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NICHE CONSTRUCTION: THE PROCESS OF OPPORTUNITY CREATION IN THE ENVIRONMENT

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This article contributes to the emerging theory of opportunity creation by examining how organizations (including entrepreneurial ones) create and transform their niches. Using insights from contemporary evolutionary theory, the article classifies types of niche construction activities along dimensions of governance and the nature of the strategic actor. It then focuses on mechanisms of niche construction governed by the focal organization or entrepreneur to explain how competitive imperfections can be induced within industries and markets. The central role of communicative strategies in niche construction is emphasized. Copyright © 2009 Strategic Management Society.

INTRODUCTION

The theory of opportunity creation (Sarasvathy *et al.*, 2003; Baker and Nelson, 2005; Alvarez and Barney 2005, 2007) sets a new framework for the analysis of entrepreneurial strategic action. Opportunities are seen as a product of competitive imperfection in the industry or the market (Barney, 1986; Cohen and Winn, 2007). The origin of this imperfection, in the creation theory, is in the transformation of entrepreneurial beliefs into social constructs that guide actions of entrepreneurs and other constituents in the industry or market (Alvarez and Barney, 2007).

Emergence of such social constructs inevitably results in the changes in the competitive environment: the division of labor, the distribution of knowledge, and the network of exchanges and communications. But are these changes governed, or do they come from the process of mutual adaptation of entrepreneurs/organizations and their constituents? And, if such changes are governed, what are the consequences for the dynamics of industries and markets?

The interpretation of the creation theory, as set so far, is that opportunities are created in the process of bricolage (Baker and Nelson, 2005), or logical incrementalism (Quinn, 1980). Thereby, the process is envisaged as coevolutionary, as a path of gradual adaptations of entrepreneur or organization to its environment, whereas constituents in the environment adapt to entrepreneurial or organizational activities. However, opportunities may also be created when entrepreneurs set to induce governed changes to their environment. By taking the proactive position in constructing their niches, entrepreneurs or organizations can choose or modify the relevant threats and possibilities.

The aim of the present article is to examine the process of changes to the environment that organizations (including entrepreneurial organizations) can induce and to bridge it to the issues raised by the creation theory.

The inspiration of the present article is derived from the evolutionary theory. For a long time, the theory of biological evolution has been dominated by approaches that stressed adaptation and selection

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as the main drivers of evolutionary processes. These approaches emphasized the unidirectional causal power of the environment—that forces evolving entities to *climb* fitness landscape peaks as they evolve—and implied that disruptions to the fitness landscape were exogenous. Yet, in recent years, it has been recognized that evolving entities, too, can play a remarkable role in modifying fitness landscapes, as they change their habitats.

In the spirit of generic evolutionary approaches in organizational and management theory (Campbell, 1965; McKelvey, 1982; Aldrich and Ruef, 2006), it is suggested that the idea of niche construction may provide useful insights for the dynamics of organizational and entrepreneurial strategies. In particular, it may help to recognize how competitive imperfections can emerge within industries and markets, as a process governed by the focal organization or entrepreneur. The central role of communicative strategies in the transformation of environment is emphasized, and, in particular, the importance of educational efforts of organization in governed opportunity creation is suggested.

The rest of this article is organized as follows. The next section considers the major approaches within the organizational and management theory that tackle the ability of the organization to influence its environment. The third section introduces the generic concept of niche construction and discusses the classification of niche construction types. The fourth section considers the model of the niche construction as the governed purposeful activity of a focal organization and connects this model to the issue of opportunity creation. The fifth section concludes the article.

THEORIES EXAMINING ORGANIZATIONAL ABILITY TO INFLUENCE THE ENVIRONMENT

Paradigms of organization-environment relationship studies in organizational and economic theories have been predominantly influenced by the evolutionary thinking (Scott, 1987). Being open systems, organizations and organizational communities persist and change primarily through interactions with their environments. The development of the evolutionary theory emphasized two important processes—the process of adaptation, which occurs on the level of individual entity, and the process of selection, which occurs on the population level (Barnett and Carroll, 1995). The main debate was whether the process of organizational dynamics and change is managerially or environmentally derived (Astley and Van de Ven, 1983). This issue has been described as one of the central to organization theory (Amburgey and Rao 1996).

However, a number of critiques have stressed that both *adaptationists* and *selectionists* often envisage organizations as matched against the environment on which organizations have little or no direct effect (Baum and Singh, 1994; Volberda and Lewin 2003). The linear causal link is assumed: organizational structure and strategy either conform to, or are selected out by, the environment. Several responses to this theoretical shortcoming have been suggested.

These theoretical approaches can be largely lumped into three categories. The *coevolutionary* perspective encompasses a range of approaches in which transformations of the organizational environment are presented as coevolutionary processes (e.g., as an adaptive response of constituents to changes in organizational technology, strategy, structure etc.). The *cognitive* perspective emphasizes the role of managerial and entrepreneurial beliefs and interpretations through which the organizational environment is constructed. The *political action* perspective considers the impact of power distribution—in particular, as a control over critical resources—and actions to change the balance of power. Recent streams of literature on emerging social structures combine elements of these three schools of thought.

The coevolutionary perspective has synthesized arguments from both sides of the adaptation/selection debate. It has been suggested that organizational processes can be described in terms of multilevel organizational coevolution, where evolving entities and endogenous environments are mutually shaped by each other (March, 1994; Baum and Singh, 1994; Scott, 1987; Volberda and Lewin 2003). In the coevolutionary perspective, 'the unidirectional view of cause and effect relationships gives way to a circular, looplike view of mutual causality' (Baum and Singh, 1994: 379). Theoretical implications of coevolution on different levels of organizational ecology were explored in a number of publications—exploring the coevolution of organization and its technical environment (Levinthal and Myatt 1994; Rosenkopf and Tushman 1998), coevolution of organization and its institutional environment (Baum and Singh, 1994; Rodrigues and Child 2003),

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strategy and new organizational forms (Lewin, Long, and Caroll, 1999), producer-consumer coevolution (Windrum and Birchenhall, 1998), coevolution of capabilities and transaction costs (Jacobides and Winter 2005), etc.

Although the mutual influence of organizations/organizational populations and their environments is acknowledged, coevolutionary processes are usually envisaged as processes of mutual adaptation (March, 1994). The coevolutionist conceptualization of organization-environment dynamic still has the insignificant specification of processes and mechanisms by which organizational environments are constructed or modified. Discussion of these mechanisms within the cognitive and the political action perspectives provides useful ideas that could be integrated with the coevolutionary perspective.

The cognitive perspective suggested that 'organizations' environments are largely invented by organizations themselves' (Starbuck, 1976: 1069) as a way of structuring abundant information about constituents, communications, and transactions. This set of arguments is closely connected with social constructivism (Berger and Luckmann, 1967). The radical version of this perspective denied that an environment has an external and independent existence and proposed that it is necessary to abandon the prescription that organizations are required to adapt to their environments (Smirich and Stubbart 1985). More moderate versions of this position argued that although there are sources of variation in the real world outside an organization, there is also a metalevel of selection and interpretation of these disturbances by which organizations construct their own environments (Daft and Weick 1984; Weick 1988, 1995).

Daft and Weick (1984), in particular, considered the managerial belief about the analyzability of organizational environment as a crucial dimension in choosing the mode of interpretation. An organization choosing to actively intrude into environments it considers unanalyzable may pick the strategy of enactment, by which it either coerces or invents environments to have the desired character. In the enactment mode, an organization may construct markets (instead of waiting for assessments of demand), and manipulate shareholder perceptions toward itself, environmental issues, or political candidates. Beliefs and interpretations constrain and enable the choice of products, technologies, market strategies, and prevailing organizational structures (Garud and Rappa 1994; Porac, Thomas and Baden-Fuller, 1989; Zilber, 2002). These managerial choices, in their turn, shape the competitive environment.

From the cognitive perspective, the process of environment construction begins with the enactment of new meanings by organizational actors. Weick (1988: 243) indicated that 'when people act, they unrandomize variables, insert vestiges of orderliness, and literally create their own constraints.' However, the adoption of new meanings and behavioral patterns by organizational actors most inevitably produces different reactions from organizational constituents, and can also initiate or guide learning in organizational constituents so that *shared meaning* emerges (Taylor and Robichaud, 2004). In this respect, the environment construction is a collective learning process modifying actions/reactions of actors within and outside organizations (Gavetti and Rivkin, 2007). The cognitive approach emphasizes the role of communication in the process of environment construction. Organizations themselves are products of communication (Taylor and Van Every, 2000). Organizational actors update their representations of reality through communications—but communications can also be used to convey and establish new meanings with organizational constituents.

Instead of focusing on the interaction of environment and organization as two separate entities, the resource dependence perspective accentuated the process of resources capturing and use by political actors inside and outside organizational boundaries (Pfeffer and Salancik, 1978). Organization-environment relations were reconceptualized as a dynamic of political actions, in which struggles for power may shape conditions of organizational existence: in particular, providers of essential resources may exhibit external control of the organization. Similarly, the organization itself may exhibit control over its constituents when it owns a crucial resource or employs a political action (Hillman, Zardkoohi, and Bierman, 1999; Hillman, Keim, and Schuler, 2004). Organizational conformity to institutional pressures in order to attain legitimacy is only one of several possible actions: organizational strategic response to institutional pressures may range from acquiesce (complete complying to institutional norms) to manipulation (i.e., complete control of institutional norms and processes) (Oliver, 1991).

The resource dependence perspective provides an important conceptualization: that particular organizational strategies can alter the conditions of an organizational environment. To do so, organizations

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may develop specific capabilities related to the task of modification and manipulation of their environments. In particular, for political environments, organizations develop dynamic capabilities that allow them to alter between these reactive and proactive strategies depending on the pace and complexity of organizational environments (Oliver and Holzinger 2008).

These three approaches (coevolutionary, cognitive, and political action theories) are not mutually exclusive. Recent streams of literature on emerging societal structures, such as institutions, social movements, and dominant technological designs, combine elements of all three approaches.

The discussion of emerging institutions puts forward the role of institutional entrepreneurs (DiMaggio, 1988; Fligstein, 1997) as sponsors of institutional transformations. Institutional entrepreneurs create new meanings in order to tie together disparate sets of rules and, thereby, legitimize their actions. Their efforts mobilize the collective social actions of their constituents (seen as a political process) and often lead to the creation of new industries and supporting institutional systems (seen as an emergent coevolutionary process) (Aldrich and Fiol, 1994; Bird-Schonhoven and Romanelli 2001; Santos and Eisenhardt 2006).

The role of institutional entrepreneurs is frequently taken by social movement organizations that contribute to institutional change and formation of new industries (Hoffmann, 1999; Lounsbury, Ventresca, and Hirsch, 2003). These organizations frequently act as change agents, and their success is contingent upon the (cognitive) framing processes, (political) mobilizing structures and political opportunities (McAdam, McCarthy, and Zald, 1996) that interact and develop coevolutionarily (Rao, Morill, and Zald, 2000; Hensmans, 2003).

One instance of the change championed by institutional entrepreneurs is the emergence of dominant technological designs (Suarez and Utterback 1995; Garud, Jain, and Kamaraswamy, 2002) or platform leadership (Gawer and Cusumano, 2002). The rise to dominance is envisaged as a complex coevolutionary process influenced by the range of organizational and environmental factors (Suarez, 2004. Among the important success factors are the initial cognitive framing of technological design (Garud and Rappa, 1994) and the ensuing sponsorship of dominant technology (Garud *et al.*, 2002; Gawer and Cusumano, 2002).

The variety of theories and empirical evidence on environment construction raises several questions. One of them is the relationship between directed institutional changes (as in the theory of political action), sponsored process of self-organization (as in the emergence of institutions or dominant technologies), and the dynamics of organization-environment coevolution. Coevolutionary theories depict the process of change as the mutual adaptation of organizations and their environments, while the consideration of environment-changing strategic action is limited (Fligstein, 1997; Hensmans, 2003), and the proactive role of agents is often disregarded. Another important issue is the range of strategies through which the transformation of environment is achieved. While there is a broad consideration of the boundary-changing strategies by growth or by acquisition (Santos and Eisenhardt, 2005), strategies that transcend the organizational boundary (i.e., communicative strategies) receive less attention (Rindova and Fombrun, 1999). Such strategies, however, are essential when the governed transformation of institutional environment or the formation of organization-specific resources in the environment (and the ensuing emergence of opportunities) is considered. The following sections offer a framework that would allow us to embed proactive environment-changing strategies within the coevolutionary approach.

THE CONCEPT OF NICHE CONSTRUCTION

Niche construction: an idea from the evolutionary theory

The dominant position of the adaptationist/selectionist approach in organizational studies is closely mirrored by the situation in evolutionary biology. The standard view assigned excessive importance to natural selection, and the selection environment was usually seen as exogenous (Levins and Lewontin, 1985). The role of organisms was typically reduced to the role of a mediator between the selection environment and the population gene pool (Byerly and Michod, 1991; Dawkins, 1979). Since the role of organisms in such theories is instrumental (as they carry genes and convey pressures from the environment to the genotype), the environment-altering activity of organisms is seen as of less importance.

This view has been largely criticized on the grounds that an organism is, in fact, actively changing its environments: the organism chooses it, modifies it, and creates it, and these modifications may become evolutionarily significant. Genotype

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retention is not linearly caused by environmental conditions. Instead, genes, organism, and environment are intertwined and mutually influencing entities (Lewontin, 1983; Levins and Lewontin, 1985). In response to the traditional model of adaptation—seeing adaptations as solutions to the problems posed by the environment—Lewontin (1983) suggested that organisms and their ecological niches are coconstructing and codefining each other. Organisms both physically shape their environments and determine which factors in the external environment are relevant to their evolution, thus assembling such factors into their niches.

The evolutionary process depends not only on natural selection and genetic inheritance, but also on the process of niche construction and ecological inheritance (Odling-Smee, Laland, and Feldman, 2003). Niche construction may reduce environmental pressures: e.g., building a burrow or hive will protect organisms and their resources from some nature hazards and predators. Speaking in terms of the fitness landscape, niche-constructing species do not *climb* the local peak of fitness; rather they become *landscape shapers*, raising new mountains where they never existed before.

Modification of selection pressures also generates an evolutionary feedback so that new pressures may emerge and influence the process of evolution in a cumulative manner: e.g., anatomy of moles or social insects is largely influenced by the type of habitat they construct. The legacy of niche-constructing activities is inherited along with the pool of genes (Laland, Odling-Smee, and Feldman, 2000). The human species, as a striking instance, lives in the complex artificially constructed environments that were produced over generations.

Niche construction by organizations

Generalization of evolutionary principles has been one of the highly effective research strategies in organization and management studies. Basic principles of Darwinian evolution (in particular, the variation-selection-retention triad), separated from specific mechanisms of inheritance and selection of organisms, represent laws of evolution in their most universal (or general) form (Campbell, 1965; Plotkin, 1994; Dennett, 1995). The principles of evolution are generic ones applicable to social, as well as biological, systems (Aldrich and Ruef, 2006), even though organizationally evolving entities may use mechanisms of variation, selection, retention, or struggle completely different from those used in living systems (Durand, 2006).

Studies of the organization-environment coevolution explain it as a process of mutual adaptation and/or selection. Dimensions suggested by political action and cognitive perspectives are insufficiently considered in this explanation. At the same time, both these perspectives can gain from the systematic view offered by evolutionary perspective. The concept of niche construction may offer a useful bridging perspective.

The concept of niche is often explained as a social domain formed by the division of labor and the distribution of knowledge in which opportunities are organized (Brittain, 1994). More broadly, niches are characterized by the common dependence on resources (Hannan and Freeman, 1989). Respectively, the process of niche construction does not imply strategic assaults on rivals or changes in organizational boundaries through acquisitions and divestments, although the outcome of niche construction transforms the competitive landscape. Rather, it implies sustained changes in the pool of resources in the environment (i.e., outside the organizational boundary), and changes in the knowledge distribution and the typical divisions of labor. Rather than the *game by the rules* strategy, it is envisaged as the *change of the rules of the game*—a change that results in reorganization or creation of opportunities.

Niche construction can broadly be defined as sustained change to the resources and relations in the organizational environment that have long-lasting effects upon the strategy of the focal organization(s) and organizational constituents. The transformation or creation of organizational niche, therefore, results in the sustained change in patterns of strategic activities. While the definition embeds a temporal dimension that may be hard to specify without the loss of generality, the consideration here is the same as the distinction between strategic versus tactical action or the long run versus short run in economic theory.

Organizational niche construction: a classification

Different forms of niche construction are recognized by theories of organization, but the consideration is often fragmentary. The political action theory recognizes the effort of focal organizations to change institutional constraints of their actions. Social movement analysis shows how the collective action of organizations transforms the institutional environment. The industrial organization theory in

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economics discusses externalities, changes that come as a by-product of the value creation activities, and are not appropriated by the focal organization. Many theories stress the emergent social order (and, often, disorder) produced by collective efforts of organizations.

The classification may help identify differences in forms and mechanisms of environment change by organizations. This classification, inspired by the discussion of niche construction types in the evolutionary theory (Dawkins, 2004; Sterelny, 2005), can be set along two important dimensions of analysis.

One evident dimension concerns the type of actor. Some actors are individual organizations or entrepreneurs, whereas other actors are groups and populations of organizations or entrepreneurs. It is, therefore, useful to distinguish between individual and collective actors in niche construction processes (cf. Sterelny, 2005).

Another useful dimension is to distinguish between governed and ungoverned changes (cf. Dawkins, 2004). As already discussed, the literature on changes in the environment may or may not stress the process of governance per se, but it usually assumes there is an organization (or a group of organizations) taking interest in the environmental change. While this is true in many cases, organizations may often face unexpected, even unwanted, transformations of environment as a consequence of their strategic action. Very often, organizations do not even target the environment for this change to occur. For instance, creators of the Toyota production system never aimed to change production practices in assembly industries; their activity was driven by the urge to adapt to changing industry pressures. Yet, through the spillover process, their managerial innovation transformed production practices within and outside the automotive industry (Kogut, 2000). Clearly, whale hunting companies did not seek to destroy the whale population and raise social concern with their actions (Cantzler, 2007), and hedge funds issuing derivatives that *repacked* financial risks were not aiming to threaten the whole financial system (Gai *et al.*, 2008). These unexpected transformations and creations of the environment, being the by-product of organizational effort, lead to the emergence of new opportunities (Cohen and Winn, 2007).

Whether governed or ungoverned, the outcome of niche construction is the result of organizational strategic activities. Therefore, it results from organization-specific resources, such as organization-specific knowledge (Peteraf, 1993), culture (Barney, 1986), managerial beliefs (Porac *et al.*, 1989), and cognitive capabilities (Alvarez and Busenitz, 2001) often imprinted from the creation of organization (Stinchcombe, 1965; Starbuck, 1976) that enable (Barney, 1991) and constrain (Leonard-Barton, 1992) the potential repertoire of organizational actions. The transformation of the environment may not necessarily be the result of organizational adaptation or organizational innovation; unlike that, in some cases it may result from organizational inability or unwillingness to comprehend, and adapt to, the environment (cf. Daft and Weick, 1984).

The classification of four distinct types of niche construction is, thus, produced (Table 1).

Quadrant I describes niche construction as a governed action of the individual organization. Different types of organizational strategies that lead to creation of organization-specific resources in the environment, changes in the institutional setup, or other formations of new constructs and related patterns of activities (e.g., new buyer orientations), can be considered here. This type also includes the governed creation of organizational ecosystems or *ecogenesis* (Normann, 2001): creation of technological platforms (Garud *et al.*, 2002; Gawer and Cusumano, 2002), brand communities (Muniz and O'Guinn, 2001; McAlexander, Schouten, and Koenig, 2002), organization-focused supplier clusters (Normann, 2001; Sako 2006), etc.

Quadrant II describes the collective governed action, a (coordinated) activity of a group of organizations acting in the pursuit of the common interest. Political action theory provides examples of the collective lobbying or norm setting that lead to changes in the institutional environment (Hillman *et al.*, 2004; Schuler, Rehbein, and Kramer, 2002). Similarly, cases of the collective establishing new norms and legislation are provided by social movement theory (McCarthy and Zald 1977; Offe, 1985; Rao *et al.*, 2000). Collective efforts in market or industry creation (Aldrich and Fiol, 1994; Rindova and Fomburn, 2001; Lounsbury *et al.*, 2003; Santos and Eisenhardt 2006) also provide an example.

Quadrant III includes the cases of niche construction as an ungoverned change resulting from activities of an individual organization or entrepreneur. This may include different types of externalities: effects of the focal organization activities that are not fully internalized in its resources, costs, decision mechanisms, etc. These are also often referred to as market and organizational failures (Rao *et al.*, 2000). One of the examples is the phenomenon of innovation

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Table 1. Classification of niche construction types

Strategic actor is . . .	The change is . . .	
	Governed	Ungoverned
Individual (the organization, including entrepreneurial organization)	I. Individual governed strategies, e.g.: — supplier development (mentoring) — political actions — governed *ecogenesis* (e.g., brand communities, technological leadership, etc.)	III. Ungoverned niche construction as the organizational externality, e.g.: — spillover effects of innovation — negative externalities for natural and social environment — M&A externalities
Collective (the group or the population of organizations, including entrepreneurial organizations)	II. Collective governed strategies, e.g.: — social movements — market creation	IV. Ungoverned niche construction by groups and populations, e.g.: — industrial transformations — crises (e.g., environmental crisis, financial crisis)

spillover externality, occurring 'when beneficial effects of a firm's research and innovation activity accrue to other firms or industries without compensation to the investing firm' (Cooper and Merrill, 1997: 16). Negative externality effects upon the natural or the social environment (e.g., pollution or destruction of local communities) can also be envisaged as this type of niche construction. Externalities may also rise from organizational boundary shifts, e.g., M&A externalities (Croson *et al.*, 2004).

Quadrant IV concerns transformations (with substantial impact upon the environment) as emergent through collective ungoverned actions. This type includes externalities that can be neglected by individual organizations, but become significant as they sum up (e.g., the *global warming* problem). These externalities may also increase due to interactions between organizations. For example, consider the *tragedy of the commons* (Hardin, 1968) or a crisis due to financial innovations (Gai *et al.*, 2008). Externalities resulting from adoption of new production technologies or organizational structures may be fundamental in driving industrial change (Chandler, 1977).

GOVERNED NICHE CONSTRUCTION: MECHANISMS AND DRIVERS

Three elements of the governed niche construction strategy

In each of the four types of niche construction, organizational environment changes may lead to the emergence of opportunities. Since new opportunities may be created by ungoverned niche construction, the opportunity creation is not necessarily teleological. However, teleological niche construction is of particular interest, since the process and outcome can be controlled and implications for the entrepreneurial action, thus, can be drawn (cf. Alvarez and Barney, 2007).

The ensuing discussion focuses on the governed niche construction by individual organizations, including entrepreneurial organizations (Quadrant I in Table 1). Arguably, the collective governed niche construction will use similar strategies, although it will require additional mechanisms to reach consensus and coordinate actions (Ring and Van de Ven, 1992).

Existing research suggests that the process of governed niche construction and the creation of opportunities requires at least three elements. The organization, entrepreneur, or group thereof, frames or reframes an issue so that a potential new construct (new beliefs and new ideas) emerges. The focal organization then has to *get the message through* its boundaries to influence its constituents. Finally, the learning process ensures that constituents accept the construct and modify their framing of thought and action accordingly.

There is agreement that the process of opportunity creation begins with a *seed* of a new opportunity: new beliefs, new ideas, or new framings (Sarasvathy *et al.*, 2003). Alvarez and Barney (2007: 21) argue that 'opportunities begin as beliefs in the minds of

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entrepreneurs.' Similarly, the social movement perspective suggests that the creation of political opportunities begins with the *framing of issues* (McAdam *et al.*, 1996; Snow and Benford, 1992). This framing (or belief) may not necessarily be completely novel; though usually novel to the environment, it may often be derived from the bundle of organization-specific competencies (Peteraf, 1993).

Prior to the (possible) establishment of a new framing or belief as a legitimate social construct, the focal organization engages in communications with its constituents (Rindova and Fombrun, 1999). The creation of environment by means of the *enactment* strategy requires attempts to manipulate perceptions and issues and to impose ideas on the environment (Daft and Weick, 1984). Communications are an essential part of organizational boundary shifts (Tushman, 1977; Nonaka, 1994), yet, more important, they induce transformations beyond organizational boundaries, e.g., in marketing (Frazier and Summers 1984; Smith and Taylor 2004), supplier relation management (Takeishi, 2001; Larson and Kulchitsky, 2000), and institution-changing political activities (Hillman *et al.*, 1999, 2004).

Change of others lies at the core of communication. In the words of McLuhan (1964: 24) 'the message of any medium is the change in scale or pace or pattern that it introduces into human affairs.' Communication is a two-way process, implying reciprocal influence of organizations and environments (Grunig, 1992). Organizational influence on the environment conveyed by the media (Grunig and Hunt, 1984) complements adaptations of the firm to environmental constraints.

Finally, the ability of constituents in the environment to adopt changes subsequent to—or in the process of—communications with the focal organization is due to their individual and organizational learning abilities. Although humans learn continuously through their lives (Rogoff and Lave, 1984), they also learn how not to learn, e.g., to avoid being manipulated (Wenger, 1998). The structuring of communicative acts is, thus, essential for the efficiency of learning. Apart from introducing reinforcements that encourage constituents to learn into the communication, the focal organization also needs to plan repetitive communications across the range of contexts and media. Multiple repetitions of the *message* are necessary, since the distinguishing of a novel situation and mastering of a new behavioral pattern requires multiple repetitions, even if a targeted reinforcement is present (Reder and Ross, 1983). Repetitions also support the retention of learnt patterns for individuals (Bouton, 1994) and groups (Manier, 2004). Also, diverse learning contexts here are more efficient than simple repetition of the *core message*, as they encourage to explore and discover (Choi and Hannifin, 1995).

Variety of mechanisms for the governed niche construction strategy

The choice of communicative formats has to be tailored to the strategic ends and circumstances. The variety of constituents and diversity of environmental types suggests that organizations may find different ways to construct their niches. Also, very likely, strategies applied will differ for organizations that are new and established, small and large, etc.

Previous research has suggested that organizations and entrepreneurs are likely to engage in environment constructing strategies when environments are perceived as unanalyzable or ambiguous (Daft and Weick, 1984; Santos and Eisenhardt, 2005). Preference of uncertainty over ambiguity stimulates the sensemaking (Weick, 1995) and the creation of environments (Santos and Eisenhardt, 2006). It was also argued that newly formed organizations are more likely than established ones to attempt *enactments* and binding of existing norms and standards (Daft and Weick, 1984; Burgelman, 1983).

The position of mature and well-established organizations in their network better enables them to employ strategies that manipulate the environment in their favor (Hillman *et al.*, 1999, 2004; Schuler *et al.*, 2002; Gulati, 1999; Powell, Koput and Smith-Doerr, 1996). The role of the network position in resource mobilization is underlined by the social movement theory (McAdam *et al.*, 1996; McCarthy and Zald, 1977). Such organizations develop and maintain the set of dynamic capabilities that supports their proactive political actions (Oliver and Holzinger, 2008). It is also suggested that strategies of political action will differ for environments that are definite and ambiguous (Schuler *et al.*, 2002); again, organizations are motivated to reduce the level of ambiguity (Hillman *et al.*, 1999).

These discussions indicate an important dimension of analysis: a relative power position of the focal organization and its constituents. The role of interorganizational power is of high importance in the process of environment transformation (Santos and Eisenhardt, 2006). The organization can choose between symmetric and asymmetric

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relations, depending on the decision or resource control power of its constituents, as argued by the resource dependence theory (Pfeffer and Salancik, 1978). Here, the symmetric position implies that the focal organization has little or no power leverage over its constituents. Arguably, established and large organizations are more likely to adopt the asymmetric position (since they usually have higher legitimacy and more resources available), while new organizations would tend to take symmetric positions (cf. consideration of bargaining power by Porter (1985)). The asymmetric position of power, furthermore, permits the use and abuse of power: while shaping norms within the industry or mentoring supplier and distributor organizations is largely socially acceptable, strategies that imply manipulation, coercion, and deceiving are usually not.

Another important dimension in governed niche construction is whether the process is governed directly in one-to-one contacts with constituents or indirectly in one-to-many communicative interactions that address organizational networks and *ecosystems*. One-to-one interactions imply relations that are harder to avoid and, potentially. stronger ties between interacting parties. Due to the directness of interaction, a range of actions is possible, and communication is likely to be adjusted to accommodate the specifics of interacting parties. Unlike that, indirect interactions between the focal organization and groups or populations within its ecosystem are more easily avoidable, and ties between interacting parties are usually weaker. Because of this, the focal organization has a notably smaller repertoire of actions to address its constituents.

Along these two dimensions, it is possible to indicate a range of typical strategies of niche construction (Table 2). Although this list of strategies is representative, it is not exhaustive, and other strategic mechanisms of niche construction could also be conceived. It is worth noting that since the direct governance makes a broader range of strategies suitable, strategies used in indirectly governed niche construction may also be used in directly governed processes.

In the direct symmetric relationship, the focal organization has little control over the constituent. It is, therefore, likely to adopt the strategy of *convincing*, that is, reframing the situation so that parties will find mutual interest in the changed environment. Convincing often requires *educational effort* that reduces information asymmetries, so that the focal organization engages in teaching (though not mentoring) activities with its constituents. The strategy of convincing is important in mobilizing resources for institutional changes as the industry transcends through stages of its lifecycle (Barnett, 2005). The political action, including lobbying, also requires convincing (Hillman *et al.*, 2004). In nascent or growing industries, convincing is an important element of forming the pool of loyal suppliers and buyers (Matthyssens and Van den Bulte, 1994). For instance, the emergence of Volvo as a leading Scandinavian automotive producer was contingent upon competitive pricing, quality components, and stronger distribution networks. Accordingly, Volvo made a considerable effort to convince its suppliers and dealers to accept its business model (Kinch, 1991).

When the focal organization has higher control over its constituents (yet does not abuse its power position), it may try to change constituents' actions through *mentoring*. Mentoring implies that the focal organization commits resources and teaching capabilities to transform its constituents' practices and models. For instance, Sako (2004, 2006) explains how the leading Japanese OEMs have committed significant efforts to the supplier development process, which extends in scope notoriously beyond the provision of incentives. Companies such as Toyota and Matsushita allocated special teams and created specific organizational capabilities that helped them teach their suppliers technological and managerial practices that better suited OEMs' needs.

Table 2. Typical strategies of governed niche construction (details in the text)

	Symmetric position	Asymmetric (power) position	
		Use of power	Abuse of power
Direct governance	Convince	Mentor Co-opt	Manipulate/coerce
Indirect/network governance	Inspire/share values	Set norms/values	Deceive

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The transformation of activity patterns by mentoring can be complemented by gaining additional power leverage through *co-opting* (Oliver, 1991; Santos and Eisenhardt, 2006). While co-opting is often envisaged in terms of alliance building and, thus, extending organizational boundaries, it can be considered a sort of *communicative channel building*, through which the focal organization encourages the transformation of its constituents.

Finally, the focal organization may *coerce* or otherwise manipulate its constituents to bend their actions and strategies. For example, in the *Wintel* relationship, Microsoft used its position of power to force Intel to provide algorithms of its newly developed MMX processor to its competitor AMD, which allowed Microsoft to retain control over industry standards development and increase the market for its applications (Casadesus-Masanell and Yoffie, 2007). The coercive strategy embeds a potential conflict: so, in the case of Intel, the company responded with projects that could weaken Microsoft's dominant position, e.g., by supporting the development of open-source operating systems.

When the indirect governance is considered, the primary strategy is the design of communicative messages that would spread through networks of organizational constituents. The focal organization may devise constructs that can serve as *focal points* in attracting supporters for organizational practices. This is largely the case with social movements, but also with organizations that coordinate large *ecosystems* involving many independent players, e.g., Google (Iyer and Davenport, 2008), Intel (Gawer and Cusumano, 2002), or the Sun Java platform (Garud *et al.*, 2002).

The indirect governance of changes in the network or population of constituents—over which the focal organization has insufficient power—stimulates communicative strategies of nonrational encouragement. The organization drives on *inspiration and sharing of* attractive *values* that establish the positive feedback for desirable activities. Organizations can apply this strategy in growing elements of their ecosystems, such as loyal consumer groups or multitier supplier networks. For instance, large companies in consumer markets often cultivate brand communities (e.g., Coca-Cola, Apple, Saab, or Harley-Davidson) —consumer groups with strong group identities, rituals, and traditions that maintain loyalty to the brand (Muniz and O'Guinn 2001). Brand communities are usually organized around emotional—not functional—components of the brand or other organizational identity, and inspirational/value-sharing communications from focal organizations are crucial for the formation and maintenance of such communities (McAlexander *et al.*, 2002; Pascale, 1984). Similar types of communication are important in professional sports, where communications guide the formation of fan communities (Sutton *et al.*, 1997). Complex supplier networks are also emergent structures that are difficult to control and, therefore, they are better managed through positive feedback communications (Choi, Dooley, and Rungtusanatham, 2001).

In the position of power (given, for example, by the central role in the network), the focal organization may attempt to *establish norms and values* for its domain. As the first step in this strategy, the organization may communicate strategic projections that increase favorable evaluations by constituents (Rindova and Fombrun, 1999). In technology management studies, cases of platform leaders (Gawer and Cusumano, 2002) or sponsors of *dominant designs* (Wade 1995, Garud *et al.*, 2002) are discussed. While technological dominance is largely an emergent process (Rosenkopf and Tushman 1998), the focal organization can use the leverage of factors that increase its chances to achieve such dominance (Suarez, 2004; Iyer and Davenport, 2008). Similarly, in nascent or newly created industries and markets, organizations often attempt to *claim the market*, in order to establish and maintain the power position (Santos and Eisenhardt, 2006). This is achieved primarily by communicative strategies: signaling leadership to convey the expertise superiority and market dominance and disseminating stories that increase awareness and reinforce perceptions about the firm (Santos and Eisenhardt, 2006: 12).

Finally, organizations can choose the strategy of *deception* to manipulate networks and populations of constituents they confront (Daft and Weick, 1984). Studies of business ethics hold multiple accounts of such manipulations, including deception of consumers in advertising (Carson, Wokutch, and Cox, 1985), illegal conspiracies in business-to-business interactions (Baker and Faulkner 1993), deception of regulators, suppliers, and business partners (Vaughan, 1999), etc. While some of these activities may be performed only in the interest of managers involved, other may serve the strategic interest of organizations. Santos and Eisenhardt (2006) argue that the creation of illusions, which can be seen as a weak form of deception, is instrumental in achieving control over nascent markets, while

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Rindova and Fombrun (1999) indicate risks of this strategy for more mature markets.

The above discussion of niche constructing strategies has two important implications. First, in governed niche construction, the role of structured communication in establishing social constructs (issues, framings, etc.) is evident. As the niche construction leads to the creation of opportunities in the environment, organizational communicative strategies represent an important instrument of opportunity creation. These strategies provide a missing causal link between the creation of the *belief in the mind of entrepreneur* and establishment of new social constructs. Second, this communication often embeds an educational element, especially when the direct governance is concerned. Thus, the directly governed niche construction can be described as the governance of constituents' learning or the teaching of constituents. While organizations' educational efforts receive only minor attention, recent research (Sako 2004, 2006; Normann 2001) suggests that they play crucial roles in transforming organizational environments and creating new opportunities.

CONCLUSION

This article considered the process of environment transformation, or niche construction, as one of the possible mechanisms of opportunity creation. The concept of niche construction has been inspired by current studies in the evolutionary theory and applied to the domain of organizational studies in the spirit of generic evolutionary approaches (Campbell, 1965; Aldrich and Ruef, 2006).

Niche construction is considered in this article as the *change in rules of the game* or the sustained change to the resources and relations in the organizational environment that have long-lasting effects on the strategy of the focal organization(s) and organizational constituents. The proposed classification of niche construction types (and, thus, types of opportunity creation through environmental transformation) is developed across two important axes: governed versus.ungoverned niche construction accomplished by individual agents versus groups/populations of agents.

In terms of a teleological theory of opportunity creation, the article focuses on the consideration of mechanisms and strategies of individually governed niche construction. It is suggested that the mechanism of governed niche construction requires at least three elements: (1) framing that creates a *seed* of a potential new construct; (2) the communicative strategy that conveys the construct; and (3) the learning process of constituents. Further, six types of communicative strategies are identified. These strategies can support this process, depending on the chosen mode of governance and the power position that the focal organization can obtain. The particular role of educational efforts of the focal organization in the governed niche construction has been emphasized.

Concluding, this article presents a structured view of the process by which organizations can transcend their boundaries and transform their environments or construct their niches. This process is seen as the foundation for opportunity creation in the environment. Therefore, the present article complements and extends the existing theory of opportunity creation.

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