# INTERORGANIZATIONAL IMITATION HEURISTICS ARISING FROM COGNITIVE FRAMES

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**Abstract**

The literature on organizational imitation mostly disregards its cognitive aspect. Yet, imitation is a cognitive heuristic for complex strategic decisions. The current essay draws a unifying framework of different models of imitation through a cognitive lens in the context of innovation adoptions. It describes the interaction of the framing of imitation and the organization's evaluation of an innovation. This interaction of threat and opportunity categorizations results in the use of various combinations of the two most popular imitation heuristics – "imitate the successful" and "imitate the majority" – as managers decide to copy predecessors in order to improve the status quo or to avoid losing it. Since the framings dictate different imitation timings, the speed of innovation diffusion depends on these interactions. However, as different cognitive frames may trigger the same heuristics, generalizations about the adoption motivation based on its timing can be unrealistic. Thus, this study contributes to the organizational learning literature by theorizing that not only past experience, but also social learning is subject to interpretations resulting in the use of different imitation heuristics. It also contributes to the decision-making literature by suggesting that complex decisions such as innovation adoption depend on the employment of imitation heuristics from Gigerenzer's adaptive toolbox.

Keywords: imitation heuristics, managerial cognition, frames, innovation adoption

## 1. Introduction

At the core of every organizational action is the decision-making process. There is substantial literature documenting that individuals and, by extension organizations, rely on social learning or imitation in the decision-making process (Henrich, 2001). Imitation is especially useful when time and knowledge are limited (Gigerenzer, Todd, the ABC research group, 1999), which is often the case with innovation adoptions. Moreover, imitation might be the preferred strategy even when subjects have access to objective information to evaluate the object of imitation (Offerman and Sonnemans, 1998; Vermeulen, 2010). Thus, imitation heuristics may lead to the "less-is-more" effect discussed by Gigerenzer (2008). Due to the pervasiveness of imitation, several recent studies have drawn the attention to the need to reconsider and re-assess some well-known models of organizational motivations for adoption of new practices (Cheng, 2010; Kennedy and Fiss, 2009). These studies question DiMaggio and Powell's (1983) model where early adopters aim to build knowledge and later adopters respond to legitimacy pressures and Tolbert and Zucker's (1983) model where early adopters pursue technical gains and later adopters seek the social benefits of legitimacy. According to the classical models, the early adopters do not imitate, but assess the technical value of an innovation whereas later adopters primarily imitate due to social pressure. The new critiques demonstrate that organizations can be jointly affected by technical efficiency/building knowledge motives and by social ones. That is, early adopters may have legitimacy motivations to imitate as well as efficiency reasons.

In fact, since organizational learning has three sources according to Levitt and March (1988) – direct experience, the interpretation of the experience, and the experience of others – social imitation appears to be the only feasible option before the adoption of an innovation. The authors discuss learning from the experience of others almost exclusively from the institutional perspective where imitation occurs because of institutional pressures on organizations "to demonstrate that they are acting on collectively valued purposes in collectively valued ways" (p.330). Huber (1991) also notes that research has not learned much about social learning beyond the fact that it occurs. This prompts Scott (1992) to comment that institutionalists tend to focus only on the normative while ignoring the cognitive frameworks of the imitation phenomenon. On the other hand, psychologists acknowledge a deficiency in research on the role social imitation plays in decision making (Hastie, 2001). This is also evident in the studies of

Gigerenzer and colleagues on decision making who put imitation among the set of heuristics, building blocks, and core capacities, which they term "the adaptive toolbox," yet devote considerably less time on the study of imitation compared to other heuristics in the toolbox such as recognition, take-the-best, 1/N, etc. (Gigerenzer, 2008; Gigerenzer and Gaissmaier, 2011).

The current study aims to augment the organizational learning model by discussing the cognitive trigger of the imitation decision. Levitt and March (1988) describe how organizations build routines by encoding lessons from history and storing them in the organizational memory. However, the encoding of the historical events depends on who does it and how they have perceived the outcome associated with those events. That is, past experience is subject to interpretations. Similarly to past experiences, imitation reasons can be coded as good or bad. The contribution of this study is to explicitly put in the picture of organizational learning the interpretation of the experience of others. In this way it also answers the call for special attention to social learning in the broader study of bounded rationality (Garcia-Retamero, Takezawa, and Gigerenzer, 2009) As Bandura (2006) states from the cognitive perspective of social learning theory, the "observers function as active agents who transform, classify, and organize" the observed actions by others rather than as cameras that store "isomorphic representations" (p.21). The major point is that the experience of others would have different learning values across organizations because they employ different cognitive frames. In particular, the focus is on the decision to imitate and its interpretation. The idea resonates with the assertion of Fiol and Connor (2003) that one of the key determinants of jumping on the bandwagon is the accuracy of managers' perception of the value of imitation.

The current essay serves two purposes. First, it responds to calls of filling the gaps in the extant literature of a more comprehensive theory of imitation and of deeper understanding of the cognitive processes behind imitation (Ordanini, Rubera, and DeFillippi, 2008) as well as exploring interactions between mimetic and experiential learning (Lieberman and Asaba, 2006). The latter authors point out that the literature streams on imitation and organizational learning have developed independently of each other. The current study builds on the Jonsson and Regner's (2009) premise that the imitation effort consists of three parts: identification of the subject of imitation, willingness, and ability to imitate. It offers a more comprehensive model of learning through the interaction of the interpretation of others' experience and the organization's own evaluation of the potential innovation, which translates into the interaction of the

identification and willingness to imitate parts. Its major claim is that it is this interaction of interpretations, which ultimately shapes the organization's adoption decision. Because the interactions can result in various types of responses over time, generalizations about the adoption motivation based on its timing are bound to be not completely accurate. Second, it provides a unified framework of all different models on mimetic behavior in the management, organizations, and economics literatures. Most prior studies explain imitation through tackling its different aspects and settings resting on different theoretical traditions. The current one encompasses those streams by putting a cognitive lens on the imitation decision. To that extent, I take the position of Ordanini et al. (2008) and view imitation as an intended decision on behalf of the decision-maker in response to observing other actors' behavior. The distinction is necessary as the earliest explanations in psychology of imitative behavior claimed that it is instinctive (Bandura, 2006), which is echoed in economics and management theories referring to organizations' "propensity to imitate" (Bikhchandani, Hirshleifer, and Welch, 1998; Hodgson and Knudsen, 2004). In contrast, this article claims that managers' interpretations of the potential efficiency of the innovation adoption and the learning from the prior adopters' experience lead to the employment of different imitation heuristics. It describes mechanisms leading to the utilization of two heuristics from Gigerenzer's adaptive toolbox that have received relatively little attention – "imitate the majority" and "imitate the successful". Bringing in this cognitive perspective can enrich our understanding of mimetic behavior and the timing of innovation adoptions.

## 2. Theoretical background

The paper builds on the following lines of reasoning and existing theories. First, it subscribes to Simon's (1955) assertion that "organisms" facing a choice are not unboundedly rational. Without disregarding the vast research on decision-making in organizations and the differences between organizational and individual decision-making, I use interchangeably the following terms: organization, decision-maker, management/managers. They are all meant to represent the nucleus of an organization responsible for strategic decisions. Similarly, I use

novelty, issue, innovation to mean an innovation in technology, practice, process, etc. that an organization is contemplating adopting. Second, since often in the organizational context these issues are uncertain, complex, ambiguous, and unpredictable, the decision makers resolve to cognitive heuristics from the adaptive toolbox of Gigerenzer et al. (1999). Social learning or imitation belongs to the adaptive toolbox (Gigerenzer and Brighton, 2009; Goldstein et al., 2001) and is a highly adaptive strategy in various environments (Henrich, 2001). Even though imitation is a widespread heuristic, there are still questions as to why, when, and what type of imitation decision-makers use (Goldstein et al., 2001). I use the terms imitate/imitation, mimetic behavior, follow, and copy interchangeably to mean organizations repeating an action that their predecessors have taken. Third, studies have indicated that organizational decisions are based on the framing of choice (Barr, 1998; Dutton and Jackson, 1987). Barr (1998), in particular, shows that event interpretation is strongly linked to the type of organizational response. This leads to the core proposition that the choice of an imitation strategy depends on the cognitive frame the decision maker puts on the observed behavior of others. The two sections below give a brief overview of managerial cognition and imitative behavior and their links to the current study appear in following section, which brings forth the unifying model.

### *2.1. Managerial decision-making, cognition and framing*

Managers avoid complex problems and instead prefer shortcuts and mappings of complex situations to a more familiar and less complex ones engaging in heuristic-type reasoning (Moldoveanu, 2009; Ross, Moore, and Staelin, 2000). While the management literature has generally referred to heuristics in negative terms as examples of irrational behavior (Holcomb, Ireland, Holmes, and Hitt, 2009), a recent study finds that organizations that develop a portfolio of heuristics can achieve superior performance as heuristics proxy for complex information (Bingham and Eisenhardt, 2011). Imitation is a cognitive shortcut (Goldstein et al., 2001). Consequently, managers' preference for shortcuts offers a good explanation of the observation that imitation is one of the most frequently used problem solving tactics by companies (Nutt, 1998). In that sense, mimetic behavior is the result of cognitive limitations. But, this is not a deficiency. In fact, according to some theories, it is exactly the evolved superior instinct and

abilities to learn via imitation that separates humans from primates (Tomasello, 2000). However, the diverse streams on organizational imitation have developed almost entirely disregarding its cognitive aspect.

While at earlier stages of child development, imitation is instinctive (Tomasello, 2000), as the brain matures, it becomes a conscious decision. The question, then, is how managers reach the conscious decision to imitate. Well documented research shows that managers make sense of the environment through cognitive frames (Kaplan, 2008; Walsh, 1995). Frames are especially relevant in situations of high uncertainty as managers attempt to decipher ambiguous signals (Kaplan, 2008). There is a broad understanding that managers have to first interpret the situations they are facing before they take any actions (Thomas, Clark and Gioia, 1993). In support, Barr (1998) attunes to the following realities: on one hand, firms are frequently facing unfamiliar events or choices, and on the other hand, various studies have established that leaders initiate organizational change only after framing the issue at hand. In addition, interpretations of "opportunity" and "threat" impact in a significant way the strategic decision. She summarizes several empirical tests consistently showing that opportunity interpretations incite offensive-type actions and threat interpretations – defensive-type actions and in extreme cases – resistance. Most importantly, the author shows that interpretations of key firm-level activities change over time in result to environmental adaptation (Barr, 1998).

### *2.2. Social learning and imitation*

The theory of social learning is based on the idea that individuals can learn by observing the behavior of others (Bandura, 2006). While some researchers refer to social learning as imitation, Gioia and Manz (1985) reiterate that Bandura's original concept is based on a more complex phenomenon, which occurs through the following subprocesses: attention, retention, reproduction, and motivation. In that sense, I recognize that imitation is part of social learning, which is a broader concept. Although I use the terms somewhat interchangeably, the readers should not remain with the impression that social learning is only imitation. (For example, one of Bandura's experiments shows how children learn not to imitate a behavior, which has resulted in negative consequences for the originator.) However, my focus is on imitation, thus, whenever I use the term "social learning" it refers to the imitative part of the theory.

Imitation has been documented both among animals and humans. There are two major motives for imitation in nature. One is to acquire more resources. From bird migrations and foraging to new market entry, copying with the aim of improving current conditions is widespread in nature and organizations. The other major imitation driver is danger avoidance and ultimately survival. For example, imitation in food intake serves as a mechanism to avoid the threat of poisoning. Not imitating is a sufficient enough threat so that young rats would not touch any food to which they have not been introduced by their elders (Galef and Laland, 2005).

At a more evolved level, Henrich (2004) talks about the difference between *conformist transmission* ("propensity to preferentially copy high frequency behaviors", p.20) and *normative conformity* (the propensity to alter "individuals' socially displayed behavior (without necessarily changing their minds) because they want their behavior to match the majority, not because they 'believe' the majority is probably doing the smart thing", p.23). He suggests that while the first one has evolved as a shortcut of useful learning, the second one might have evolved in response to group punishment of non-conforming members. In addition, Henrich (2004) describes *prestige-biased transmission* ("cognitive abilities to rank potential models according to their payoffs and to preferentially imitate highly ranked models", p.21). For example, experiments have shown that investors tend to copy the behavior of successful individuals even when they clearly know that they have access to the same information (Offerman and Sonnemans, 1998). Such findings point towards the idea that imitation might be a deeply ingrained heuristic due to its ecological rationality. Gigerenzer (2008) defines ecological rationality as the study of environmental structures under which different heuristics succeed or fail. A heuristic is ecologically rational if it outperforms other decision making tools given certain environmental conditions.

Imitation is a fast and frugal strategy that saves resources compared to extracting information from the environment (Goldstein et al., 2001). However, at the organizational level, theoretical models often view imitation as a deviation from rational behavior or suboptimal strategy (for reviews of the literatures see Lieberman and Asaba, 2006 and Ordanini et al., 2008). Only recently, scholars have started acknowledging that, in general, firms benefit from imitation (Csaszar and Siggelkow, 2010). These tensions might be the result of two conflicting predictions and empirical results concerning the conditions under which imitation is beneficial. Goldstein et al. (2001) summarize that imitation is not a good strategy in rapidly changing environments.

This is so because a strategy that might have been successful prompting other organizations to start imitating it, might turn not so successful under different environmental conditions. On the other hand, there is plenty of evidence that reliance on imitation increases with environmental uncertainty (Henrich, 2004). But rapidly changing environments increase uncertainty, thus resulting in the paradoxical situation of higher rates of imitation under less desirable conditions. This might offer an explanation of some of the infamous failures of imitation resulting in what economists like to refer to as irrational aggregate market behavior. The proposed model below would offer an explanation by showing how cognitive frames play a role in the imitation decision.

## 3. Imitation and cognitive framing

Conceptually, the model builds on the theoretical development of Kennedy and Fiss (2009) who make an important step towards recognizing the role of motivations behind an adoption decision. The current study takes an extra step and offers a more comprehensive treatment of the categorization of motives. Kennedy and Fiss (2009) claim that a firm facing a new situation (they use the umbrella term "issue", which I adopt in the current study) would interpret it as an opportunity based on either perceived economic gains or social gains. They present the addition of social gains as a major contribution over the classic two-stage model of adoption depicting early adopters as seeking economic and technical gains and later adopters as seeking the social benefits of legitimacy (Tolbert and Zucker, 1983). I agree that social motivations should be accounted for, but I am not convinced that they are separable from economic motivations. In fact, the authors cite several studies arguing that segregating economic and social motivations is problematic. The results from their empirical study support my reasoning that both early and late adopters are motivated by economic gains. In addition, the results related to social gains and losses are questionable. In fact, the authors' measure for social gains – a Likert scale item about the importance of being perceived as a market leader – loads on the same factor as economic gains and the correlation between economic and social gains is 38%. The results are not surprising since economic gains are associated with being a market leader (Lieberman and Montgomery, 1988; Robinson, Kalyanaram, and Urban, 1994). Further, even though later adopters cannot have the motivation of being perceived as market leaders by

definition, achieving social gains as opposed to avoiding social losses may still motivate them. For example, some organizations might purposefully wait for a practice to be legitimized before adopting it so that they are regarded as smart learners.

Taking into account the above reasoning, I propose the following way of looking at the decision making path concerning an action on a particular issue (e.g. innovation adoption). The goal is to look at the decision making sequence and its framing. According to Jonsson and Regner's (2009), there are three stages in this sequence: the identification of what to imitate, the willingness, and the ability to imitate. (I am concerned only with decisions and actions leading to imitation, therefore the analysis automatically excludes the cases when the organization is unable to imitate. Consequently, the current study focuses only on the identification and willingness stages. These stages parallel Bandura's (2006) concepts of attention/retention and motivation in his social learning theory.) The process I describe starts right after the identification of the issue, which may be framed as an opportunity or a threat based on various economic and social criteria. This, however, is neither a dichotomous nor a static categorization. Very often the organization would need additional information before it takes action. According to evolutionary theory, a great deal of information gathering occurs through social learning. Lee, Smith, and Grimm (2003) argue that firms evaluate potential innovations and then they decide on the adoption under the influence of industrial pressures and norms. Consequently, the next question is whether to imitate prior adopters. Next, the decision-maker frames the question, which corresponds to the evaluation of the willingness stage. This leads to the contribution of the current study – in order to respond to the experience of others, organizations need to interpret it through a cognitive frame. My contention is that managers classify the imitation decision as either an opportunity or a threat before they mobilize the organization to act on it. The imitation interpretation interacts with the issue interpretation to determine the course of action. This process is illustrated in Figure 1.

Indeed, as Witt (2000) notes, the formation and change of cognitive frames is affected to a great extent by social learning processes. Copying is one of the most often used heuristics in organizations for problem solutions (Nutt, 1998) and as such may even override the issue interpretation. Specifically, managers look at the imitation act either as an opportunity as such behavior would bring economic and/or social gains or conversely, they consider not imitating as a threat, which would leave the organization behind its competitors resulting in economic and/or

social losses. It is important to note that the model illustrates only the triggers of imitation. Thus, it is perfectly possible that managers perceive imitation as a threat or non-imitation as an opportunity and in both cases such framings would result in non-imitation. But since my focus is on imitation, I leave these options outside of the scope of the current study.

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Insert Figure 1 about here

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To see why framing imitation plays an important role in the adoption decision, it is useful to draw parallels to the existing literature. First, the psychology literature has shown that emotions are crucial in the decision-making process as absence of such leads to the inability to choose between alternatives since each alternative is examined in countless details (Damasio, 1994; Slovic, Finucane, Peters, and MacGregor 2007). This is the equivalent to plunging into a regressive cost-benefit analysis prescribed by the rational choice model and discussed in Gigerenzer et al. (1999). On the other hand, numerous studies in management have explored the linkages between cognition, sensemaking, and decision making (Kaplan 2008; Thomas et al., 1993). According to Greve (1998), managers' mental models affect the strategic decisions they make and Dobrev (2007) suggests that imitation for organizations may be a way of interpreting reality. In particular, decision makers attach meaning to strategic issues by categorizing those using cognitive classifications. Some of the most salient such labels are opportunity and threat (Dutton and Jackson, 1987). Thus, issue interpretations and categorizations into opportunities and threats affect directly organizational actions (Thomas et al., 1993). The imitation decision is usually embedded in a complex environment since by definition it is a heuristic meant to overcome the lack of cognitive ability to make a fully informed decision. This in itself makes imitation a complex strategic decision. In such situations, behavioral theory studies have shown that decision makers concentrate on deviations from a reference point (Powell, Lovallo, and Fox, 2011), that is, they frame decisions as gains/losses or opportunities/threats. Further, framing an issue as an opportunity or a threat is associated with particular emotions (Mittal and Ross, 1998; White, Varadarajan, and Dacin, 2003). By corollary, framing and interpretation are such important building blocks of decision making because of the link to emotions. That is, absent cognitive classifications, decision makers would not be able to associate an issue with particular

affective markers resulting in lack of action. Social learning would not occur without sensemaking and imitation would not make sense without cognitive framing.

If cognitive framing is necessary for imitation to result in action, the next question to look at is what kind of actions. Prior studies have shown that different interpretations lead to different actions (Dutton and Jackson, 1987; Thomas et al., 1993). Gigerenzer and Brighton (2009) put two imitation strategies among the ten well-studied heuristics, which they assign to the adaptive toolbox for humans. The first one is "imitate the majority" (meaning do what most of the other actors do; Haunschild and Miner (1997) refer to it as frequency imitation), which works best in stable environments and when information search is costly. The second one is "imitate the successful" (meaning do what organizations with reputation of prior success do), which works best when individual learning is slow and information search is costly. To the interest of the study is the mapping of these strategies to the cognitive framing of imitation. There are three major reasons why copying other organizations' behavior might be perceived as an opportunity – 1) there are obvious payoffs which are greater than the status quo of the organization, 2) previous adopters have a good reputation for winning strategies, 3) there is a reason to believe that previous adopters have access to relevant information unavailable to the decision maker. On the other hand, imitation might be triggered by fear that failing to do what others are doing would lead to worsening of the status quo and even extinction. In fact, some researchers suggest that this is the primary reason of bandwagon behaviors (Abrahamson and Rosenkopf, 1993).

Henrich (2004) shows that one of the most adaptive strategies is "imitate the majority". According to him, people have natural tendencies to copy the most common behavior, which has applicability under a wide range of conditions. He distinguishes between conformist transmission and normative conformity as defined earlier. Because of its associations with positive outcomes, it is not difficult to draw the parallel between conformist transmission and opportunity framing. Conversely, normative conformity is most probably dictated by fear of punishment of non-conforming members of the group (Henrich, 2004). Thus, normative conformity would correspond to threat framing. Henrich (2004) also discusses a third mechanism of imitative learning – prestige-biased transmission, which is equivalent to "imitate the successful" strategy. People use this strategy, because they expect that it would bring them success, too and therefore, it is associated with opportunity framing.

The realm of management and economics literature discussing mimetic behavior is well summarized by Lieberman and Asaba (2006) and Ordanini et al. (2008). Lieberman and Asaba (2006) classify existing studies into information-based and rivalry-based imitation. Under the information-based category, organizations copy from their peers because of the accumulated information from predecessors. On the other hand, rivalry-based imitation is competition driven and organizations copy their rivals so that they are not left behind. The correspondence to opportunity and threat framings is easy to detect in this case, too. Ordanini et al.'s (2008) classification into search for effectiveness and risk reduction has direct links to opportunity and threat framings as well.

### *3.1. Interaction of issue and imitation framing*

Combining the above discussion with the framing of the issue, the following schematic combinations emerge. It is important to keep in mind that imitation in general is more likely to occur when uncertainty surrounding the issue is higher (Henrich, 2004; Lieberman and Asaba, 2006). Prior research suggests that variations in cognitive structure and beliefs would lead to differences in issue evaluation (Jonsson and Regner, 2009). Further, issue interpretation is not static and it is possible to change over time. In fact, if the situation is too complex, the decision makers would be less likely to categorize the issue (Moldoveanu, 2009) and social learning would have a greater influence on the outcome. It is conceivable that it is precisely through social learning that managers would ultimately frame the issue, which would dictate the action decision. The model below illustrates only the end points of the continuum threat-opportunity, but it is important to emphasize for future empirical studies that an issue can stand on any point of the continuum at a given time. It is more likely, though, that actions result after the issue interpretation polarizes towards either point – threat or opportunity.

The interaction between issue interpretation and imitation interpretation results in a two-by-two matrix, which appears in Figure 2, corresponding to the following states. The first one is the case when managers interpret both the issue and social learning as opportunities. As an example, imagine a firm is contemplating the entry of a new market. In general, the management considers the new market as a potential opportunity. However, there are uncertainties and the firm needs another signal from the environment before committing to a decision. Then, a

prominent competitor announces an entry into the market. The interpretation of this event might come as a confirmation that the new market is indeed a good opportunity. With congruence between the two framings – categorizing both the issue and the social learning aspect as opportunities – the likelihood of a more rapid action increases. Vermeulen (2010) describes an almost identical case where favorable research about the benefits of entering a new market failed to convince the CEO of a company to make a move, but when he saw his biggest competitor entering the market he decided to follow suit. This situation would correspond to prestige-biased transmission, "imitate the successful" heuristic, and information-based imitation. Empirical examples of organizations using the heuristic "imitate the successful" are well known in the literature as trait-based imitation (Haunschild and Miner, 1997; Haveman, 1993). These studies document the influence of large firms' adoptions of innovations. Competitors consider large organizations successful and this makes them quite visible. Thus, they would fall in the category of "the best" and "the successful" and firms that see the potential innovation in positive light would be fast to follow them. Because of the overlapping of the two interpretations, the more likely strategy to observe is "imitate the successful" and decision-makers in this category are likely to be earlier adopters. This leads to the following proposition:

**P1a**. Organizations that interpret both the issue and the imitation decision as an opportunity (O-O) use predominantly "imitate the successful" heuristic.
**P1b**. O-O organizations tend to be early adopters.

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Insert Figure 2 about here

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On the opposite end of the spectrum both in issue and imitation interpretation is the threat-threat situation. This is the case when the issue is interpreted as inherently risky and likely to hurt the organization, yet non-adopting might have detrimental social consequences. Because of the natural resistance to a threat-framed issue, decision makers are more likely to shun the adoption. These are situations when the adoption is perceived as too expensive, not compatible with the organization's culture/market, threatening to cannibalize current products, inducing channel conflict, leading to a crowded niche, etc. Consequently, the threat-framing organizations are likely to be laggards in the novelty diffusion process. However, once the inflection point is

reached and the novelty becomes legitimized and institutionalized, non-adopters start facing the risk of being singled out as outsiders and ultimately losing their market/constituencies. Moreover, research has shown that information search decreases and reliance on social learning increases under threat conditions (Boyd and Richerson, 1985), which corresponds to the right column of Figure 2. Thus, if this threat is perceived as strong enough, decision makers would adopt the novelty despite their own evaluation of the issue as a threat. The parallel is straightforward with normative conformity, which changes the socially displayed behavior, but not inner convictions (Henrich, 2004). The management literature has labeled similar situations as rivalry matching, legitimizing institutional pressures, etc. (DiMaggio and Powell, 1983; Lieberman and Asaba, 2006). Haunschild and Miner (1997) empirically confirm the occurrence of frequency based imitation, which is strengthened by uncertainty indicating isomorphic pressures. Palmer, Jennings, and Zhou (1993) show that late adoptions are more common in industries with higher prior adoption frequencies, which provides another support of mimetic adoption pressure. Studies have also documented that organizations adopting under normative conformity are more likely to just adopt the minimum that it takes to preserve their face. For example, Kennedy and Fiss (2009) report that organizations motivated by loss avoidance adopt the TQM (total quality management) practice at lower levels of implementation and Cheng (2010) shows that firms facing isomorphic pressures adopt new practices superficially.

Threat framing of the issue results in delayed or no action (Dutton and Jackson, 1987). While organizations are deferring the adoption and the diffusion is spreading, the non-adoption threat is growing as well. It is likely to become stronger than the negative issue framing when the majority of the population has adopted the innovation. Thus, by corollary the most likely used strategy is "imitate the majority", which drives the next proposition:

**P2a.** Organizations that interpret both the issue and the imitation decision as a threat (T-T) use "imitate the majority" heuristic.

**P2b.** T-T organizations tend to be late adopters.

Next, the attention turns to the case of non-overlapping cognitive frames. Such a situation may arise when a decision-maker perceives the issue favorably, but due to constraints, is not able to adopt the novelty immediately. Such constraints may be resource or legitimacy related.

Alternatively, some smaller organizations with limited information scanning resources may not learn about the novelty until it is widely diffused. In these cases the decision-makers frame the issue as an opportunity, but because of the delay of the adoption decision, perceive non-adoption as a threat. They might feel that they are too late in the game and they might be penalized if they continue postponing the adoption. Consequently, they are most likely to go by the "imitate the majority" heuristic. In addition, a prominent organization might feel threatened if its biggest rival adopts a promising innovation earlier. This would trigger the "imitate the successful" heuristic. Thus, when the adoption issue is viewed as an opportunity, but the non-adoption is perceived as a threat, social learning would occur either via conformist transmission or via prestige-biased transmission. Correspondingly, the observed behavior will be a mixture of information and rivalry-based imitation. This combination of interpretations can explain the delay in the spread of certain innovations. Henrich (2001) shows that 'the critical mass tipping-point' phenomenon is consistent with conformist transmission. For example, the adoption of the online channel by brick-and-mortar retailers in the US was sporadic between 1995 and 1998 even though during that time Amazon.com had become a phenomenon and the media was generally drumming the success stories of online ventures creating the conditions the Internet channel to be viewed as an opportunity. There was a pick-up in adoptions for the 1998 holiday season and ultimately by the 1999 holiday season transacting online had become imperative (Nikolaeva, 2006). Thus, many brick and mortar retailers did not adopt the channel until they started perceiving too much competitive pressure. This leads to the following proposition:

**P3a.** Organizations that interpret the issue as an opportunity and the imitation decision as a threat (O-T) use "imitate the successful" or "imitate the majority" heuristics.
**P3b.** O-T organizations tend to be on average middle to late adopters.

The last framing combination represents the case when the decision-maker perceives the issue as a threat, but sees opportunity in copying what others are doing. Henrich (2004) reports on different studies showing that individuals increase their reliance on imitation with the task's rising difficulty or rising financial incentives. Difficult tasks may be perceived as threats leading decision-makers to look for answers in the actions of others. Lee et al. (2003) confirm similar behavior in a number of product categories demonstrating that more radical innovations (i.e.

more complex to interpret and consequently more likely to be framed as threats) diffuse faster and to a greater extent. The authors attribute the findings to bandwagon pressures. If an organization has negative information about the issue, but sees a reputable organization adopt the novelty, the focal one might rationalize that its information is incomplete and the adopter has better information, therefore it might be beneficial to emulate it. This is an example of prestige-biased transmission. The situation corresponds to what economists call information cascade – actors ignoring their private information to follow previous adopters. Smith and Sørensen (2000) distinguish between information cascades and herd behavior. Both are forms of information-based imitation in Lieberman and Asaba's (2006) categorization, but whereas under information cascades individuals follow their predecessors ignoring their private information, herd behavior occurs when individuals make the same decision not necessarily ignoring their private signals. Therefore the threat (issue)-opportunity (imitation) combination would correspond to an information cascade and the opportunity (issue)-threat (imitation) one might correspond to herd behavior. The imitation opportunity signal has to be strong enough to overcome the threat-framing of the issue. Such a signal is more likely to come from actors who have very good prior records. In this case, it is likely to observe "imitate the successful" heuristic. To a lesser extent, decision-makers might be persuaded by the wisdom of the crowd and ignore their signals and use the "imitate the majority" heuristic. The last proposition is:

**P4a.** Organizations that interpret the issue as a threat and the imitation decision as an opportunity (T-O) use predominantly "imitate the successful" or to a lesser extent "imitate the majority" heuristic.

**P4b.** T-O organizations may be early to late adopters.

### *3.2. Contribution, implications and extensions for future research*

Figure 2 illustrates that only the conditions in propositions 1 and 2 can fit Kennedy and Fiss' (2009) model. While the authors talk about loss of social legitimacy as a threat of non-adoption, studies in psychology on conformity have shown that as the task difficulty rises, individuals are more prone to imitate even when they would not suffer social legitimacy losses (Henrich, 2004). That is, a decision-maker (a late adopter) may perceive the issue as a threat, but

the imitation decision as an opportunity – a situation, which is absent from the Kennedy and Fiss (2009) model. In addition, my model covers the whole range of early to late adopters and suggests that many of the mid-term adoptions are results of incongruent framing of issue and social learning. It conforms to the assertion of Jonsson and Regner (2009) that directing the attention to the identification and willingness to imitate opens a host of alternative explanations of imitation lags.

Further, the propositions do not rest on the assumption that interpretations are static. Whereas Barr (1998) asks how interpretations of key firm-level activities change with organizations' response to unfamiliar events, the current study can help explain how firms' interpretations of unfamiliar events change through social learning. The interpretation of others' experience serves as an updating mechanism for the interpretation of the novelty. The current model can also explain the failure of certain innovations to diffuse. If there are no strong initial signals about the merit of the innovation and neither such signals come from early adopters, then most organizations would stick to the "imitate the majority" heuristic, which would mean non-adoption. That is, the only adopters would be from quadrant one combination in Figure 2. Future studies should investigate empirically the resulting dynamics from the interaction of issue and imitation framing.

For example, Kaplan (2008) proposes a framing contest theory according to which an organization is a stage of a constant competition between different frames for the attention of the decision-maker. The framing of the imitation decision is not different and it is very likely that the timing of adoption is at least partially dependent on the different framing contests between issue and imitation interpretation. Therefore, an important implication of the current model is that it would be incorrect to infer adoption motivations from the timing of adoption. The framing contest idea, on the other hand, might offer better answers concerning adoption motives.

Another key question for future research concerns the imitation heuristics' adaptive ability or ecological rationality in the vernacular of Gigerenzer et al. (1999). Since most existing treatments of the problem in the literature are from the point of view of the rational "economic man", there is a general understanding that imitation is not a good thing. For example, Lieberman and Asaba (2006: 366) state: "Given the frequency of imitative behavior and the fact that societal outcomes are often negative, it is important that business researchers, managers and policy makers understand why imitation occurs and when it may have harmful implications."

There are several problems with this statement. First, although the authors acknowledge later that imitation can be beneficial, their claim that societal outcomes are often negative is not based on a formal study comparing beneficial to negative outcomes. Actually, there are many studies demonstrating that imitation strategies can be highly adaptive for different species (Henrich, 2004). Second, it is not clear how harmful implications are defined. In fact, managers and policy makers may have different objectives and what one group considers harmful the other group may consider beneficial. Third, outcomes may be defined in different terms at different levels. The concept of ecological rationality explores in which environments a heuristic succeeds and in which it fails (Gigerenzer et al., 1999). But success and failure can be dependent on the unit of analysis.

As a case in point of the failure of imitation, Lieberman and Asaba (2006: 380) give the example of the boom-bust cycle of e-commerce: "In retrospect, it is clear that much of the initial rush had been unnecessary and that it contributed to the magnitude of the collapse. Had more firms waited until major uncertainties resolved, many losses could have been avoided." It is true that many businesses incurred significant losses and many were forced to exit the market. From their perspective, imitation appeared not to have been an ecologically rational strategy. But if the level of analysis shifts to the population, a different picture emerges. The multitude of new businesses sped up the building of the e-commerce infrastructure in the U.S. as well as the consumers' acceptance and trust in the channel. Many of the assets of the failed firms were bought by later entrants at greatly reduced costs, which helped their future growth and the development of the channel. Based on companies' own analyses as evident from media reports, they would have underinvested in the channel and missed growth opportunities. In other words, imitation might have been the preferred simple strategy for the population, because it paved the way for continuous growth of the channel. Sornette (2008) supports the idea that bubbles may be necessary, because they ultimately produce positive value. Another example that he brings up is the overinvestment in railways in Britain, which helped the country build a very good network facilitating the industrial revolution. Thus, even if a heuristic appears not to be ecologically rational at the individual unit of analysis, it might improve adaptation of the population. Further research needs to investigate this proposition.

## 4. Concluding remarks

The current study contributes to the existing literature on inter-firm imitation in several ways. First, it brings back cognition to the study of imitation – a link that has been almost entirely missing from the literature. Yet, imitation is above all a cognitive ability and a far superior one in humans compared to any other species (Tomasello, 2000). Thus, the lack of cognitive treatment of imitation in literature constitutes a big and surprising gap. In response, the current essay proposes a unifying framework of the existing streams based on cognitive interpretation of the mimetic decision. It maps the interactions of the interpretation of the innovation dilemma with the framing of imitation. In this way it augments the extant model of organizational learning (Dosi and Marengo, 2007) by adding a fourth source – the interpretation of the experience of others. In addition, the framings interaction can account for the triggers of the two most popular imitation heuristics – "imitate the majority" and "imitate the successful". While these heuristics are part of Gigerenzer's adaptive toolbox, there has been hardly any research exploring their circumstantial relevance. The proposed model advances some answers to Goldstein et al.'s (2001) questions regarding the usage of imitation heuristics in the decision-making process. It also addresses the call of Garcia-Retamero et al. (2009) for more attention to social learning in the context of bounded rationality.

The framework helps explain some discrepancies in popular models that have been questioned recently (Cheng, 2010; Kennedy and Fiss, 2009). In particular, it shows why imitation motivations cannot be deduced from the timing of adoption. Since managers create cognitive frames of both the adoption option and the imitation decision, which can change over time, early and later adopters cannot be labeled into mutually exclusive motivation categories. As a result, later adopters may not necessarily exhibit defensive-type behavior. If early adopters are newcomers and the most popular imitation strategies are "imitate the successful" and "imitate the majority", then since "the successful" are not in the front-run, innovations might take longer to diffuse. Accordingly, some of the most offensive-type behavior might occur later in the adoption cycle. In this aspect, the speed of the diffusion process depends on the dynamics of the interactions of organizations' cognitive framings of the novelty and the imitation decision. Because the adoption decision is viewed through the lens of imitation interpretation, the study agrees with Henrich's (2001) observation that diffusions of innovations do not depend primarily on individual learning or cost/benefit analysis, but on cultural transmission.

**Figure 1**

Decision making sequence of issue and imitation framing.

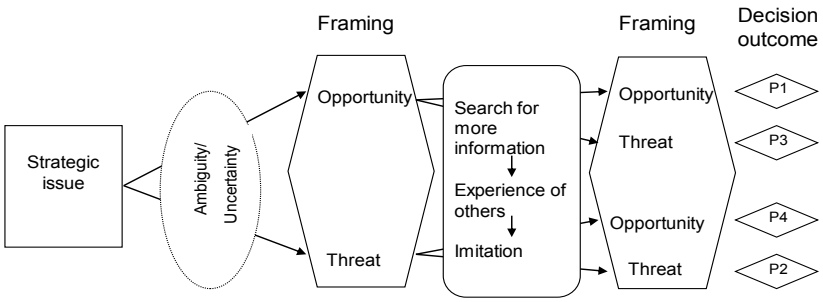

**Figure 2**

Propositional inventory of issue and imitation framing interactions.

| | | **Issue Interpretation** | |
|---|---|---|---|
| | | Opportunity | Threat *(greater reliance on socially acquired information)* |
| **Imitation Interpretation** | Opportunity from imitation | *P1*<br>• Imitate the successful<br>• Prestige-biased transmission<br>• Information-based imitation<br>• Search for effectiveness<br>• Early adopters | *P4*<br>• Imitate the successful<br>• Imitate the majority – less often<br>• Prestige-biased transmission<br>• Information/rivalry<br>• Search for effectiveness |
| | Threat from non-imitation | *P3*<br>• Imitate the majority<br>• Imitate the successful<br>• Conformist transmission<br>• Rivalry/information<br>• Risk reduction | *P2*<br>• Imitate the majority<br>• Normative conformity<br>• Rivalry-based imitation<br>• Risk reduction<br>• Late adopters |

**References**

Abrahamson E, Rosenkopf L. Institutional and competitive bandwagons: using mathematical modeling as a tool to explore innovation diffusion. Acad Manag Rev 1993;18(3):487-517.

Bandura A, ed. Psychological Modeling: Conflicting Theories. New Brunswick, NJ: Aldine; 2006.

Barr PS. Adapting to unfamiliar environmental events: A look at the evolution of interpretation and its role in strategic change. Organ Sci 1998;9(6):644-69.

Baum JAC, Li SX, Usher J. Making the next move. Adm Sci Q 2000;45(4):766-801.

Bikhchandani S, Hirshleifer D, Welch I. Learning from the behavior of others : conformity, fads, and informational cascades. J Econ Perspectives 1998;12(3):151-70.

Bingham CB, Eisenhardt KM. Rational heuristics : the "simple rules" that strategists learn from process experience. Strat Manag J 2011;32(13):1437-64.

Boyd R, Richerson PJ. Culture and the evolutionary process. Chicago: University of Chicago Press; 1985.

Cheng HL. Seeking knowledge or gaining legitimacy? Role of social networks on new practice adoption by OEM suppliers. J Bus Res 2010;63: 824-31.

Csaszar FA, Siggelkow N. How much to copy? Determinants of effective imitation breadth. Organ Sci 2010;21(3):661-76.

Damasio AR. Descartes' Error: Emotion, Reason, and the Human Brain. New York, NY: Gosset/Putnam Press; 1994.

DiMaggio PJ, Powell, WW. The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. Am Sociol Rev 1983;48(2):147-60.

Dobrev SD. Competing in the looking-glass market : imitation, resources, and crowding. Strat Manag J 2007;28(13):1267-89.

Dosi G, Marengo L. Perspective--on the evolutionary and behavioral theories of organizations: A tentative roadmap. Organ Sci 2007;18(3):491-502.

Dutton JE, Jackson, SE. Categorizing strategic issues: Links to organizational action. Acad Manag Rev 1987;12(1):76-90.

Fiol CM, Connor EJ. Waking up ! Mindfulness in the face of bandwagons. Acad Manag Rev 2003;28(1):54-70.

Galef BG, Laland KN. Social learning in animals: empirical studies and theoretical models.

BioScience 2005;55(6):489-99.

Garcia-Retamero R, Takezawa M, Gigerenzer G. Does imitation benefit cue order learning? Experim Psychol 2009;56(5):307–20.

Gigerenzer, G. Why heuristics work. Perspec Psychol Sci 2008;3(1):20-9.

Gigerenzer G, Brighton H. Homo heuristicus: why biased minds make better inferences. Topics Cogni Sci 2009;1(1):107-43.

Gigerenzer G, Gaissmaier W. Heuristic decision making. Annu Rev Psychol 2011;62:451-82.

Gigerenzer G, Todd, PM, the ABC Research Group ed. Simple heuristics that make us smart. New York: Oxford University Press; 1999.

Gioia DA, Manz CC. Linking cognition and behavior: a script processing interpretation of vicarious learning. Acad Manag Rev 1985;10(3):527-39.

Goldstein DG, Gigerenzer G, Hogarth R M, Kacelnik A, Kareev Y, Klein G, Martignon L, Payne JW, Schlag K. Why and when do simple heuristics work? In: Gigerenzer G, Selten R. ed, Bounded rationality: The adaptive toolbox. Cambridge: MIT Press; 2001.

Greve HR. Managerial cognition and the mimetic adoption of market positions: what you see is what you do. Strat Manag J 1998;19(10): 967-88.

Hastie R. Problems for judgment and decision making. Annu Rev Psychol 2001;52:653–83.

Haunschild PR, Miner AS. Modes of interorganizational imitation: the effects of outcome salience and uncertainty. Adm Sci Q 1997;42(3):472–500.

Haveman HA. Follow the leader: mimetic isomorphism and entry into new markets. Adm Sci Q 1993;38(4):593–627.

Henrich J. Cultural transmission and the diffusion of innovations: Adoption dynamics indicate that biased cultural transmission is the predominate force in behavioral change. Am Anthropologist 2001;103(4):992-1013.

Henrich J. Cultural group selection, coevolutionary processes and large-scale cooperation. J Econ Behav Organ 2004;53(1):3-35.

Hodgson GM, Knudsen T. The firm as an interactor : firms as vehicles for habits and routines. J Evolut Econ 2004;14(3):281-307.

Holcomb TR, Ireland RD, Holmes RM, Hitt MA. Architecture of entrepreneurial learning: exploring the link among heuristics, knowledge, and action. Entrep Theory Practice 2009;33(1):167–92.

Huber GP. Organizational learning : the contributing processes and the literatures. Organ Sci 1991;2(1): 88-115.

Jonsson S, Regner P. Normative barriers to imitation : social complexity of core competences in a mutual fund industry. Strat Manag J 2009;30(5):517-36.

Kaplan S. Framing contests: Strategy making under uncertainty. Organ Sci 2008;19(5):729-52.

Kennedy MT, Fiss PC. Institutionalization, framing, and diffusion: The logic of TQM adoption and implementation decisions among U.S. hospitals. Acad Manag J 2009;52(5):897-918.

Lee H, Smith K, Grimm C. The effect of new product radicality and scope on the extent and speed of innovation diffusion. J Manag 2003;29(5):753-68.

Levitt B, March JG. Organizational learning. Annu Rev Sociol 2003;14(1):319-38.

Lieberman MB, Asaba S. Why do firms imitate each other? Acad Manag Rev 2006;31(2):366-85.

Lieberman MB, Montgomery DB. First-mover advantages. Strat Manag J 1988;9(S1):41-58.

Mittal V, Ross W. The impact of positive and negative affect and issue framing on issue interpretation and risk taking. Organ Behav Hum Decis Processes 1998;76(3):298-324.

Moldoveanu M. Thinking strategically about thinking strategically: the computational structure and dynamics of managerial problem selection and formulation. Strat Manag J 2009;30(7):737-63.

Nikolaeva R. E-commerce adoption in the retail sector: Empirical insights. Int J Retail Distrib Manag 2006;34(4/5):369-87.

Nutt PC. How decision makers evaluate alternatives and the influence of complexity. Manag Sci 1998;44(8):1148-66.

Offerman T, Sonnemans J. Learning by experience and learning by imitating successful others. J Econ Behav Organ 1998;34(4):559-75.

Ordanini A, Rubera G, DeFillippi R. The many moods of inter-organizational imitation: A critical review. Int J Manag Rev 2008;10(4):375-98.

Palmer D, Jennings PD, Zhou X. Late adoption of the multidivisional form by large US corporations: institutional, political, and economic accounts. Adm Sci Q 1993;38(1):100-31.

Powell TC, Lovallo DAN, Fox CR. Behavioral strategy. Strat Manag J 2011;32(13):1369-86.

Robinson WT, Kalyanaram G, Urban GL. First-mover advantages from pioneering new markets: a survey of empirical evidence. Rev Indus Organ 1994;9(1):1-23.

Ross WT, Moore MC, Staelin R. Recurrent marketing decisions : decision complexity, decision focus, and firm performance. Mark Letters 2000;11(4):283-97.

Scott WR. Organizations: Rational, Natural, and Open Systems (3rd edn). Englewood Cliffs, NJ: Prentice-Hall; 1992.

Simon HA. A behavioral model of rational choice. Q J Econ 1955;69(1):99-118.

Slovic P, Finucane ML, Peters E, MacGregor DG. The affect heuristic. Eur J Oper Res 2007;177(3):1333-52.

Smith L, Sorensen P. Pathological outcomes of observational learning. Econometrica 2000;68(2):371-98.

Sornette D. Nurturing breakthroughs: Lessons from complexity theory. J Econ Interact Coordin 2008;3(2):165-81.

Thomas JB, Clark SM, Gioia DA. Strategic sensemaking and organizational performance: Linkages among scanning, interpretation, action, and outcomes. Acad Manag J 1993;36(2):239-70.

Tolbert PS, Zucker LG. Institutional sources of change in the formal structure of organizations: The diffusion of civil service reform, 1880-1935. Adm Sci Q 1983;28(1):22-39.

Tomasello M. The cultural origins of human cognition. Cambridge: Harvard University Press; 2000.

Vermeulen F. Business Exposed. London: FT/Prentice Hall; 2010.

Walsh JP. Managerial and organizational cognition: Notes from a trip down memory lane. Organ Sci 1995;6(3):280-321.

White JC, Varadarajan PR, Dacin PA. Market situation interpretation and response : the role of cognitive style, organizational culture, and information use. J Mark 2003;67(July): 63-79.

Witt U. Changing cognitive frames - changing organizational forms: An entrepreneurial theory of organizational development. Ind Corp Change 2000;9(4):733-55.