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Aug 10th, 12:00 AM

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### Recommended Citation

Queiroz, Magno and Anand, Abhijith, "Theorizing Agency and Temporality in IT-Enabled Competitive Actions" (2022). *AMCIS 2022 Proceedings*. 12.

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# **Theorizing Agency and Temporality in IT-Enabled Competitive Actions**

*Emergent Research Forum (ERF)*

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## **Abstract**

This paper seeks to extend earlier treatments of the relationship between information technology (IT) resources and competitive actions to explicitly account for the roles of human agency and temporality, which have not been adequately addressed in prior research. It draws on the literatures on competitive dynamics and time-situated agency to understand and explain the role of managers in formulating and executing IT-enabled competitive actions. We discuss insights from a review of the extant literature and argue that further inquiry is warranted to understand how the agency of managers shapes the development and execution of two types of IT-enabled competitive actions, i.e., proactive actions and reactive actions. In this research-in-progress paper, we address this issue and present a set of propositions to serve as the basis for a new theory of agency and IT-enabled competitive actions.

## **Keywords**

Agency, temporality, IT resources, competitive actions.

## **Introduction**

Delivering value from information technology (IT) resources remains an important theoretical and managerial challenge (Kappelman et al. 2020; Queiroz et al. 2022). This will become increasingly important as emerging technologies, e.g., big data analytics, machine learning, and artificial intelligence enable organizations to create and capture value in new ways. Several theoretical perspectives have been employed in prior literature to explain the organizational mechanisms through which IT resources create value for firms. Largely, these studies model firm performance as a function of the IT or organizational capabilities an organization possesses (Saldanha et al. 2017) or as a function of the characteristics of IT resources, specifically the valuable, rare, inimitable and non-substitutable properties of resources following a resource based view (RBV) (Drnevich and Croson 2013).<sup>1</sup> A key argument underpinning extant literature is that IT resources enable competitive actions, which in turn enhance firm performance (Chi et al. 2010; Roberts and Grover 2012; Sambamurthy et al. 2003; Vannoy and Salam 2010).

Extant literature has long recognized that IT competencies enable organizations to take more frequent and complex competitive actions, resulting in improved firm performance (Sambamurthy et al. 2003, p. 239). For example, researchers have examined how web-based customer infrastructure and customer agility influence the efficacy of competitive actions (Roberts and Grover 2012), the role of IT-enabled searching, sensing, and responding capabilities in facilitating competitive actions (Anand et al. 2020; Chi et al. 2010), and the role of information systems (IS) in the process by which competitive actions are conceived, enacted, and executed (Vannoy and Salam 2010). However, to date, this research stream has mainly focused on the characteristics of IT resources and the types of IT capabilities that can enable competitive actions. Human agency—while central to the formulation, enactment, and execution of competitive actions—remains under-theorized in models linking IT resources to competitive actions and

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<sup>1</sup> We adhere to Drnevich and Croson's (2013) definition of resources as profit-producing assets that can be transferred from firm to firm without significant loss of value. In line with this definition, (a) IT resources refer to profit-producing IT assets, and (b) IT assets refer to profit-producing technology assets such as applications.

firm performance. Here, we refer to human agency as “the inherent capacity of human actors to form goals and to intentionally take action to achieve those goals in various environments and under different social contexts” (Nevo et al. 2016, p. 160). The absence of human agency in models linking IT-enabled competitive actions to performance outcomes limits our understanding of how managers leverage IT resources to enable different types of competitive actions and the consequences of any counter moves taken by competitors.

This is an important gap in our understanding for two reasons. First, research on time-situated self-agency suggests that the temporal orientation of organizational actors can influence their behavior and decisions (Emirbayer and Mische 1998; Nevo et al. 2016). For example, Nevo et al. (2016) propose a time-embedded agency-based model that focuses on actors’ relationships to IT in the context of IT reinvention efforts. They argue that users may “project themselves hypothetically into the future and imagine the benefits they would derive and challenges they would face with new technologies” (p. 158). Similarly, according to this perspective, managers can project themselves hypothetically into the future and imagine the benefits they would derive from IT-enabled competitive actions. Hence, managers’ temporal orientation can influence their priorities and the types of competitive actions that they formulate and execute. Second, although the use of IT to enable competitive actions cannot be separated from firms’ competitive landscape, we find that the interplay between human agency and the firm’s business environment is currently under-theorized. This limitation requires further consideration for two reasons. One, it obscures the role that managers play in selecting and undertaking competitive actions that leverage IT resources. In addition, it under-emphasizes the impact of the business environment under which value is created. Given that organizational actors “pursue their goals by transforming structures, such as resources and schemas” (Nevo et al. 2016, p. 160), human agency and the business environment should be integral to our models as they shape and constrain the benefits that firms derive from IT resources. Prior research shows that competitive actions often trigger responses from competitors (Derfus et al. 2008), which in turn influence how much and for how long a firm will benefit from the initial IT-enabled competitive actions. Such competitive dynamics are important as they encompass external contextual conditions that influence human agency, the types of IT-enabled actions executed by the focal firm, and the frequency and speed of rival actions (Crant 2000; Derfus et al. 2008).

This study examines the roles of agency and temporality in IT-enabled competitive actions. The study is guided by the following research questions: *RQ1: How does temporally oriented agency influence the formulation and execution of IT-enabled competitive actions? RQ2: How do the performance outcomes of these competitive actions change over time in response to competitors’ counter actions?* In this conceptual study, we provide the basis for a new theory of agency and IT-enabled competitive actions. The central thesis of our study is that (a) the temporal orientation of managers informs the type of IT-enabled competitive actions they pursue, and (b) that the performance consequences of counter actions by competitors vary as a function of the type of IT-enabled competitive actions undertaken by the focal firm.

## Human Agency and Competitive Actions in Extant Literature

Extant research on the impacts of IT resources has given limited attention to the roles of agency and competitive actions. As shown in Table 1, the role of human agency in creating value from IT resources does not find explicit mention in many of the models employed in extant research. For instance, the RBV-based literature focuses on certain properties of an organization’s resource base in explaining value creation (Drnevich and Croson 2013). The later dynamic capabilities view extends the RBV by including the roles of two key organizational processes, search and selection and asset orchestration (Steininger et al. 2022). While those processes are no doubt executed by human actions, the dynamic capabilities-based view also does not explicitly include a role for human agency (Steininger et al. 2022).

| Study                   | Type | Role of Human Agency | Role of Competitive Actions |
|-------------------------|------|----------------------|-----------------------------|
| Wheeler (2002)          | C    | Yes                  | X                           |
| Ray et al. (2005)       | E    | X                    | X                           |
| Fink and Neumann (2007) | E    | X                    | X                           |

|                           |   |            |            |
|---------------------------|---|------------|------------|
| Chi et al. (2010)         | E | X          | <b>Yes</b> |
| Pavlou and El Sawy (2010) | E | X          | <b>Yes</b> |
| Roberts and Grover (2012) | E | X          | <b>Yes</b> |
| Chae et al. (2014)        | E | X          | X          |
| Kettinger et al. (2015)   | E | <b>Yes</b> | X          |
| Roberts et al. (2016)     | E | <b>Yes</b> | X          |
| Saldanha et al. (2017)    | E | X          | X          |
| Queiroz et al. (2018)     | E | X          | X          |
| Sabherwal et al. (2019)   | E | X          | X          |
| Li et al. (2019)          | E | X          | <b>Yes</b> |
| Luo et al. (2020)         | E | X          | X          |
| Xue et al. (2021)         | E | <b>Yes</b> | X          |

Notes: X = not explicitly accounted for; Yes = explicitly accounted for; E = empirical; C = conceptual.

**Table 1. Selected Research on the Organizational Impacts of IT Resources**

## Toward a Theory of Agency and IT-Enabled Competitive Actions

We apply temporally oriented agency as a foundational lens through which to understand the role of managers in IT-enabled competitive actions. Emirbayer and Mische (1998) argue that actors' goals and actions are informed by relations among the past (e.g., past experiences and habits), present (e.g., current resource constraints), and future (e.g., imagination and possibilities). They identify three forms of temporally oriented agency: iterative (past-oriented), practical-evaluative (present-oriented), and projective (future-oriented). In *iterative agency*, actors look for similarities between previous experiences and emerging events and as such past experiences become stabilizing forces. In *practical-evaluative agency*, actors are primarily influenced by present events and experience a sense of urgency due to forces and pressures of the current environment. In *projective agency*, actors project themselves hypothetically into the future and imagine the benefits they would derive from initiatives such as new competitive actions. Typically, one temporal dimension sets the dominant tone for actors' sensemaking and actions (Emirbayer and Mische 1998; Nevo et al. 2016). Competitive action decisions are forward-looking, and therefore iterative agency provides sub-tones for decisions that are driven either by future narratives (in which case projective agency is the dominant tone) or pressures of the current environment (in which case practical-evaluative agency is the dominant tone).

Since competitive actions can be performed reactively or proactively (Ferrier et al. 1999), the temporal orientation of managers can determine whether they pursue reactive actions, whereby managers react to continuous forces and pressures of the marketplace (which is consistent with practical-evaluative agency) or proactive actions, whereby managers create new forces and pressures in the marketplace (which is consistent with projective agency) (Crant 2000; Ferrier et al. 1999). Put differently, we argue that managers' temporal orientation influences the type of IT-enabled competitive actions they pursue. Thus:

**Proposition 1:** Managers are more likely to undertake IT-enabled proactive actions rather than reactive actions when projective agency is the dominant temporal tone informing their actions.

**Proposition 2:** Managers are more likely to undertake IT-enabled reactive actions rather than proactive actions when practical-evaluative agency is the dominant temporal tone informing their actions.

Drawing on the literature on competitive dynamics (Derfus et al. 2008), we use the theoretical lens of Red Queen competition to understand the performance implications of IT-enabled competitive actions. The view of Red Queen competition depicts performance variations between a focal firm and its primary competitors as a function of a competitive race. Under Red Queen competition, the focal firm's performance depends on its responses to the actions of rivals (Derfus et al. 2008; Ho et al. 2017). We propose that further theorizing is needed to understand the consequences of IT-enabled competitive actions under Red Queen competition. Based on the view of Red Queen competition in conjunction with our theorizing on temporally oriented agency, we argue that IT-enabled reactive actions will initially help firms minimize short term performance declines. Afterwards, these reactive actions will help firms achieve at least competitive parity in the marketplace (Chi et al. 2010; Ferrier et al. 1999). Conversely, IT-enabled proactive actions allow firms to initially enjoy short-term benefits due to a first-mover advantage (Li et al. 2010; Sambamurthy et al. 2003). Then, performance is likely to decline due to competitors' counter actions as per the dynamics of Red Queen competition. Over time, a series of IT-enabled proactive actions will result in a series of short-term temporary advantages for the focal firm (D'Aveni et al. 2010). Formally:

**Proposition 3:** In the aftermath of IT-enabled proactive actions, firms will enjoy short-term advantages (at time t<sub>1</sub>) before a decline in performance (at time t<sub>2</sub>) due to the Red Queen effect arising from competitors' counter actions. Over time, this dynamic will be reflected in a series of short-term temporary advantages for the focal firm.

**Proposition 4:** In the aftermath of IT-enabled reactive actions, firms will either minimize short-term declines in performance or improve their performance in absolute terms (at time t<sub>1</sub>). However, over time, performance relative to competitors will move towards parity (at time t<sub>2</sub>).

## Next Steps

In the next phase of this study, we will further develop the propositions outlined above. Moreover, we will explore a second dimension of the type of competitive actions, i.e., whether actions are strategic or operational, to develop our theory of agency and IT-enabled competitive Actions.

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