that operate under conditions with strong VRIN resources and EA transforming capability, and the absence of EA sensing. Firms capitalize on VRIN resources by reconfiguring business processes and IS/IT rather than focusing on sensing and identifying new business opportunities.

A similar solution is present in *i4*. Under these conditions, firms should seek to mobilize and seize business opportunities using EA and strong VRIN resources, given that their organizational structure is decentralized and less formal. Solution *i2* and *i3* apply to firms that have more formalized centralized structures. Under these conditions, firms must develop EA-driven dynamic capabilities to reconfigure business operations as a means to achieve innovativeness adequately. Solution *i5* illustrates that innovativeness can be achieved in the presence of organic firm structures and robust EA sensing and mobilizing capabilities. This solution also applies to firms that operate under conditions with an absence of VRIN resources. The firms should seek new innovative business solutions. Solutions *i6* and *i7* are independent of the organizational structure. For solution *i6*, VRIN resources, combined with mature mobilizing and reconfiguring capabilities, are crucial in obtaining high innovativeness. Solution *i7* shows that innovativeness can be attained with strong EA-driven dynamic capabilities.

7. Discussion

The current study aimed to unfold the theorized relationships between EA-driven dynamic capabilities, innovativeness, and organizational benefits. It also investigated the strategic role of organic firm structures as a driver of innovativeness and a culture of informality and decentralized decisions. Moreover, we wanted to understand the particular conditions and circumstances under which firms can unlock EA's value given the firm's available VRIN resources, EA-driven dynamic capabilities, and the firm structure. Following the dynamic capability-based view, we operated a research model and, subsequently, tested the associated hypotheses using cross-sectional data from 299 executives and senior practitioners and found support for the hypotheses. This study also tried to unfold the unique conditions under which firms' innovativeness levels are obtained through different combinations of dynamic capabilities, VRIN resources, and their interplay with the organizational structure.

This current study has various theoretical and practical implications. First, our findings support our study's hypotheses and show that EA-driven dynamic capabilities are crucial for organizational benefits through the firm's innovativeness. This outcome is important as the literature did not fully grasp an adequate understanding of the value-creating process using EA and EA-based capabilities [4,14,16] and the relationship between dynamic capabilities and innovativeness [87]. Second, another significant result of this study is that we unfolded—using fsQCA—the particular circumstances in which an organic firm structure is particularly relevant for firms and complementary with dynamic capabilities and the firms' VRIN resources. We show various contingent solutions and alternative paths that drive firms' innovativeness when particular conditions are present or absent. Hence, achieving high innovativeness levels stems from different combinations of dynamic capabilities, VRIN resources, and their interplay with an organizational structure. This outcome is an essential contribution to the literature. These concepts have predominately been studied using variance-based approaches [4,40,48], thus, neglecting possible specific combinations of antecedent conditions and factors present in the data [143].

This research suggests two major practical implications. First, the results imply that executives and senior practitioners should actively invest in EA-driven dynamic capabilities as crucial competencies and routines to drive the firm's innovativeness and strive for higher organizational benefits. The outcomes support the idea of having a more elaborate and coherent perspective when it comes to firm innovativeness and to obtaining higher organizational benefits. Decision-makers should specify three EA-driven capabilities (i.e., sensing, mobilizing, and transforming) as they provide a means to drive the firm's innovativeness and enhance its evolutionary fitness. Improvement initiatives should not be deployed in isolation, as they will then be unlikely to achieve the desired outcomes since the impact of these complementary practices will be greater than the sum of its parts [144]. The outcomes facilitate decision-makers with factual business scenarios to achieve innovativeness with their situational capabilities, resources, and organizational structure.

Some limitations of the current study are acknowledged. First, we did not investigate the environmental conditions' role that could affect the model's effects. Second, this study did not test potential differences between sample (sub)groups (and their interactions). Additionally, we did a measurement at a single point in time. Therefore, it is difficult to truly establish causality as a firm's innovativeness and organizational benefits may vary over time. A longitudinal approach could enrich our perspective by providing valuable insights into the study's evolutionary nature's construct over time as punctuated equilibrium models [145]. Finally, we used self-reported measures, and triangulation with archival data could further strengthen the outcomes. However, perceptual data is typically associated with objective measures [146].

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