

Enhancing digital platform capabilities and networking capability with EA-driven dynamic capabilities

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Enhancing digital platform capabilities and networking capability with EA-driven dynamic capabilities

Completed Research

Rogier van de Wetering
Open University, the Netherlands
rogier.vandewetering@ou.nl

Jordy Dijkman
DHL Global Forwarding
jordydijkman@hotmail.com

Abstract

Digital platforms, e.g., like Alibaba, are currently revolutionizing and shaping the business ecosystem and transforming how firms build a competitive advantage. Decision-makers recognize the opportunities created by these new digital technologies, but to create compelling digital platforms, a firm requires digital platform capabilities (DPC). This study tries to explain how enterprise architecture (EA)-driven capabilities, conceptualized as dynamic capabilities, enhance DPC and the firms' networking capability (NC), i.e., its ability to initiate, maintain, and utilize relationships with other players. A research model is developed with associated hypotheses. Data is collected from 414 respondents, including senior managers, executives, enterprise architects, IT, and business managers, to test the hypotheses. The findings show that EA-driven dynamic capabilities enhance both DPC and NC. This research advances our current understanding of how EA-driven dynamic capabilities drive DPC and NC to form the foundation for achieving business value during the COVID-19 shock.

Keywords

Dynamic capabilities, enterprise architecture, EA-driven dynamic capabilities, digital platform capability, networking capability, business value under COVID-19.

Introduction

Peer-to-peer digital platforms like Alibaba in the retail industry, Uber, and Airbnb are a trending topic and are challenging the fundamentals of how firms do business and transform how firms can achieve competitive advantage (Parker, Marshall, & Choudary, 2016; Kazan, et al., 2018). The worldwide emergence of digital platforms is notable as the projected worldwide expenditure on information technology (IT) in 2021 reaches \$4 trillion (Gartner, 2021). Digital platforms offer technical elements, such as hardware or software devices, whose features may be extended through complementary modules along with a set of rules, standards, and organizational processes to coordinate third parties and adopters (de Reuver, Sørensen, & Basole, 2018; Subramaniam, Iyer, & Venkatraman, 2019). Typically, a digital platform offers standards, interfaces, and associated tooling to leverage digital technologies to enhance business productivity and (cost)efficiency for firms or even a group of firms or users (Teece 2017). According to Accenture, digital platforms create value by providing common sets of functions and standards that accelerate IT solutions development, connect previously disparate devices, systems and drive innovation among business ecosystem participants and stakeholders (Elliot et al. 2018). Many types of digital platforms are used in practice for various goals and objectives. For instance, digital platforms are used in healthcare supporting cooperative care involving doctors and nurses, and even patients and actively exchange patient data and information (Islind et al., 2019). Digital platforms are also used in the financial services industry and many other industries like energy and utilities, consumer industry, retail, transportation, automotive, where they drive inter-organizational relations, support co-creation and innovation, and provide a platform to offer new customized services (De Reuver et al., 2018). Dynamic capabilities are crucial for the development, evolution, and management of digital platforms and platform capabilities as these platforms

typically have their dynamics, and their elements should actively respond to the rapidly changing market circumstance (Cenamor et al. 2019; Teece 2017).

To create, maintain, or capture value using digital platforms, enhancing the digital platform capabilities (DPC) of a firm is essential as these will become competitive factors that determine the success or failure of a business model (Witschel et al. 2019). To obtain business value from DPC, a firm needs to align its business and IT with its enterprise architecture (EA) (Dang and Pekkola 2015). EA is considered to be the blueprint for an organization that describes both the current and desirable future state of the firm's Information systems (IS), IT infrastructure, data, systems, and critical business processes and provides a roadmap to achieving this blueprint (Shanks et al. 2018). EA is used within firms for value-creating activities across the enterprise by aligning strategic business objectives with state-of-the-art digital technologies (Hazen et al. 2017; Ross et al. 2006; Van de Wetering et al. 2021). However, there is currently no persuasive evidence on how so-called 'EA-driven capabilities' allow firms to organize and use organization-specific resources to synchronize strategic goals with digital technology (Vessey and Ward 2013; Shanks et al. 2018; Van de Wetering 2019a; Van de Wetering 2020a), facilitate DPC and strengthen the firm's ability to connect and network with business partners. i.e., networking capability (NC). As competitive advantage is typically short-lived (Nan and Tanriverdi 2017), many firms only have limited time and resources to prepare for fitting strategic actions actively. Therefore, firms in these turbulent times must take a future-based approach, and in this process, build adaptive capabilities that drive operational processes using digital technologies (Bharadwaj et al. 2013). The extant literature mentions the business benefits and competitive advantages provided by dynamic capabilities and states that it can enable the organization to create and capture value with DPC and NC when a firm possesses and uses these capabilities accordingly. However, only a few studies offer empirical evidence for these benefits (Battistella, De Toni, De Zan, & Pessot, 2017; Helfat & Raubitschek, 2018; Abbas, Raza, Nurunnabi, Minai, & Bano, 2019; Lütjen, Schultz, Tietze, & Urmetzer, 2019; Xiao, Tian, & Mao, 2020).

Hence, a question of central importance is how firms could genuinely leverage their EA-driven capabilities to enhance DPC and NC to drive the firm's business value. This research aims to address this apparent gap in the literature and follows previous studies that conceptualized EA-driven capability as dynamic capabilities (Abraham et al., 2012; Shanks et al. 2018; Van de Wetering 2019a; Van de Wetering 2019b, Van de Wetering 2020a; Pattij et al. 2020). Therefore, this study tries to answer the following key research question:

RQs: *What is the effect of EA-driven dynamic capabilities on the firms' digital platform capability, and to what extent do they impact the firm's networking capability?*

This study is structured as follows. This work starts with outlining the theory and the development of hypotheses. This work continues by outlining the study design and methods. After this, the results and discussion are presented. This study ends with some concluding remarks.

Theoretical background and hypothesis development

The dynamic capabilities view and the role of enterprise architecture

The dynamic capabilities view (DCV) is considered by many scholars to be a leading theoretical framework (Pavlou and El Sawy 2011; Schilke 2014) and is built from a multiplicity of theoretical roots (Di Stefano et al. 2014). Dynamic capabilities can be considered "*the organizational and strategic routines by which firms achieve new resource configurations as markets emerge, collide, split, evolve, and die*" (Eisenhardt and Martin 2000, p. 1107). Thus, dynamic capabilities relate to organizational routines to integrate, build, reconfigure, gain and release internal competences and resources to address the market demands and the changing business ecosystem (Eisenhardt and Martin 2000; Teece 2017). The DCV, thus, regards the environment as a crucial element that needs to be considered while deploying the firm's strategy. Recently, scholars have argued that EA-driven capabilities are crucial for firms that want to use, deploy, and diffuse EA in firm-wide decision-making processes and organizational processes and routines that drive business and digital capabilities (Hazen et al. 2017; Shanks et al. 2018).

These particular capabilities allow firms to delineate EA for asset sharing and recomposing and renew organizational resources to shape and orient themselves in line with ever-changing environments (Van de

Wetering 2019b). Hazen et al. (2017) and Shanks et al. (2018) show that these capabilities can leverage EA to foster organizational agility. Following the DCV, these studies claim that the firm's EA resources' sole investment is insufficient to achieve business value and drive its competitive weaponry. Hence, the logical argument can be made that firms that leverage EA successfully are the ones that exploit those measurable and identifiable routines, i.e., EA-driven dynamic capabilities that thus infuse EA in the process of 'sensing' strategic opportunities and threats, 'mobilizing' resources accordingly, and 'transforming' the firm in line with strategic goals and business needs (Di Stefano et al. 2014; Shanks et al. 2018; Van de Wetering 2019b; Van de Wetering 2020b). We follow Van de Wetering (2019a, p. 224) and define EA-driven dynamic capabilities as "*the firm's ability to leverage its EA for asset sharing and to recompose and renew organizational resources, together with guidance to proactively address the rapidly changing internal and external business environment and achieve the organization's desirable state.*"

Hypothesis development

EA-driven dynamic capabilities support firms in developing diverse processes and capabilities. One of those critical capabilities is a DPC. DPC refer to the digital IS/IT that supports information exchange activities with its business partners through standards and modular software components, most of which can be reused in other business applications and processes (Cenamor et al. 2019). An EA-driven sensing capability provides firms with a proactive stance toward developing digital platforms (typically in the early establishment stage) and the ability to spot potential business opportunities using platforms (Van de Wetering 2020b; Pavlou and El Sawy 2011; Witschel et al. 2019). This capability also provides firms with the ability to direct digital and business investments in adaptiveness of the firm and systematically use EA and EA services (e.g., providing content, EA standards, skills, and knowledge) in the process of evaluating, prioritizing, and selecting potential digital technologies, and drive the firm's digital transformation (Sambamurthy et al. 2003; Teece 2017; Shanks et al. 2018; Van de Wetering 2019b). According to Teece (2017), a mobilizing capability helps firms seize minor transformations during the growth stage of a platform where re-allocation and alignment of resources occur so that new business model ideas can be integrated and deployed. A transforming capability helps the firm adapt human resources and align stakeholders' interests and actors in the business ecosystem through the expansion and renewal stages of digital platforms (Yu et al. 2012; Korhonen and Molnar 2014; Teece 2017; Van de Wetering et al. 2020a). Based on the above, we define the following:

Hypothesis 1 (H1): *EA-driven dynamic capabilities will enhance the firm's DPC.*

NC provides the resources necessary to reconfigure business models and adapt to changing business environments (Battistella, De Toni, De Zan, & Pessot, 2017; Lütjen, Schultz, Tietze, & Urmetzer, 2019). Networking relationships lead to sustainable business benefits in a competitive environment, as firms achieve new knowledge from their business partners (Abbas et al. 2019). According to the literature, (business) networking relationships are not static but dynamic because organizations rely on other firms and entrepreneurs' skills and competencies to combat challenging environments (Abbas et al. 2019; Van de Wetering, Mikalef & Helms 2017). Within the current business environment, organizational boundaries are becoming increasingly more permeable, and employee tasks increasingly diverse and divided, so that it is essential to develop, exchange, and subsequently integrate information and knowledge across the boundaries of the firm and drive the interaction within and among groups and networks (Lütjen et al. 2019; Sambamurthy et al. 2003; Teece 2017). EA-driven dynamic capabilities help firms develop their NC by identifying the right network partners, developing and evolving inter-organizational relationships to exchange information, gaining access to resources held by network partners, and integrating parts of the organization to meet shifting customer demands (Mikalef et al. 2020; Van de Wetering 2020b). Sensing capability enables firms to articulate what to achieve with which collaborators and which partner capabilities are deemed necessary (Pavlou and El Sawy 2011; Van de Wetering 2019b). Mobilizing capability allows firms to synchronize tangible and intangible resources (Yu et al. 2012; Wilden et al. 2013), and transforming capability facilitates ongoing activities and transformations needed to support effective collaborations and flexibility (Van de Wetering 2019b; Van de Wetering 2020a). Hence, we define the following:

Hypothesis 2 (H2): *EA-driven dynamic capabilities will enhance the firm's NC.*

Within the current digital economy, value-creating activities shift from classical (predictable) value chains to highly connected business value networks (Karimi & Walter, 2015). The literature states that DPC enhances internal and external NC, key abilities in digitalized firms (Cenamor et al. 2019; Battistella et al. 2017). Regarding the internal component of NC, DPC entails designing an integrative architecture that centralizes and formalizes information flows (Helfat & Raubitschek, 2018). DPC facilitates communication and the coordination of resources, capabilities, activities, and goals. Concerning the external component, a modular platform approach enables firms to manage a changing network of partners supported by platform governance to handle communication and potential conflicts. In short, DPC allows firms to improve their ability to communicate with external partners to better acquire and organize structured information from those partners (Cenamor et al. 2019). Also, it is well documented that the creation of value for each participant in a platform occurs through positive networking effects (Karimi & Walter, 2015). For example, digital platforms such as eBay, Apple, Google, and Facebook base their business models on interconnectivity and portability features. Their platforms connect producers and consumers from different contexts and with divergent interests. In sum, DPC creates communication possibilities for internal and external stakeholders that increase a firm's NC. Based on the above, the third hypothesis can be stated as follows:

Hypothesis 3 (H3): *DPC will enhance the firms' NC.*

Figure 1 summarizes the research model.

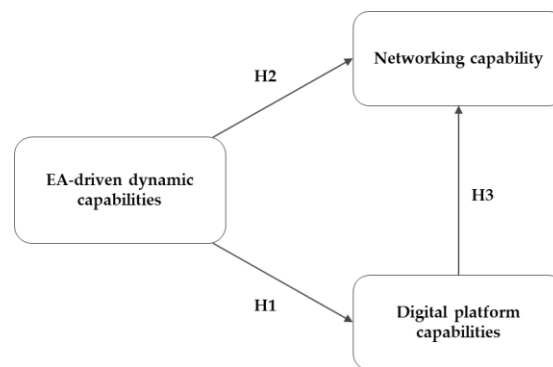


Figure 1. Research model

Methods

Data collection and sample adequacy

The research method is quantitative that uses a web questionnaire (LimeSurvey). Our target group of respondents includes managing enterprise architects, business/IT consultants, CIOs, IT managers, business managers from the Netherlands. Self-selection and convenience sampling was applied to contact the respondents. Self-selection sampling was conducted by advertising on LinkedIn. Self-selection sampling has the advantage that (most) people will respond to the advertisement because of their strong feelings or opinions about the RQ (Saunders, Lewis, & Thornhill, 2019). Convenience sampling was also applied as not all professionals are (very) active on social media platforms, and respondents from the researchers' professional network who were close at hand were invited to participate (Saunders, Lewis, & Thornhill, 2019). We assured the respondents that their entries would be treated confidentially, and we would only report outcomes on an aggregate level. The final data were collected between October 12th, 2020, to November 20th, 2020. The online survey tool administered a total of 715 unique respondents that commenced with the survey. In total, 414 questionnaires were identified as suitable for analyses as many entries were either (partly) incomplete and unreliable (N=315). Of the 414 respondents, 56% had more than 11 years of working experience, and 22% even had more than 25 years of working experience. 55% of the respondents were executive managers, i.e., CEOs, CDOs, CIOs, IT, and business management. Another large group is formed by enterprise architects (25%) and business consultants (21%). Most respondents work in the private sector (64%) and public sector (27%). Of all firms, 59% had more than 1000 employees. Before the data can be used, it is crucial to conform to data quality criteria such as non-response bias,

Construct	Measurement items	λ	μ	Std.	Reliability statistics	
Sensing*	<i>To what extent do you agree with the following statements? (1. Strongly disagree–7. Strongly agree). * Sense, Mobilize, and Transform use the same Likert scale.</i>					
	EAS1	We use our EA to identify new business opportunities or potential threats	0.86	4.34	1.79	CA:0.91 CR:0.93 AVE:0.77
	EAS2	We review our EA services (e.g., providing content, EA standards, skills, and knowledge) on a regular basis to ensure that they are in line with what our key (internal and external) stakeholders want	0.88	4.58	1.82	
	EAS3	We adequately evaluate the effect of changes in the baseline and target EA on the organization	0.89	4.38	1.74	
	EAS4	We devote sufficient time enhancing our EA to improve business processes	0.85	4.21	1.79	
	EAS5	We develop greater reactive and proactive strength in the business domain using our EA	0.88	4.48	1.76	
Mobilizing	EAM1	We use our EA to draft potential solutions when we sense business opportunities or potential threats	0.88	4.74	1.70	
	EAM2	We use our EA to evaluate, prioritize, and select potential solutions when we sense business opportunities or potential threats	0.91	4.69	1.67	
	EAM3	We use our EA to mobilize resources in line with a potential solution when we sense business opportunities or potential threats	0.88	4.43	1.65	
	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	0.89	4.47	1.70	
	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	0.87	4.36	1.67	
Transforming	EAT1	Our EA enables us to successfully reconfigure business processes and the technology landscape to come up with new or more productive assets	0.87	4.58	1.70	CA:0.91 CR:0.93 AVE:0.79
	EAT2	We successfully use our EA to adjust our business processes and the technology landscape in response to competitive strategic moves or market opportunities	0.90	4.45	1.69	
	EAT3	We successfully use our EA to engage in resource recombination to match our product-market areas and our assets better	0.89	4.20	1.67	
	EAT4	Our EA enables flexible adaptation of human resources, processes, or the technology landscape that leads to competitive advantage	0.87	4.26	1.68	
	EAT5	We successfully use our EA to create new or substantially changed ways of achieving our targets and objectives	0.89	4.40	1.68	
	EAT6	Our EA facilitates us to adjust for and respond to unexpected changes	0.87	4.31	1.69	
Platform integration	<i>To what extent do you agree with the following statements (1 – strongly disagree 7 – strongly agree)</i>					
	DPC1	Our platform easily accesses data from our partners' IT systems	0.89	4.54	1.63	CA:0.90 CR:0.93 AVE:0.79
	DPC2	Our platform provides seamless connection between our partners' IT systems and our IT systems	0.92	4.41	1.60	
	DPC3	Our platform has the capability to exchange real-time information with our partners	0.87	4.68	1.68	
DPC4	Our platform easily aggregates relevant information from our partners' databases	0.88	4.37	1.67		
Platform reconfiguration	DPC5	Our platform is easily adapted to include new partners	0.89	4.37	1.67	CA:0.90 CR:0.93 AVE:0.77
	DPC6	Our platform can be easily extended to accommodate new IT applications or functions	0.90	4.61	1.58	
	DPC7	Our platform employs standards that are accepted by most current and potential partners	0.86	4.94	1.51	
	DPC8	Our platform consists of modular software components, most of which can be reused in other business applications	0.86	4.49	1.69	
Networking capability	<i>In terms of networking capability, to what extent do you agree with the following statements</i>					
	NC1	We analyze what we would like to achieve with which collaborators	0.75	4.85	1.37	CA:0.88 CR:0.91 AVE:0.58
	NC2	We rely on close individual relationships to secure personnel & financial resources	0.64	4.70	1.46	
NC3	We judge in advance which possible partners to talk to about building up relationships	0.75	5.02	1.33		

	NC4	We appoint coordinators who are responsible for the relationships with our collaborators	0.80	4.13	1.38
	NC5	We discuss with collaborators regularly on how to support each other to achieve success	0.86	4.88	1.42
	NC6	We can deal flexibly with our collaborators	0.75	4.71	1.45
	NC7	We almost always solve problems constructively with our collaborators	0.79	4.93	1.30

Table 1. survey items and reliability statistics

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 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 common method bias (Podsakoff et al. 2003). Further, the obtained data far exceeds the minimum threshold values to obtain stable PLS outcomes. Moreover, an a-priori power analysis using G*Power suggested that with a 5% probability of error, an effect size of 0.20, and three predictor variables (considering the indirect effects) as input parameters, a minimum sample of 90 cases were needed. The sample of 414 far exceeds these requirements.

Constructs and items

As a basis, we attempted to include empirical and validated work on the selection of measurement scales. Hence, consistent with Van de Wetering (2019a; 2019b), this study conceptualized *EA-driven dynamic capabilities* as a reflective-formative type II second-order construct. The construct was measured using 16 distributed indicators across three first-order constructs, i.e., five measures for sensing, five measures for mobilizing, and six for transforming. This study conceptualized *DPC* following Cenamor et al. (2019). Thus, we conceptualized this construct as a reflective-formative type II second-order construct consisting of two first-order reflective constructs. The first (latent) first-order construct is platform integration and consists of four items, referring to the firm’s ability to achieve platform integration. The second first-order construct is platform reconfiguration and consists of four items. Platform reconfiguration refers to the firm’s ability to reconfigure platform resources. *NC* is conceptualized as a first-order reflective construct, in line with Chen et al. (2009), consisting of seven items, referring to the firm’s ability to initiate, maintain, and utilize relationships with other players. Table 1 shows the final survey constructs and items. Basic descriptive statistics, i.e., item-to-construct loadings (λ), mean values of the items (μ), and the items’ standard deviations (*Std.*) are also included. This study used seven-point Likert scales (1: strongly disagree to 7: strongly agree) for each survey item.

Data quality and psychometric property assessments

To estimate the model’s psychometric properties, we assessed the internal consistency reliability using Cronbach’s alpha and the composite reliability (Hair Jr et al. 2016). All values exceed the minimum threshold of 0.7. All the construct-to-item loadings were above 0.75, except one indicator of networking capability, but still was acceptable. The established average variance extracted (AVE)-values for each construct exceeded the lowest recommended mark of 0.50. Thus, there sufficient convergent validity of the first-order latent constructs (Ringle et al. 2015). Discriminant validity was then assessed to ensure that the items theoretically not related do not correlate (Saunders, Lewis, & Thornhill, 2019). The discriminant validity was calculated in Smart PLS-SEM with the cross-loadings function, the heterotrait-monotrait ratio (HTMT) function (Henseler et al. 2015), and the Fornell-Larcker function (Hair Jr et al. 2016). In assessing the cross-loading function, the indicator’s outer loading on the associated construct should be greater than any of its cross-loadings on other constructs (Hair Jr et al. 2016). All items loaded more strongly on their construct. This study ascertained that AVE’s square root was larger than the cross-correlations (Hair Jr et al. 2016). To assess the Fornell-Larcker function. Hence, each square root value is larger than the cross-correlations. As a final step, we assessed the HTMT values, which is the mean of all the indicators’ correlations across the constructs, measuring different constructs. The HTMT approach estimates the accurate correlation between two constructs if they were correctly measured (i.e., if they were entirely reliable). Outcomes showed that all HTMT-values that are below 0.85 (upper bound) showcasing that discriminant validity is established between constructs. Finally, the assessed variance inflation factors (VIFs) values for each formative construct are below a conservative threshold of 3.5. Hence, no

multicollinearity is present within the research model (Kock and Lynn 2012), and the hypotheses can now be tested.

Empirical results

We used SmartPLS version 3.3.2 to estimate the model parameters (Ringle et al. 2015). PLS-SEM is the correct statistical analysis method for this study because the structural model is complex and includes many constructs and indicators and the structural model includes both reflective and formative constructs (Hair Jr et al. 2017). Also, PLS-SEM assesses both the measurement model, i.e., the outer model (Rigdon et al. 2017), and the structural model (i.e., inner model) of the research model (Hair Jr et al. 2016). The PLS algorithm establishes latent constructs from factor scores and, PLS thereby avoids factor indeterminacy (Hair Jr et al. 2017). Hence, scores can then be used in the following analyses (Lowry and Gaskin 2014). We used the recommended 5,000 subsamples to ensure the results' stability (Hair Jr et al. 2016). Figure 2 shows the outcomes of the main model paths and the hypotheses testing with R^2 , their associated predictive values Q^2 , the regression coefficients, and the associated T-values. All hypotheses can be confirmed as the path coefficients were all significant. As a final step, we used a blindfolding procedure in SmartPLS to evaluate the model's predictive power (Hair Jr et al. 2016). Obtained Stone-Geisser values (Q^2) for the endogenous latent constructs all widely exceed 0, as can be gleaned from Figure 2. Therefore, predictive relevance is established (Hair Jr et al. 2016).

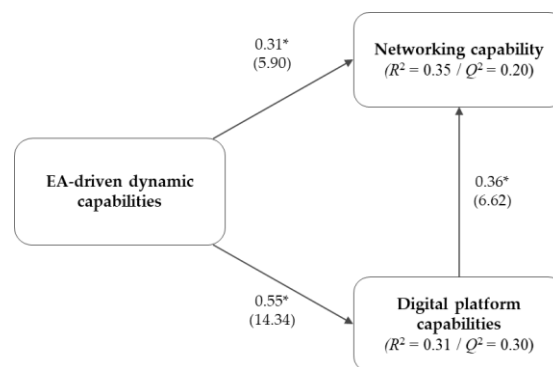


Figure 2. Structural model results

We used mediation guidelines by (Baron and Kenny 1986; Hair Jr et al. 2016) to address this study's research model's imposed mediation effects. Hence, results show that the direct effect of dynamic capabilities on networking capability is positive and significant, fulfilling the first mediation condition, as Baron and Kenny (1986). Then, the procedure prescribes to test the indirect effects' significance (i.e., mediating paths). In a subsequent step, therefore, this path, including digital platform capability, was subsequently run again using a bootstrapping approach using a non-parametric resampling procedure (Hair Jr et al. 2016). Results show that the relationship between dynamic capabilities and networking capability is now less strong but still significant (as Figure 2 shows). These results corroborate with complementary partial mediating relationships.

Post-hoc analyses: relating capabilities to business value under COVID19

We now investigate if our model's capabilities drive firms' business value under COVID19 to strengthen the results' interpretation. Business value reflects the firm capabilities' internal perspective in terms of cost- and time-based efficiency, quality of products, and the degree of customization under the COVID-19 pandemic (Hsu 2013; Kortmann et al. 2014; Van de Wetering 2019b; Rodrigues et al. 2020). EA-driven dynamic capabilities positively impact business value under COVID19 ($\beta = 0.12$, $t = 2.31$, $p = 0.021$). Digital platform capabilities also positively impact business value ($\beta = 0.22$, $t = 4.24$, $p < 0.0001$) as does networking capability ($\beta = 0.28$, $t = 4.88$, $p < 0.0001$). These effects are much stronger than that of the direct effect of EA-driven dynamic capabilities. Thus, this study shows that firms that have developed these capabilities are better equipped to cope with the exogenous COVID-19 shock and adjust accordingly.

Discussion

It is needless to say, especially during the COVID-19 crisis, that firms that are dynamically capable and effective with their platform and networking capabilities are sufficiently equipped to deal with uncertainty and deliver outstanding and reliable services to customers. However, from a research perspective, there is still a limited understanding of how EA-driven dynamic capabilities enhance DPC and NC to drive its business value and organizational performance ultimately. This current study aimed at addressing this particular gap in the literature.

This work adds to the theoretical knowledge base by making several contributions. First, this research contributes to the current literature gap by providing empirical evidence of EA-driven dynamic capabilities' role in developing and strengthening the firms' DPC (De Reuver et al., 2018; Xiao et al. 2020). Also, this study sheds light on the mechanisms through which NC can be developed using EA-driven dynamic capabilities. Thereby, we extend work by Helfat et al. (2018) and Teece et al. (2017) that proposed that dynamic capabilities are essential to build digital platforms, drive platform entrepreneurship and make the organization more adaptable and prepared for the future. Also, our work complements work by Abbas et al. (2019), Battistella et al. (2017), and Lütjen et al. (2019), who argued that networking relationships are dynamic because organizations purposefully seek business relationships to retain or increase their business value. Scholars can use these results to conduct analyses on EA's particular use and deployment in organizations and better understand EA's role in capability-building and digital transformations.

This study provides decision-makers with a potent source of value. Our study suggests that decision-makers need to have a comprehensive view of the state of practice of their respective EA-driven dynamic capabilities. These capabilities are essential to firms that want to survive in crises, like COVID-19, drive the firm's digital platforms and network, transform the customer experience, and even the firm's operational functioning. EA-driven dynamic capabilities form a unique set of mutually reinforcing capabilities that form the foundation to achieve business value and competitiveness under the current extraordinary circumstances when applied against a series of related and structurally attractive value creation opportunities. Firms also need to look internally and externally at the same time to determine what markets represent attractive growth arenas and how they can leverage DPC and NC to create new value on a sustainable basis. It is crucial to evaluate the critical stakeholder objectives and the networking partners' growth goals and risk tolerances. Although this research makes significant contributions to knowledge, it is constrained by several limitations. First, we did not conduct methodological triangulation, as only the quantitative survey approach is used. The generalizability of the results cannot be ensured for all types of industries and firms. Also, this study used measurement at a single point in time. Therefore, it is not easy to establish causality truly as firms' maturity in capability development could vary over time.

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REFERENCES

- Abbas, J., Raza, S., Nurunnabi, M., Minai, M. S., and Bano, S. 2019. "The Impact of Entrepreneurial Business Networks on Firms' Performance through a Mediating Role of Dynamic Capabilities," *Sustainability* (11:11), p. 3006.
- Abraham, R., Aier, S., Winter, R. 2012. "Two Speeds of EAM—A Dynamic Capabilities Perspective," in *Trends in Enterprise Architecture Research and Practice-Driven Research on Enterprise Transformation*; Springer: Berlin/Heidelberg, Germany, pp. 111–128.
- Bharadwaj, A., El Sawy, O. A., Pavlou, P. A., & Venkatraman, N. 2013. Digital business strategy: toward a next generation of insights. *MIS quarterly*, 471-482.
- Baron, R. M., and Kenny, D. A. 1986. "The Moderator–Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations," *Journal of personality and social psychology* (51:6), p. 1173.
- Battistella, C., De Toni, A. F., De Zan, G., and Pessot, E. 2017. "Cultivating Business Model Agility through Focused Capabilities: A Multiple Case Study," *Journal of Business Research* (73), pp. 65-82.

- Cenamor, J., Parida, V., and Wincent, J. 2019. "How Entrepreneurial Smes Compete through Digital Platforms: The Roles of Digital Platform Capability, Network Capability and Ambidexterity," *Journal of Business Research* (100), pp. 196-206.
- Chen, X., Zou, H., & Wang, D. T. 2009. "How do new ventures grow? Firm capabilities, growth strategies and performance." *International Journal of Research in Marketing*, 26(4), 294-303.
- Dang, D. D., and Pekkola, S. 2015. "Systematic Literature Review on Enterprise Architecture in the Public Sector," *Department of Information Management and Logistics, Tampere University of Technology*), pp. 1-25.
- De Reuver, M., Sørensen, C., & Basole, R. C. 2018. "The digital platform: a research agenda." *Journal of Information Technology*, 33(2), 124-135.
- Di Stefano, G., Peteraf, M., and Verona, G. 2014. "The Organizational Drivetrain: A Road to Integration of Dynamic Capabilities Research," *Academy of Management Perspectives* (28:4), pp. 307-327.
- Eisenhardt, K. M., and Martin, J. A. 2000. "Dynamic Capabilities: What Are They?," *Strategic management journal* (21:10-11), pp. 1105-1121.
- Elliot, J., Nguyen, C. . and Tanguturi, P. 2018. "Digital Platforms Will Define the Winners and Losers in the New Economy," Accenture digital, www.accenture.com/digital.
- Gartner 2021. *Gartner Forecasts Worldwide IT Spending to Reach \$4 Trillion in 2021*. Retrieved from Gartner: <https://www.gartner.com/en/newsroom/press-releases/2021-04-07-gartner-forecasts-worldwide-it-spending-to-reach-4-trillion-in-2021>
- Hazen, B. T., Bradley, R. V., Bell, J. E., In, J., and Byrd, T. A. 2017. "Enterprise Architecture: A Competence-Based Approach to Achieving Agility and Firm Performance," *Management* (193), pp. 566-577.
- Hair Jr, J. F., Hult, G. T. M., Ringle, C., and Sarstedt, M. 2016. *A Primer on Partial Least Squares Structural Equation Modeling (Pls-Sem)*. Sage Publications.
- Helfat, C. E., & Raubitschek, R. S. 2018. "Dynamic and integrative capabilities for profiting from innovation in digital platform-based ecosystems." *Research Policy*, 1391-1399.
- Hsu, P.-F. 2013. "Integrating ERP and E-Business: Resource Complementarity in Business Value Creation," *Decision Support Systems* (56), pp. 334-347.
- Islind, A. S., Lindroth, T., Lundin, J., and Steineck, G. 2019. "Co-Designing a Digital Platform with Boundary Objects: Bringing Together Heterogeneous Users in Healthcare," *Health and Technology* (9:4), pp. 425-438.
- Kazan, E., Tan, C.-W., Lim, K., T, E., Sørensen, C., & Damsgaard, J. 2018. "Disentangling Digital Platform Competition: The Case of UK Mobile Payment Platforms." *Journal of Management Information Systems*, 180-219.
- Kock, N., & Lynn, G. 2012. "Lateral collinearity and misleading results in variance-based SEM: An illustration and recommendations." *Journal of the Association for information Systems*, 13(7).
- Korhonen, J. J., and Molnar, W. A. 2014. "Enterprise Architecture as Capability: Strategic Application of Competencies to Govern Enterprise Transformation," *Business Informatics (CBI), 2014 IEEE 16th Conference on: IEEE*, pp. 175-182.
- Lütjen, H., Schultz, C., Tietze, F., and Urmetzer, F. 2019. "Managing Ecosystems for Service Innovation: A Dynamic Capability View," *Journal of Business Research* (104), pp. 506-519.
- Mikalef, P., Pateli, A., and Van de Wetering, R. 2020. "IT Architecture Flexibility and IT Governance Decentralisation as Drivers of IT-Enabled Dynamic Capabilities and Competitive Performance: The Moderating Effect of the External Environment," *European Journal of Information Systems*, pp. 1-29.
- Nan, N., and Tanriverdi, H. 2017. "Unifying the Role of IT in Hyperturbulence and Competitive Advantage Via a Multilevel Perspective of Is Strategy," *MIS Q.* (41:3), pp. 937-958.
- Parker, G. G., Marshall, V. W., & Choudary, S. P. 2016. *Platform Revolution How Networked Markets Are Transforming the Economy and How to Make Them Work for You*. New York: W. W. Norton & Company.
- Pattij, M., Van de Wetering, R., and Kusters, R. J. 2020. "Improving Agility through Enterprise Architecture Management: The Mediating Role of Aligning Business and IT," in *Proceedings of AMCIS*, Salt Lake City, USA.
- Pavlou, P. A., and El Sawy, O. A. 2011. "Understanding the Elusive Black Box of Dynamic Capabilities," *Decision Sciences* (42:1), pp. 239-273.

- Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., and Podsakoff, N. P. 2003. "Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies," *Journal of applied psychology* (88:5), p. 879.
- Rodrigues, J., Ruivo, P., and Oliveira, T. 2020. "Mediation Role of Business Value and Strategy in Firm Performance of Organizations Using Software-as-a-Service Enterprise Applications," *Information & Management*, p. 103289.
- Ross, J. W., Weill, P., and Robertson, D. 2006. *Enterprise Architecture as Strategy: Creating a Foundation for Business Execution*. Harvard Business Press.
- Rigdon, E. E., Sarstedt, M., and Ringle, C. M. 2017. "On Comparing Results from Cb-Sem and Pls-Sem: Five Perspectives and Five Recommendations," *Marketing Zfp* (39:3), pp. 4-16.
- Ringle, C. M., Wende, S., and Becker, J.-M. 2015. "Smartpls 3," *Boenningstedt: SmartPLS GmbH*, <http://www.smartpls.com>).
- Sambamurthy, V., Bharadwaj, A., and Grover, V. 2003. "Shaping Agility through Digital Options: Reconceptualizing the Role of Information Technology in Contemporary Firms," *MIS quarterly*, pp. 237-263.
- Saunders, M., Lewis, P., & Thornhill, A. 2019. Critically reviewing the literature. In M. Saunders, P. Lewis, & A. Thornhill, *Research Methods for Business Students, Eighth Edition*. Harlow, United Kingdom: Pearson Education Limited.
- Schilke, O. 2014. "On the Contingent Value of Dynamic Capabilities for Competitive Advantage: The Nonlinear Moderating Effect of Environmental Dynamism," *Strategic Management Journal* (35:2), pp. 179-203.
- Shanks, G., Gloet, M., Someh, I. A., Frampton, K., and Tamm, T. 2018. "Achieving Benefits with Enterprise Architecture," *The Journal of Strategic Information Systems* (27:2), pp. 139-156.
- Subramaniam, M., Iyer, B., & Venkatraman, V. 2019. "Competing in digital ecosystems." *Business Horizons*, 62(1), 83-94.
- Teece, D. J. 2017. "Dynamic Capabilities and (Digital) Platform Lifecycles," in *Entrepreneurship, Innovation, and Platforms*. Emerald Publishing Limited, pp. 211-225.
- Van de Wetering, R., Mikalef, P., and Helms, R. 2017. "Driving Organizational Sustainability-Oriented Innovation Capabilities: A Complex Adaptive Systems Perspective," *Current Opinion in Environmental Sustainability* (28), pp. 71-79.
- Van de Wetering, R. 2019a. "Dynamic Enterprise Architecture Capabilities: Conceptualization and Validation," in *Business Information Systems*; Springer: Seville, Spain; Cham, Switzerland, 2019.
- Van de Wetering, R. 2019b. "Enterprise Architecture Resources, Dynamic Capabilities, and Their Pathways to Operational Value," in *Proceedings of the Fortieth International Conference on Information Systems*, Munich, Germany.
- Van de Wetering, R., Kurnia, S., and Kotusev, S. 2020a. "The Effect of Enterprise Architecture Deployment Practices on Organizational Benefits: A Dynamic Capability Perspective," *Sustainability* (12:21), p. 8902.
- Van de Wetering, R. 2020b. "Dynamic Enterprise Architecture Capabilities and Organizational Benefits: An empirical mediation study," in *Proceedings of the Twenty-Eighth European Conference on Information Systems*, virtual conference.
- Van de Wetering, R., Kurnia, S., and Kotusev, S. 2021. "The Role of Enterprise Architecture for Digital Transformations," *Sustainability* (13:2237), pp. 1-4.
- Vessey, I., and Ward, K. 2013. "The Dynamics of Sustainable IS Alignment: The Case for IS Adaptivity," *Journal of the Association for Information Systems* (14:6), pp. 283-311.
- Wilden, R., Gudergan, S. P., Nielsen, B. B., and Lings, I. 2013. "Dynamic Capabilities and Performance: Strategy, Structure and Environment," *Long Range Planning* (46:1-2), pp. 72-96.
- Witschel, D., Döhla, A., Kaiser, M., Voigt, K. I., and Pfletschinger, T. 2019. "Riding on the Wave of Digitization: Insights How and under What Settings Dynamic Capabilities Facilitate Digital Driven Business Model Change," *Journal of Business Economics*, pp. 1023-1095.
- Xiao, X., Tian, Q., & Mao, H. 2020. "How the Interaction of Big Data Analytics Capabilities and Digital Platform Capabilities Affects Service Innovation: A Dynamic Capabilities View." *IEEE Access*, 1-19.
- Yu, E., Deng, S., and Sasmal, D. 2012. "Enterprise Architecture for the Adaptive Enterprise—a Vision Paper," in *Trends in Enterprise Architecture Research and Practice-Driven Research on Enterprise Transformation*. Springer, pp. 146-161.