

Association for Information Systems
AIS Electronic Library (AISeL)

ICIS 2022 Proceedings

Social Media and Digital Collaboration

Dec 12th, 12:00 AM

Digital Interorganizational Collaboration

Jeffrey Dixon
Queen's University, 6jad3@queensu.ca

Kathryn Brohman
Queen's University, kathryn.brohman@queensu.ca

Follow this and additional works at: <https://aisel.aisnet.org/icis2022>

Recommended Citation

Dixon, Jeffrey and Brohman, Kathryn, "Digital Interorganizational Collaboration" (2022). *ICIS 2022 Proceedings*. 18.

<https://aisel.aisnet.org/icis2022/social/social/18>

This material is brought to you by the International Conference on Information Systems (ICIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in ICIS 2022 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

Digital Interorganizational Collaboration

Short Paper

Jeff Dixon

Smith School of Business, Queen's
University
Kingston, ON, Canada
6jad3@queensu.ca

Kathryn Brohman

Smith School of Business, Queen's
University
Kingston, ON, Canada
kathryn.brohman@queensu.ca

Abstract

How can digital technology enable flexible interorganizational collaborations (IOCs)? This study investigates a challenge facing firms seeking to build highly flexible interfirm relationships to remain competitive in the digital age. It explores how flexible IOCs characterized by changing goals, organizations and organizational actors can leverage digital technology to rapidly generate interorganizational dynamic capabilities (IDCs) in the absence of pre-existing routines. Using multiple case studies of COVID-19 task forces in the US and Canada, we observe how digital generativity derives from a diverse and changing set of digital tools used together to respond to a rapidly changing environment. In doing so, this study extends digital generativity beyond digital platforms into more flexible applications of digital technology. This approach addresses a central problem in the IOC literature: how organizations competing in the digital age can shift their strategic focus from competition to collaboration (Gkeredakis & Constantinides 2019).

Keywords: Digital Generativity; Interorganizational Collaboration; Interorganizational Dynamic Capabilities; Digital Collaboration

Introduction

How can digital technology enable highly flexible interorganizational collaborations (IOCs)? Interorganizational collaboration has long been a valuable approach for firms to achieve strategic objectives without having to develop new resources or capabilities internally (Majchrzak, Jarvenpaa & Bagherzadeh 2015). In the digital age, however, firms have looked for more flexible approaches to collaboration than traditional relationships like joint ventures and buyer-supplier partnerships. In this new context, firms operate in highly turbulent ecosystems where industry boundaries are constantly redefined (Bharadwaj, El Sawy, Pavlou & Venkatraman 2013).

Rather than locking into rigid partnerships, firms are now drawing on broader networks of flexible partnerships such as multi-stakeholder innovation networks (Reypens, Lievens & Blezevic 2021). Interorganizational constellations, for example, emerged as an action-oriented approach to address complex social issues, such as the Canadian Partnership for Children's Health and the Environment. This loose collective of organizations and individuals organized itself into an evolving set of "small, self-organized action teams" (Surman & Surman 2008, 25), that address changing priority issues, such as the banning of bisphenol-A. Constellations have since extended beyond partnerships for social change, into many business applications as well, including entrepreneurial networks and how innovation laboratories interact (Osorio, Dupont, Camargo & Peña 2019).

Flexible IOCs represent a shift from alliances with fixed goals and structures, to networks of firms in a number of "promiscuous, loose relations" (Johansson 2012, 26). Organizing collaborations in a flexible

manner creates significant benefits at both the interfirm and firm levels. On the one hand, it allows the IOC to rapidly adapt to emerging conditions, while on the other hand, it also allows individual firms to respond to their own changing opportunities via a network of flexible collaborations (Williams, Whiteman & Parker 2019; He et al. 2020).

An unaddressed challenge, however, is how these highly flexible collaborations can be managed effectively, particularly if they lack the structural governance mechanisms of more traditional alliances. Accordingly, this study asks, how can digital technology help flexible networks of partnering firms (i.e., flexible IOCs) effectively collaborate?

This study contributes to the growing body of literature related to how organizations competing in the digital age need to shift their strategic focus from competition to collaboration (Gkeredakis & Constantinides 2019). Traditionally, firms have pursued competitive advantage based on internal resources and capabilities that were difficult for competitors to replicate (Barney 1991; Barney 2001). In the digital age, sustained competitive advantage is eroded as “rivals and new start-ups use digital technologies in innovative new ways to make frequent and bold competitive moves” (Benbya, Nan, Tanriverdi & Yoo 2020, 12). The result is highly turbulent environments, blurring industry boundaries, and a need for firms to constantly adapt and evolve (Keen & Williams 2013).

In this study, we focus specifically on how flexible IOCs support the sharing of resources (e.g., knowledge, financial, information, human capital) across partnering firms. Focusing on resources is appropriate as traditional firms pursued competitive advantage based on internal resources and capabilities that were difficult for competitors to replicate (Barney 1991; Barney 2001); however, in digital business strategy, hypercompetitive actions and constantly changing environmental conditions make it more difficult for a firm to depend solely on their internal resources to sustain competitive advantage (Bharadwaj et al. 2013). Instead, firms need to explore ways to share resources across firms and generate value from collaboration (Bharadwaj et al. 2013).

As the purpose of flexible IOCs is to create highly flexible interfirm interactions that can share resources efficiently and effectively, the ability to share such resources between firms is a central concern (Majchrzak et al. 2015). The IOC literature, however, has focused on more fixed interfirm collaboration models such as strategic alliances. How, then, can resource sharing function in more flexible approaches to IOCs? In the absence of established governance mechanisms, we explore how digital technology can be used to share resources between firms. The role of digital technology is thus conceptualized as a mechanism for how resources are used and shared in more dynamic ways.

Theoretical Background

Organizing Flexible IOCs Through Digital Generativity

The IOC construct is a broad term that has been applied to a variety of interfirm relationships. Within the IOC literature, IOCs have been classically defined as “a cooperative, inter-organizational relationship that is negotiated in an ongoing communicative process, and which relies on neither market nor hierarchical mechanisms of control” (Hardy, Phillips, & Lawrence 2003, 323). However, research on IOCs has included both flexible relationships (e.g., networks, coalitions) as well as more rigid relationships which arguably fall outside of Hardy et al.’s (2003) conceptualization of not relying on hierarchical mechanisms of control (e.g., alliances, joint ventures, and buyer-supplier partnerships) (Majchrzak et al. 2015). To that end, we propose IOCs – cooperative, inter-organizational relationships negotiated through ongoing communication processes – can be classified as either fixed or flexible. Fixed IOCs are those organized around formal contracts with predetermined goals, participating organizations and actors. Flexible IOCs, on the other hand, are informal, collective organizations (e.g., coalition, council, task force) that provide an adaptive approach to partnership characterized by changing goals, organizational actors, and participating organizations (Majchrzak et al. 2015; Foster-Fishman, Salem, Allen & Fahbach 2001).

Our study focuses on the latter form of IOCs. We conceptualize the flexible IOC as being centered on the dynamic exchange of resources and capabilities across firms to address a common need, opportunity, or problem. For flexible IOCs situated in complex business ecosystems, a highly flexible approach to sharing resources and capabilities provides the ability to rapidly adapt to ever-changing market conditions (Bharadwaj et al. 2013).

To study how digital technology can support collaboration and resource sharing in these highly flexible relationships, we apply a digital generativity lens. We define digital generativity as the application of digital technologies to generate novel interactions among actors and their tasks (Gkeredakis & Constantinides 2018). The concept of digital generativity is grounded in the core properties of digital technologies. That is, first, they are by nature incomplete and in constant evolution. Second, they are product agnostic and thus not tied to a specific use. Last, is the novel idea that technology solutions are not architected to mirror pre-existing structures. Accordingly, digital generativity means that functionality evolves from the ongoing use of a wide range of technologies to solve problems and address opportunities (Kallinikos, Aaltonen & Marton 2013; Yoo, Henfridsson & Lyytinen 2010; Gkeredakis & Constantinides 2018).

In existing conceptualizations of more fixed IOCs (e.g., strategic alliances) as relatively static (He et al. 2020), IOC success is driven by clear, pre-defined, shared goals (Mamédo, Rocha, Szczepanik, & Kato 2019). It is thus appropriate that systems architecture for these IOCs will tend toward complex systems designed to reflect the more rigidly defined structure of an alliance or joint venture.

The opposite should also apply to flexible IOCs. For example, in digital platforms, generativity enables the platform to self-organize resource generating, assembling, and distributing. As this occurs, the users in the ecosystem are able to respond rapidly to changing environmental conditions because the platform's generativity continually redefines the available resource base (Sun, Gregor & Fielt 2021). As the technology solutions change, the interactions of the IOC change, and thus the flexible IOC can continuously set new goals and change out actors to respond to market changes (Table 1). This study thus explores how digital generativity can enable the evolving structure and activities of flexible IOCs.

	Fixed IOCs	Flexible IOCs
Strategy	Pre-defined against known opportunities	Emerging in response to new opportunities
Participating Organizations	Pre-defined, contractual	Changing as organizational and IOC goals change
Organizational Actors	Pre-defined roles driven by participating organizations' negotiated roles	Changing as IOC expertise requirements change
Goals	Pre-defined	Adaptive to changing opportunities
Systems Architecture	Complex, pre-built in alignment to IOC structure	Generative

Table 1. Fixed and Flexible IOC Design

Methodology

To answer the question, 'how can digital technology enable flexible IOCs', we explore the longitudinal use of digital technologies by multiple COVID-19 task forces. In each case study, task forces changed goals, actors, and organizational representation to respond to high turbulence inherent in pandemic response.

COVID-19 task forces provide an example of flexible IOCs in that they are dynamic inter-firm collaborations that experienced changing goals (e.g., PPE supply management, vaccine distribution, public health guidelines), actors (e.g., vaccine experts, statisticians, labour economists), and participating organizations (e.g., a range of public and private organizations) to respond to the changing COVID-19 environment (Park & Chung 2021). The COVID-19 context was also ideal for studying digital generativity as the large majority of the global economy, including pandemic decisionmakers, moved to online collaboration environments.

Between November 2020 and April 2021, 60-minute interviews (via Zoom) were conducted with seven senior-level government administrators in two countries (US State and Canadian Province). The small sample size was deemed reasonable for a pilot study as getting access to participants during the pandemic was extremely challenging and each participant served on multiple COVID-19 task forces (Table 2). As such, the pilot data set allowed for the exploration of how digital technology enabled dynamic interorganizational collaboration in seven COVID-19 task forces in Canada and four in the United States.

Because this is an exploratory study developing new concepts, we drew on the analytical tradition of grounded theory (Matavire & Brown 2013). Using the front-loaded grounded theory method (FGTM), we build on a priori theory and then use Straussian grounded theory techniques to analyze our data (Matavire

& Brown 2013; Strauss & Corbin 1998; Simha & Kishore 2011). While there has been debate in the IS literature about the role of positivism in grounded theory (e.g., Bryant 2002, Urquhart 2002), Urquhart and Fernandez (2016) contend that grounded theory is in fact not inherently tied to a particular epistemology. Instead, it can be applied in different ways depending on the underlying epistemological stance. Importantly, FGTM addresses the criticism that traditional grounded theory methods lack theoretical grounding (Kock, Gallivan & DeLuca 2008) by drawing on existing theory to guide the design of the interview protocol as well as the analytical approach (Matavire & Brown 2013).

Canada		United States	
Task Force	Participants	Task Force	Participants
Advisory 1	CDN-001 (Co-Chair) CDN-002 (Co-Chair)	Data Modeling	US-001 (Chair)
Advisory 2	CDN-003 (Member)	Public Health- 1	US-002 (Member)
Data Modeling	CDD 001 (Chair), CDN 005 (member)	Public Health - 2	US-001 (Member) and US-002 (Member)
Public Health	CDN 005 (Chair), CDN 002 (Member)	State PPE Inventory Management	US-001 (Member)
Provincial PPE Inventory Management	CDN 003 (Chair)		
Clinical - Provincial	CDN 004 (Member)		
Clinical - Regional	CDN 004 (Member)		

Table 2. COVID-19 Case Studies

The data set to date includes 239 pages of transcribed interviews. Analysis was conducted using NVivo. Coding of interviews is being conducted using a hybrid approach. A detailed coding protocol was designed using three primary constructs: IOC flexibility (Majchrzak et al. 2015), interorganizational dynamic capabilities (IDC) (Sandberg, Kindström, & Haag 2021), and digital generativity (Zittrain 2006).

Because we focus on the dynamic exchange of resources and capabilities across firms, we propose dynamic capabilities as a helpful way to theorize how flexible IOCs function. Dynamic capabilities were originally developed to describe how firms sense and seize opportunities and then reconfigure resources and capabilities in response (e.g., Teece & Pisano 1994; Teece, Pisano & Shuen 1997; Eisenhardt & Martin 2000; Zollo & Winter 2002; Teece 2007). They are thus “the capacity of an organization to purposefully create, extend, or modify its resource base” (Helfat et al. 2007, 4). More recently, they have been extended to the interfirm level as interorganizational dynamic capabilities (IDCs). As an interorganizational-level construct, IDCs are higher-order capabilities for IOCs to sense opportunities in a changing environment, seize those opportunities, and reconfigure resources and capabilities in response (Sandberg et al. 2021; Agarwal & Selen 2009).

Dynamic capabilities are used by firms to change how they “make a living” (Helfat & Winter 2011, 1245) through such means as changing their underlying operational capabilities, their resource base, or the conditions of their external environment. Extending these principles to IDCs, we contend that the IOC will have its own shared operational capabilities, resource base, and environment, all of which derive from the respective capabilities, resources, and environments of the participating firms. In contrast to firm-level dynamic capabilities, with IDCs, the “resource base that is being created, extended, or modified spans beyond a single firm’s boundary” (Sandberg et al. 2021, 2).

Importantly, IDCs, as with all capabilities, are driven by underlying routines which are the product of practiced and patterned behavior (Winter 2000; Helfat & Winter 2011). Again, in extending dynamic capabilities to the IOC-level, IDCs suggest that IOCs can be characterized by shared patterns of behavior that comprise shared routines. It is also the IOC’s resource base that provides a formalized structure that supports the exchange of resources and enables IOC-level routines to be created. In theory, the creation of routines requires other formalized structures as well (e.g., shared goals, common actors, governance practices) that enable repeated patterns of activity to drive the development of shared routines. These

routines then enable capabilities of the IOC to sense market changes, seize opportunities and reconfigure resources and routines accordingly.

Using this IDC lens to frame the activities of an IOC, we operationalized IDC using four dynamic capabilities (Pavlou & El Sawy 2011; Table 3). We drew on four characteristics of digital generativity – cross-task use, adaptability, ease of mastery, and accessibility (Zittrain 2006) - to code the evolving set of digital technologies used to exchange resources as the task force adapted to the changing pandemic.

Construct	Operationalization	Definition
IOC Flexibility	Changing goals, actors, organizations (Majchrzak et al. 2015)	Interorganizational collaboration marked by changing goals, organizational actors and participating organizations
Sensing and shaping opportunities and threats (Teece 2007)	Sensing Capability (Pavlou & El Sawy 2011)	The ability to spot, interpret, and pursue opportunities in the environment
Seizing opportunities (Teece 2007)	Learning Capability (Pavlou & El Sawy 2011)	The ability to revamp existing operational capabilities with new knowledge
Reconfiguring the business enterprise's intangible and tangible assets (Teece 2007)	Integrating Capability (Pavlou & El Sawy 2011)	The ability to combine individual knowledge into the unit's new operational capabilities
	Coordinating Capability (Pavlou & El Sawy 2011)	The ability to orchestrate and deploy tasks, resources, and activities in the new operational capabilities
Digital Generativity	Cross-task Use, Adaptability, Ease of Mastery, Accessibility (Zittrain 2006)	A "technology's capacity for leverage across a range of tasks, adaptability to a range of different tasks, ease of mastery, and accessibility... generativity increases with the ability of users to generate new, valuable uses that are easy to distribute and are in turn sources of further innovation" (Zittrain 2006, 3)

Table 3. Initial Constructs and Start Codes

The first three interviews were coded by both authors. Coding results were compared to ensure agreement. This was followed by iterative rounds of axial coding to group open codes into shared categories (Strauss & Corbin 1998; Corbin & Strauss 1990). These categories were used to frame the preliminary analysis presented below. The research team is continuing this process as more data is collected.

Results

Based on our first round of data collection, we are focusing our ongoing analysis on six case studies of interorganizational collaboration. In each case, we are analyzing how digital generativity enabled flexible IOCs to rapidly create routines for IDCs. Longitudinal data collection is still in progress. However, our current data collection supports three key emerging findings. First, these COVID-19 task forces were consistent with our conceptualization of flexible IOCs having changing goals, organizational actors, and participating organizations. Second, the generative properties of digital technologies used by these flexible IOCs did enable the rapid creation of shared sensing, seizing and reconfiguring capabilities. Third, in contrast to the bulk of existing digital generativity theorization which emphasizes the centrality of digital platforms to generativity, these IOCs used a variety of readily available digital tools to support their changing needs rather than drawing on a pre-designed platform.

While our research remains in progress, we draw on the case of a US-based state-level personal protective equipment task force (State PPE) to illustrate our emerging findings about the relationship between digital generativity and IDCs in flexible IOCs. An overview of next steps for the research is provided in the conclusions.

IOC Flexibility

The State PPE was consistent with our definition of flexible IOCs in that it was a rapidly formed interorganizational collaboration with changing goals, actors and organizations. As with many of the task forces we have studied, the task force was initially organized by the State Governor's office. Task force governance was developed collaboratively through the task force members drafting terms of reference.

The task force comprised representatives from the State Department for Emergency Management, the State Department of Health, the National Guard, and the State University Health Informatics Center. While the Department for Emergency Management and National Guard had some background collaborating around disaster management, the Department of Health and Health Informatics Center did not.

Also, task force membership changed over time. When new types of forecasting methods were needed, new organizational actors with different skill sets were brought into the task force. Also, the National Guard's participation was contingent on the declaration of a state of emergency. While they brought critical skill sets around rapid deployment of supplies, "they were present for, like, the first four or five months of the pandemic and then that resource went away."

As with organizations and actors, task force goals evolved over time, as well. The State PPE task force "was designed to estimate, purchase and distribute personal protective equipment to the state." However, as the pandemic escalated from monitoring the event overseas, to seeing initial cases occur locally, to declaring a statewide state of emergency, the goals shifted:

"The goal of the task force changed over time. So, we moved from calculation of amount of supply needed... and purchasing, to distribution and then to maintenance of ongoing purchasing, which I think are three different questions."

The changing goals, actors and organizations were all interrelated with the evolving external environment of the pandemic. For example, the above discussed shift from monitoring the early pandemic in Europe to managing the pandemic as it reached the US necessitated a change in goals, actors and organizations. This has been consistent across the life of the pandemic as rapidly changing COVID conditions continually necessitate reevaluation of how these task forces organize and function.

Rapid Creation of IDCs through Digital Generativity

Across all of the task forces studied to date, we found evidence that digital generativity supported the rapid creation of first-order routines necessary for higher-order IDCs among these IOCs. A range of readily accessible technologies, including videoconferencing and cloud-based analytics, were used together to sustain the collaboration. Examples of how all four operationalized capabilities were supported by the properties of digital generativity are provided in Table 4.

IDC	Digital Generativity	Description
<i>Sensing</i>	Cross-task Use	Existing environmental data for predicting demand was not granular enough, as it came from national-level forecasts of other diseases (e.g., CDC PPE calculator based on Ebola and SARS data). While early predictive models used these tools, as well as early data available from Europe, they leveraged the National Guard's existing technical infrastructure to launch a local online survey: "[we built] electronic tools to collect information from our outgoing centers on how much personal protective equipment they're using... so that interface was built as a very brief online survey that was structured, and then have that data would come in to the committee where they're... reviewing dashboards collectively instead of one partner just managing all the tickets and giving feedback."
<i>Learning</i>	Adaptability	The task force repurposed an existing ticket system owned by the Department for Emergency Management. This allowed them to monitor changing PPE demand. Excel and Power BI were used to centralize incoming data and generate shared analytics: "So, the data would come in. The disaster and emergency management group would bring forth the

		supply data and inventory tracking, the National Guard would bring forth the data from the organizations and then we would put the data together and then come up with an analysis. The analysis will be presented to the entire group and we would make recommendations based on what we had seen. So, for example, sometimes we would have facilities request an amount of personal protective equipment which would have been more in line with a facility two or three times their size. And so that's something that was erroneous, and we needed to figure out what was going on. Is it because they were short on supply and they were trying to stock up? Is it because they were launching a new program and anticipated higher needs?... Every stakeholder brought the data together [and]... put it together for folks to make decisions... and so we created a data visualization tool using Microsoft's Power BI product to put all that data together."
<i>Integrating</i>	Ease of Mastery & Accessibility	The health informatics team already had a work-from-home culture prior to the pandemic. They brought Zoom licenses, as well as best practices to the task force, which helped build a cooperative, efficient culture: "For the beginning of the pandemic, most folks were still not comfortable with technology for meetings or data display... So, we introduced Zoom and Teams virtual meeting platforms to make meetings more efficient, more timely, and to not lose time between calculations... We also got folks used to our workflow with process mapping and really stepping out every part of the process."
<i>Coordinating</i>	Cross-task Use	The team was able to apply existing digital tools to a number of PPE distribution problems: "The disaster and emergency management folks brought together their distribution resources. They had warehousing, they had inventory tracking systems, and had the means to distribute the product. The National Guard had both distribution infrastructure and technical infrastructure with building electronic tools to collect information from our outgoing centers on how much personal protective equipment they're using to do some sort of order inventory system. And then the Department of Health had an emergency medicine resource dashboard. So, you knew how full a hospital was, how many patients were going to the hospitals, and had a communication platform to distribute information to all hospital facilities."
Table 4. Examples of Digital Generativity-IDC Relationships in State PPE Task Force		

Thus, the case of the State PPE task force supports our conceptualization of digital generativity properties driving routines for IDCs among flexible IOCs.

Contributions

We expect this study to make valuable contributions to the conceptualization of interorganizational collaboration in the digital age. First, it contrasts with existing theorization of generativity deriving from digital platforms, by developing the idea of firms using a diverse, changing set of digital tools quickly brought together as a generative mechanism for flexible IOCs to share resources and capabilities. Second, in defining flexible IOCs, it sets appropriate boundary conditions around a class of IOC that is, indeed, non-hierarchical and thus distinct from more rigid models. Last, the study conceptualizes how these flexible IOCs, as characterized by changing goals, actors, and organizations, can build dynamic capabilities using digital generativity in the absence of formal structures and the resulting routines. In doing so it explains how flexible IOCs can share resources and capabilities in the highly turbulent context of the digital age.

Conclusions and Future Development

This study has considered a challenge facing firms seeking to build highly flexible interfirm relationships to remain competitive in the digital age. We advance digital generativity derived from a changing set of pre-existing digital tools as a means by which flexible IOCs can generate IDCs. The analysis in this paper has

been developed out of a first round of longitudinal data collection. A second and final round of data collection is currently underway. In advance of ICIS 2022, the authors plan to complete data collection and formalize a longitudinal analysis of their data set. This will include both further within-case analysis, as well as between-case analysis. Further analysis will better define the boundary conditions of the study, in particular, by exploring if they are limited to management of extreme crises like COVID-19 or if, as we expect, they can be extended more broadly to flexible IOCs in a range of contexts. The expected outcome is a set of case studies that develops a framework for digital generativity in IOCs, suitable for the high turbulence of the digital age.

References

- Agarwal, R. and Selen, W. 2009. "Dynamic capability building in service value networks for achieving service innovation." *Decision Sciences* (40:3), pp.431-475.
- Barney, J. 1991. "Firm resources and sustained competitive advantage." *Journal of Management* (17:1), pp.99-120.
- Barney, J.B., 2001. "Resource-based theories of competitive advantage: A ten-year retrospective on the resource-based view." *Journal of management* (27:6), pp.643-650.
- Benbya, H., Nan, N. Tanriverdi, H. and Yoo, Y., 2020. "Complexity and information systems research in the emerging digital world." *MIS Quarterly* (44:1), pp.1-17.
- Bharadwaj, A., El Sawy, O. A., Pavlou, P. A., & Venkatraman, N. 2013. "Digital business strategy: toward a next generation of insights," *MIS Quarterly* (37:2), pp. 471-482.
- Bryant, A., 2002. "Re-grounding grounded theory." *Journal of Information Technology Theory and Application* (4:1), p.7.
- Corbin, J.M. and Strauss, A., 1990. "Grounded theory research: Procedures, canons, and evaluative criteria." *Qualitative Sociology* (13:1), pp.3-21.
- Eisenhardt, K.M., & Martin, J.A. 2000. "Dynamic capabilities: what are they?" *Strategic Management Journal* (21:1011), pp. 1105-1121.
- Feldman, M.S. and Pentland, B.T. 2003. "Reconceptualizing organizational routines as a source of flexibility and change." *Administrative Science Quarterly* (48:1), pp.94-118.
- Foster-Fishman, P.G., Salem, D.A., Allen, N.A. and Fahrbach, K. 2001. "Facilitating interorganizational collaboration: The contributions of interorganizational alliances." *American Journal of Community Psychology* (29:6), pp.875-905.
- Gkeredakis, M. and Constantinides, P. 2019. "Phenomenon-based problematization: Coordinating in the digital era." *Information and Organization* (29:3), pp. 1-12.
- Hardy, C., Phillips, N. and Lawrence, T.B. 2003. "Resources, knowledge and influence: The organizational effects of interorganizational collaboration." *Journal of Management Studies* (40:2), pp.321-347.
- He, Q., Meadows, M., Angwin, D., Gomes, E. and Child, J. 2020. "Strategic alliance research in the era of digital transformation: Perspectives on future research." *British Journal of Management* (31:3), pp.589-617.
- Helfat, C.E. and Winter, S.G. 2011. "Untangling dynamic and operational capabilities: Strategy for the (N) ever-changing world." *Strategic Management Journal* (32:11), pp.1243-1250.
- Helfat, C. E., S. Finkelstein, W. Mitchell, M. Peteraf, H. Singh, D. Teece and S. Winter. 2007. *Dynamic Capabilities: Understanding Strategic Change in Organizations*. Oxford: Blackwell.
- Johansson, M. 2012. "Interaction in dynamic networks: Role playing and its implications for innovation." *The IMP Journal* (6), pp. 17-37.
- Kallinikos, J., Aaltonen, A., and Marton, A. 2013. "The ambivalent ontology of digital artifacts." *MIS Quarterly* (37:2), pp. 357-370.
- Keen, P. and Williams, R. 2013. "Value architectures for business: Beyond the business model." *MIS Quarterly* (37:2), pp. 643-648.
- Kock, N., Gallivan, M.J., and DeLuca, D. 2008. "Furthering information systems action research: A post-positivist synthesis of four dialectics." *Journal of the AIS* (9:2).
- Majchrzak, A., Jarvenpaa, S.L. and Bagherzadeh, M. 2015. "A review of interorganizational collaboration dynamics." *Journal of Management* (41:5), pp.1338-1360.
- Mamédo, D., Rocha, C., Szczepanik, D. and Kato, H. 2019. "Strategic alliances and dynamic capabilities: A systematic review." *Journal of Strategy and Management* (12:1), pp. 83-102.

- Matavire, R. and Brown, I., 2013. Profiling grounded theory approaches in information systems research. *European Journal of Information Systems*, (22:1), pp.119-129.
- Osorio, F., Dupont, L., Camargo, M. and Peña, J. 2019. "Constellation of Innovation Laboratories: A Scientific Outlook." *2019 IEEE ICE/ITMC*, pp. 1-10.
- Park, J. and Chung, E., 2021. "Learning from past pandemic governance: Early response and Public-Private Partnerships in testing of COVID-19 in South Korea." *World Development* (137), pp.1-22.
- Reypens, C., Lievens, A. and Blazevic, V. 2021. "Hybrid Orchestration in Multi-stakeholder Innovation Networks: Practices of mobilizing multiple, diverse stakeholders across organizational boundaries." *Organization Studies* (42:1), pp.61-83.
- Sandberg, E., Kindström, D. and Haag, L. 2021. "Delineating interorganizational dynamic capabilities: A literature review and a conceptual framework." *Journal of Inter-Organizational Relationships*, pp.1-16.
- Simha, A. and Kishore, R. 2011. "Social Capital and IT as predicates of Collective Mindfulness and Business Risk Mitigation: A Grounded Theory Development". *ICIS 2011 Proceedings*. 32.
- Strauss, A. and Corbin, J., 1998. *Basics of qualitative research techniques*. Thousand Oaks, CA: Sage publications.
- Sun, R., Gregor, S., & Felt, E. 2021. "Generativity and the paradox of stability and flexibility in a platform architecture: A case of the Oracle Cloud Platform." *Information & Management* (58:8), p.103548.
- Surman, T., and Surman, M. 2008. "Listening to the Stars: The Constellation Model of Collaborative Social Change." *Social Space*, pp. 24-29
- Teece, D.J., & Pisano, G. 1994. "The dynamic capability of firms: An introduction." *Industrial and Corporate Change* (3:3), pp. 537-556.
- Teece, D. J. 2007. "Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance." *Strategic management journal* (28:13), pp. 1319-1350.
- Teece, D.J., Pisano, G. & Shuen, A. 1997. "Dynamic capabilities and strategic management." *Strategic Management Journal* (18:7), pp. 509-533.
- Urquhart, C. 2002. "Regrounding grounded theory-or reinforcing old prejudices? A brief reply to Bryant." *Journal of Information Technology Theory and Application (JITTA)* (4:3), p.5.
- Urquhart, C. and Fernández, W., 2016. "Using grounded theory method in information systems: The researcher as blank slate and other myths." In *Enacting research methods in information systems: Volume 1* (pp. 129-156). Palgrave Macmillan, Cham.
- Williams, A., Whiteman, G. and Parker, J.N. 2019. "Backstage interorganizational collaboration: Corporate endorsement of the sustainable development goals." *Academy of Management Discoveries* (5:4), pp.367-395.
- Winter, S.G. 2000. "The satisficing principle in capability learning." *Strategic Management Journal* (21:10-11), pp.981-996.
- Yoo, Y., Henfridsson, O., and Lyytinen, K. (2010). Research commentary—the new organizing logic of digital innovation: an agenda for information systems research. *Information Systems Research*, (21:4), pp. 724-735.
- Zittrain, J. 2006. The Generative Internet. *Harvard Law Review* (119:7), pp. 1975-2040.
- Zollo, M., & Winter, S. G. 2002. Deliberate learning and the evolution of dynamic capabilities. *Organization Science*, (13:3), pp.339-351.