Organizing for Fluidity?

Dilemmas of New Organizational Forms

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Abstract

An important new stream of thought stressing the importance of organizational fluidity has emerged in recent years. It represents a reaction to the increasing complexity and environmental turbulence that organizations have to master. The solutions proposed are highly flexible and fluid organizational forms, based on relentlessly changing templates, quick improvisation, and ad-hoc responses. This approach is in sharp contrast to other recent organizational research that emphasizes identity, path dependence, economies of specialization, and recursive practices. We juxtapose the idea of organizational fluidity with this latter stream of research. If taken to its final conclusion, then the idea of promoting organizational fluidity would imply losing the very essence of organizing. Nevertheless, achieving organizational flexibility remains imperative in increasingly complex and volatile environments. To deal with this dilemma, an alternative approach is needed. We suggest a conceptualization of this dilemma that emphasizes the complementary dynamics between the two perspectives. We therefore provide an alternative conception that favors the idea of balancing countervailing processes in organizations with respect to the conflicting demands of organizational efficiency and fluidity.

Key words: fluidity, boundary, identity, flexibility, paradox, path dependence, ambidexterity

1. Introduction: The Fluid Organization

Pressing demands for change figure prominently in current organizational discourse. Scholars have identified various vigorous change drivers: dynamics of globalization and hyper-competition, which cause sustainable competitive advantages to vanish and corporate decision-making to accelerate dramatically (D'Aveni 1994, Brown and Eisenhardt 1998, Wiggins and Ruefli 2005); the rapidly expanding freedom of choice for individuals and societies, which rids them of entrenched roles and traditions and makes individual and collective actions inside and outside organizations increasingly unpredictable (Crozier 1993); the explosive growth of research activities, which constantly outrun existing knowledge (Child and McGrath 2001, Lytras and Sicilia 2005), and the increasing complexity of technical and social interactions, which dramatically speed up product life cycles and development times and lead to volatility in customer preferences (Flint 2002). In short, change requirements are seen as increasingly ubiquitous and as the most conspicuously pressing issue for organizational strategy and design.

Many scholars view the increasingly dynamic and complex internal and external environments (markets, technologies, climate, etc.) in which numerous organizations operate as a key challenge, forcing organizations to develop designs, competencies, and associated behaviors that enable fluidity and continuous change. Cisco, 3M, Microsoft, and SAP are cited as examples of organizations that are already moving towards full flexibility. As a consequence, many organizational scholars advocate the idea of organic fluidity (Brown and Eisenhardt 1998, Ciborra 1996, Garud et al. 2002, Kenis et al. 2009, Siggelkow and Rivkin 2005): from hierarchies to networks, from formal programs and coordination rules to spontaneous interaction, from specialized departments and staff units to improvised processes and temporary project teams, and from vertical lines of command to lateral organization-wide

communication. The emphasis is on diversity rather than similarity. The keywords are speed and adaptability (Kellogg et al. 2006). Well-known conceptions detailing these new ways of organizing include "temporary organization" (Lundin and Söderholm 1995), "latent organization" (Starkey et al. 2000), "modular organization" (Sanchez and Mahoney 1996, Schilling 2000, Hoetker 2006), "project-based enterprise" (DeFillipi and Arthur 1998, Lindkvist 2004), "virtual organization" (Davidow and Malone 1992, DeSanctis and Monge 1999), "boundaryless organization" (Ashkenas et al. 2002), "cellular form" (Miles et al. 1997), and "heterarchy" or "N-form" (Hedlund 1994).

More recently, the focus has shifted from structural flexibility to behavioral features, such as absorptive capacity and competencies. In this context, the notion of dynamic capabilities features most prominently, stressing organizational capacities for relentless change (Teece et al. 1997, Eisenhardt and Martin 2000, Helfat et al. 2007). The idea here is that organizational capabilities themselves have to become fluid to enable organizations to continuously create new (combinations of) resources. As a result, capabilities "are in a continuously unstable state" (Eisenhardt and Martin 2000, p. 1113). Dynamic capabilities are seen as a means as well as an outcome of highly fragile decision-making processes concerning resource reconfiguration, integration, and acquisition. Dynamic capabilities make use of real-time information, explore simultaneously multiple alternatives, rely on "quickly created new knowledge" (Eisenhardt and Martin 2000, p. 1106), are governed by a small number of very simple rules, do not get retained in the organizational memory, and therefore can and should not be expected to bring about predictable outcomes.

While these models differ on many dimensions, they all have a common core, i.e. the critical emphasis on fluidity and cooperative networking, both inside the organization and between organizations. High-performing organizations are seen as constantly redesigning and

reinventing themselves, with increasingly fuzzy and eventually dissipating boundaries. According to this view, organizations no longer derive their success from reliable patterns of problem solving, but from problem solving that is "ad hoc" (Mintzberg 1979) and relies on improvisation (Miner et al. 2001), leading to an organizational form that some have described as a "total-learning organization" (Pedler et al. 1991, Vaill 1996). The distinguishing characteristic of these types of organization is that their activities are not bound to the collective memory of a "deep structure" or the organizational routines built in the past (Heracleous and Barrett 2001). Rather, the organization is steadily revising its cognitions and changing its expectations. Past learning no longer plays that key role in these organizations because it is likely to tie them to the old solutions that have worked in the past but are unlikely to match future challenges. Processes in the flexible organization never settle down; they are in constant flux, or as Weick (1977) puts it, they are "chronically unfrozen". This refers to an organization which has – in contrast to Lewin's (1947) three-stage model – the unfreezing stage as the common state and which refrains from any refreezing. Pattern building and boundary drawing of any sort is considered suspect. Departmentalization, routines, and replicable practices are seen as features representing solutions to old problems, developed for an older industrial environment which valued stability, bureaucracy, and formality as a source of building competitive advantages (Piore and Sabel 1984).

There are striking similarities here to recent discussions in economics. In particular, the notion of "fluid organization" is reminiscent of Schumpeter's (1934) concept of "creative destruction". In his view, the entrepreneur is a person who constantly irritates the market and keeps it from settling down to a state of equilibrium. It is the "endlessly innovative" and, at best, "serial" entrepreneur who produces the much wanted progress in markets. Relentless destruction, rather than stable equilibrium, is seen as the force driving economic development. This similarity in argumentation may explain the current prominence of

Schumpeterian thought in organization and management theory (Ilinitch et al. 1996, Teece 2007, Wiggins and Ruefli 2005).

While fully appreciating the impetus the advocacy of hyper-flexible models of organizing has brought to organization theory and managerial practice, our view is that these models tend to underrate significantly what it means *to be organized* and to act *in/as* organizations. In particular, we believe that this way of thinking is likely to blind us to the *institutional* dynamics of the organizational world and its implications for organizational behavior and effectiveness. In our view, a rich and valid organizational theory as well as a reflexive managerial practice intended to help organizations to be responsive to hyper-dynamic conditions have to include and acknowledge the often hidden institutional logic and self-sustained dynamics of organizations. We substantiate this concern in the following sections of this paper by elaborating on two essential issues: the identity and boundary question of organizations, and the self-reinforcing dynamics of organizational processes and practices.

2. Selection Patterns, Boundaries, and Identities

The concept of organizational fluidity downplays the role of organizational identity and boundary in organizational processes. It seems that for many theorists boundaries no longer represent an essential element of organizations. Some scholars even speak of "boundaryless organizations" (Ashkenas et al. 2002); others advance at least the idea of "blurred boundaries" (e.g. Badaracco 1988). Such "blurring", it is argued, occurs for many reasons: Boundaries are assumed to hamper organizations in their scope of activities, to close the horizon instead of opening it, and to transform organizations into "fortresses" (Ashkenas 1999) which restrict the flow of information and knowledge among organizational members.

Blurring boundaries is also recommended to help organizations build relationships with a set of partners that constantly changes. These partnerships, for example in the form of "virtual organizations", are often seen as becoming more important than internal ties, with the consequence that the identity of an organization may be overshadowed by the identity of an interorganizational network (Beech and Huxham 2004, Rometsch and Sydow 2006). The question is: have organizational identities and boundaries actually become more of a handicap than a functional requirement? Can we conceive of the modern flexible organization without boundaries?

Modern systems theory can inform this debate and provide some clarification (see, in particular, Luhmann 1995). According to systems theory, the basic relationship of social systems is the interaction with their environment. A differentiation between an organization and its environment implies, at the very least, that "organization" means something different from "environment". Thus, we have to determine, at the very basis, the inside as well as the outside of an organizational system. We also need to specify the logic behind the process of becoming different. Modern systems theory interprets the difference between organization and environment as one of complexity. Social systems create themselves by reducing the surrounding complexity to a level they can master. Drawing this distinction essentially means creating a divide in complexity. System building thus means construing and replicating in everyday problem solving an inside world of lower complexity, which can be called its identity (Seidl 2005). As a consequence, the environment is (always) more complex than a system. This difference necessarily implies setting-up and maintaining a boundary between the system and its more complex environment. Organizations thus *have* to be conceived as "boundary-maintaining systems" (Aldrich 1971); organizations cannot exist without boundaries.

The notion of complexity, as used in modern systems theory, focuses on connectivity and surplus connectivity; each social element of a system or the environment is assumed to have a high capacity for connectivity (Luhmann 1995). The number of potential connections with other elements is much higher than the number of connections that are actually realizable in the social field. As a consequence, each realized connection represents a *forced* selection among many possible connections. Due to this contingency of the selection process, the field of future connections (the environment) amounts to an inherently uncertain field. One can never be sure which connections among the environmental elements will be realized next. Decision makers, therefore, face contingency and ambiguity as endemic features of an interactive and connected world. Organizations can never fully understand their complex environment and therefore have to model uncertainty and complexity to a template on which members can act. As Daft and Weick (1984, p. 287) put it in a more subjective way:

"When an organization assumes that the external environment is unanalyzable […] the organization to some extent may create the external environment. The key is to construct, coerce, or enact a reasonable interpretation that makes previous action sensible and suggests some next steps. […] The outcome of this process may include the ability to deal with equivocality, to coerce an answer useful to the organization, to invent an environment and to be part of the intervention."

By creating such simplifying interpretations, organizational members can physically and socially act on them, thereby building and replicating the organizational boundary and identity.

A similar argument comes from cognitive psychology (Carroll 1993, Neisser 1976, Piaget 1985). The very precondition for perceiving and thinking is a cognitive pattern or map that provides orientation by specifying the location of the observer relative to environmental objects. Information can only be gained from observation and perception against the background of a reference system or a cognitive framework which permits an understanding

of the observed elements. This, once again, points to the necessity of developing reliable frames of reference to be able to draw a basic distinction.

Systemic and individual approaches draw attention to the cognitive and communicative nature of organizational boundaries, but boundaries are also more concretely constituted with respect to resource flows and legal norms (Jacobides and Billinger 2006). While resource-based and legally prescribed boundaries are heavily emphasized by economic approaches (see, in particular, Williamson 1985), a fuller understanding of boundaries requires an integrative perspective that considers cognitive and normative dimensions as well as aspects of power and influence (Duschek et al. 2001; Santos and Eisenhardt 2005).

In sum, social systems such as organizations are simply not conceivable without reference to workable identities and boundaries. It is necessary to establish and maintain interpretive action *patterns* that distinguish the system from its environment. By implication, the concept of fluid and relentlessly changing systems ignores an essential feature of any system-building. The ideal of fluidity as a characteristic underlying most new forms of organizing follows the logic of reacting to any environmental event in a new (not patterned) way. This conception of organizational fluidity radicalizes the principle of flexibility in a misleading way. A valid theory of organization or organizing cannot ignore the basic insight that organizations are only viable if they operate on selective, complexity-reducing maps and routines. By their very logic, organizations cannot act without guidance from a frame of reference informed by past learning and experience. Organizations, like other institutions, cannot escape their own history (Tolbert and Zucker 1996). Reacting in a turbulent environment to any new event by improvisation and without any pattern implies giving up the distinction between inside and outside. Organizations would merge with their environment – or never emerge in the first place. Organizations cannot act without workable schemes for

understanding and deciphering the complex world in which they are located (Luhmann 1995, Weick 1995). The idea of a boundaryless organization – even if we look at it as an idealized final state that can never be reached – leads to a logic that displaces the fundamentals of organization building.

Proponents of fluid organizational forms seem to be aware of this danger. Some of them rely on complexity theory to find a way out of this blind alley by stressing the necessity of some minimal or semi-structures and a few simple rules in order to protect the system from dissolving. Such structures and rules include setting "sharp, well-defined priorities", "a few deadlines tracking key operating variables" or "ownership of a few major outcomes" (Brown and Eisenhardt 1998, p. 54). A small number of critical routines and clear-cut rules are suggested to prevent organizations from sliding into chaos or dissolving into their environment.

However, this merely raises further questions. When examining the argument for minimal structures and a few simple routines one realizes the difficulty of drawing the line as to where the dynamic conception of organizations ends and the classical institutional conception starts. What exactly is the "critical" number of routines and how much stability are they allowed to produce? Routines must also be designed to work in a reliable and repeatable manner, and they have to be reproduced predictably (Giddens 1984). How much replication is needed and acceptable? Similarly, how can we define clear priorities in the face of relentlessly changing circumstances? And how can we set up reasonable deadlines if change is ubiquitous and foreseeable in the business environment? Obviously, these rules and suggestions stem from another world, the world of classical organizing. They are alien in a world of fluidity. In other words, the idea of minimal structure and a few robust routines refers back to the necessity of patterned learning, organizational memory, selective boundary building and identity

constitution. Following this line of reasoning, the difference between the structural identity conception and that of radical dynamic systems is no longer one of principle, but a matter of degree.

When discussing boundary and identity building, one should, however, not forget that coping with environmental uncertainty does not eliminate external uncertainty. Due to the highly selective and necessarily ignorant character of all such interpretation maps and translation patterns, organizations inevitably run the risk of setting up inappropriate or runout action schemes (Wildavsky 1983). Action schemes are internal measures to cope with ambiguity and complexity (Weick 2000). They do not control the environmental complexity "out there". The social system must still confront these complexities. This unavoidable discrepancy between the internally used map (including boundary setting) and external complexity creates unexpected events for the system in the form of surprises and discontinuities. Inappropriate schemes for understanding competitive forces, new entrants, or technological developments make themselves felt as threats and crises (Luhmann 1993).

On the one hand, maintaining a boundary between the system and the environment – and thus preserving system identity – amounts to a fundamental necessity. On the other hand, the problem cannot be solved once and for all. Organizations, which have to be reproduced as social systems by everyday interactions (Giddens 1984, Luhmann 1995), can never be sure whether they have developed a successful boundary, identity, and selection pattern for future situations either. The necessity of simplification makes the maintenance of a system, its organizational design, and its boundaries principally precarious. Interpretation/simplification is not a single act but rather an ongoing process (Madsen et al. 2006). We will return to this precarious relationship in the final section of this paper, when we discuss alternatives to models of organizational fluidity.

3. Functional Institutional Dynamics and Dysfunctional Flips

The inherent problems of the ideal of relentlessly changing systems and real-time organizations may become more incisive when we look at the returns and the performance implications of adopting routines, constituting identities, building commitment, or developing capabilities. As is well-known, patterned decision-making as well as formal rules and routines are typically considered means for advancing efficiency. Therefore, potential trade-offs have to be taken into account. Here we use the evolution of organizational capabilities to illustrate the argument.

The basic feature of organizational capabilities represents a recognizable pattern of activities that permits repeatable and reliable performance. Building a pattern implies that a set of activities must have reached a certain level of consolidation. "At a minimum, in order for something to qualify as a capability, it must work in a reliable manner" (Helfat and Peteraf 2003, p. 999). This routine nexus of capability also features prominently in the neo-evolutionary theory of economics (Nelson and Winter 1982, Winter 2000), which conceives organizational competencies as a bundle of approved "linking- or combining-routines". Viewed in this way, organizational capabilities are the result of an evolutionary process, a process in which a specific way of "selecting and linking" resources has proved to be successful and has been retained in organizational problem solving. A singular success can trigger the building of a capability, but a capability is not actually constituted unless a reliable "practice" has evolved over time as well. Capabilities, therefore, are replicable, learnt, and historic in nature (Winter 2003; Burgelman 2010).

The benefits of *reliable* action patterns also figure prominently in population ecology, where the recursive production of reliability is even considered the precondition for organizational survival (Hannan and Freeman 1977, 1984). In this view, the transformation from an occasionally successful coordination effort into a reliable problem-solving pattern, despite or because of its inevitably inert properties, gains key importance to organizational efficiency and survival.

Obviously, resource combinations, once successful, are likely to reinforce themselves positively over time, thereby generating positive feedback loops for building a specific capability. Systems learn to preserve successful resource combinations (Argote 1999). Capabilities resulting from successful combinations in the past guide combination processes in the future. This persistence is not only relevant in the sense that "history matters" in organizational responses to environmental events. It also refers to highly relevant institutional dynamics in terms of path dependence, suggesting that decisions taken in the past may increasingly restrain future choices (David 1985, Arthur 1994, Pierson 2000, (Sydow et al. 2009). In order to explain the dynamics of these processes, self-reinforcing processes (economies of scale, network externalities, complementarities, etc.) have been identified as drivers that are likely to accumulate to a specific path of action. These self-reinforcing processes converge in the evolution of a competent problem-solving architecture reflecting the specific organizational context. The evolution of organizational capabilities is therefore recursive in nature: past experience builds the frame of reference for future action and is thereby reproduced, even though some transformation is likely to occur in the reproduction process (Giddens 1984, Feldman 2000, Helfat and Peteraf 2003).

Stressing the historical and reproductive and sometimes even path-dependent process accentuates time as a basic dimension of any kind of capability. Capabilities develop over a

certain period of time, and the course of development gives them their specific character. Organizational capability is thus a time-based concept, integrating the past, the present, *and* the future. And it is exactly this complex and time-related character that makes up the essence of the potential strategic value and relevance of organizational capability (Barney 1991, Dierickx and Cool 1989).

Despite the merits of organizational patterning, the resulting structures cannot be conceived as fully stable. Rather, they are reproduced by agents who can and do introduce changes (Giddens 1984, Tsoukas and Chia 2002). Helfat and Peteraf (2003) have shown that organizational capabilities change incrementally during their life-cycle, as do all social phenomena such as culture or norms. Feldman (2000) even refers to the possibility that routines may become *sources* of incremental organizational change because routines must be enacted by actors who may change them during reproduction.

Additional insights into the merits of institutionalizing practices in general and the development of organizational capabilities in particular come from research on commitment (Ghemawat 1991). To achieve flexibility, organizations are advised to refrain from any longer-term investment because such an investment necessarily implies commitment to specialized resources, which end up as barriers to quick adaptation. The ideal of full flexibility, however, raises concerns about costs and significant efficiency trade-offs (Marengo 1992). The flexibility solution, which is often the most costly solution among available alternatives, implies high opportunity costs in terms of lost advantages of cumulative experience, specialization, economies of scale and synergies.

This reasoning leads us to a more fundamental argument. In order to flourish, organizations need investments in tangible as well as intangible assets such as identity or culture. The economic advantages of organizations opposed to markets derive from these very

investments. Otherwise, there would be no compelling reason for an organization to exist or to be founded. Full flexibility, pure ad-hoc coordination, and on-the-spot relationships come very close to the ideal of an un-patterned mode of market coordination. Organizations that fully adopt the market mode of spontaneous adaptation are likely to become obsolete and to be replaced by markets (Williamson 1985). The logic of organizations (or hierarchies) and the ideal of organizational fluidity obviously do not mix.

Although institutional features such as capabilities, practices, or routines help the system to become effective and successful, their repetitive functionality is not unequivocal; they also create problems, they have a flip side as well. Self-reinforcing processes tend to narrow the scope of action significantly; they can even lead to a "lock-in" (David 1985). Given self-reinforcing processes, organizations are likely to lose their ability to perceive and/or to implement alternative ways of selecting and connecting resources. Positive feedback processes are likely to produce path dependence in capability-based problem solving. Organizational capabilities may become fixed to those constellations which have proved to be successful. If the contexts remain largely unchanged over time, this fixation does not raise a problem. However, in cases where the context changes, new parameters will determine competitive success and the old path-dependent capability patterns may lead the organization in the wrong direction. The organization's fixation on a specific problem-solving architecture is likely to turn from a strategic asset into a strategic burden – and become a barrier to organizational adaptation (Dosi et al. 2003).

Similarly, Miller (1993, 1994) highlights the "Ikarus Paradox", referring to the fact that organizations facing a long period of (outstanding) success tend to (over-) simplify their operational procedures and to become blind to discrepant feedback. A successful pattern can

mutate into a pattern of failure. Paradoxically, the cause of failure resides in what once was the source of success.

Leonard-Barton (1995) provided convincing evidence for these phenomena in the context of organizational capabilities. Her empirical findings highlight the equivocal nature of core competences. On the one hand, core competencies facilitated the development of projects and enabled product innovation. On the other hand, they inhibited unconventional product innovation and they became "core rigidities." Managers had become over-committed to the currently successful competence via project budgeting and investment policy, thereby un-intentionally suppressing the possibility of engaging in new project initiatives. Such dysfunctional flips have been identified in different settings, and even in network forms of organization. For instance, transaction-specific investments are likely to cause inertia because of increased switching costs, including in cases of bilateral monopoly where both transaction partners undertake such investments (Williamson 1985). In combination with such investments, but also independently of them, fixed problem-solving routines emerge as inter-organizational relationships mature (Zollo et al. 2002). When there are self-reinforcing dynamics, they are likely to become path-dependent and may lead to a lock-in. Gulati and colleagues (Gulati 1995, Gulati and Gargiulo 1999) demonstrated the idiosyncratic and potentially path-dependent character of network forms of organizing, when they found that previous ties among organizations increase the probability of an alliance forming between them in the future.

Thus the equivocal nature of successful action patterns and practices confronts managers with a dilemma, i.e. a trade-off between economizing and flexibilizing. On the one hand, the economizing of evolved competence clusters pays and promises competitive advantage. On the other hand, it is exactly this consistent pursuit of a capability path, including identity and

boundary-maintaining activities, which is prone to switch into organizational rigidity and economic disadvantage. The answer to this dilemma cannot, however, be to remove all replicating patterns and institutional clusters, as many advocates of the new forms of organization demand. Instead, organizations have to find ways to cope with this dilemma – both in organization theory and in managerial practice.

4. The Dualism of Fluidity and Stability

The ideal of full organizational flexibility and fluidity inevitably leads to both theoretically and practically unsolvable contradictions. The discussion above has revealed that redesigning organizations as "relentlessly changing" and being in a "continuously unstable state" is too easy and neat a solution. The flexibility ideal radicalizes the right insight at the wrong point and, even more importantly, stretches it too far. On the other hand, we have also seen that in the face of increasingly turbulent and complex environments, any boundary building, identity formation, and development of problem-solving architectures will always be precarious. Boundaries and patterned practices are the essential advantages for using organizations at all, but they may indeed become fixed and even path-dependent, thereby threatening the system's survival. The result is a paradox. Although a patterning of organizational practices is ultimately required to guarantee the very existence of an organization and its success, under conditions of uncertainty and complexity, patterning always has a flip side to it, i.e. is likely to end up blinding the actors to new problems and untried solutions. Patterning is thus an inherently risky endeavor.

When faced with this fundamental organizational dilemma, it would seem advisable to look for alternative theories that overcome the one-sided ideals of organizational fluidity and full flexibility on the one hand and the advantages of bureaucratic replication on the other hand.

In line with an increasing number of scholars (cf. Graetz and Smith 2007 for a review), we suggest conceiving of contemporary organizations in terms of dual, dialectic, or paradoxical processes. In particular, a theoretical platform is needed which allows for the capturing of contradicting requirements in organizations. As is well known, among others general systems theory offers such a framework; social systems are conceived systematically as units having to fulfill a set of conflicting functions in order to gain legitimacy and efficiency (Parsons 1991). The overarching question of organizational analysis, therefore, is how systems can cope successfully with countervailing functions, pattern maintenance and adaptation.

Given these conflicting demands on organizations, there are always trade-offs to be considered. Such contradictions or dilemmas can never be completely eliminated; they are inherent (March 1991). Organizations have to find a way to work with them. For organizational theorists, the question is how to conceptualize the concurrent and contradictory need for patterned selectivity and flexibility. In our view, basically two solutions stand out: either providing organizational ambidexterity or balancing countervailing processes.

4.1. Organizational Ambidexterity

A well-known suggestion to manage these conflicting demands is the building of organizational "ambidexterity" (Duncan 1976, Benner and Tushman 2003, Simsek 2009). Organizational ambidexterity, nowadays even considered a core dynamic capability (O'Reilly and Tuschman 2008), refers to the synchronous pursuit of adaptable fluidity and efficient stability by designing organizational subunits intended to be either efficient *or* innovative. The result is a highly differentiated and nevertheless somehow integrated organization with substantially diverse competences and specialized structures for coping with both flexibility

and pattern maintenance (e.g. Gilbert 2005, O'Reilly and Tushman 2008). In general, the pursuit of flexibility has been associated with organic structures reflecting loose coupling and improvisation, whereas maintaining efficient routines is assumed in conjunction with mechanistic structures, reflecting tight coupling, routinization, control, and bureaucracy.

These dual-structure conceptions promote diversity and separation. They offer promising suggestions, but they also raise some serious problems. Strict separation is likely to result in sharp interfaces, ambiguous priorities, and a lack of common orientation. This leads to fundamental concerns about achieving efficient integration (Lawrence and Lorsch 1969), given sharply increasing coordination costs (Ford and Ford 1994, Lewis 2000). Apart from introducing additional questions about organizational identity (e.g., what kind of identity is able to hold such heterogeneous forms together?), the idea that some subsystems can be held completely stable whereas others operate on a fully flexible scale contradicts somewhat the general requirements that contemporary organizations face. Is it realistic to assume that certain subunits in contemporary organizations do not have to respond to changing environments and therefore do not need to be alert, whereas others are fully adaptable and can therefore ignore any institutional constraints? The conception of "*structural ambidexterity*" (the term was coined by Gibson and Birkinshaw 2004) is likely to shift the fluidity problems discussed above to a lower hierarchical (subunit) level, without resolving them. On the subunit level – as well as on the network level – one encounters the same inconsistencies of the problems of fluidity conception as depicted above (see for further critical objections Gupta et al. 2006, Raisch et al. 2009).

Addressing the inherent pitfalls of structural ambidexterity, Gibson and Birkinshaw (2004) offer an alternative conception of organizational ambidexterity: *contextual ambidexterity*. This conception shifts the problem of balancing flexibility and pattern maintenance to the

individual level. Organizational members are expected to cope with contradicting requirements by smoothly switching between the different paradigms in their everyday behavior (see also Smith and Tushman 2005, Mom et al. 2009). The balancing problem is, however, a basically organizational requirement; the system has to cope with both. It therefore seems questionable that members can deliver what the system fails to do. Gibson and Birkinshaw (2004) are aware of this deficiency and complement the conception with principles of ambidextrous context design. The idea is to create a universal (internal) organizational context – conceived as a combination of organizational structure, culture and climate – which is supposed to bring about exactly this competence of behavioral ambidexterity. The basic features of this context design are discipline, trust, stretch, and support. Thus, social systems are assumed to be able to indirectly produce a solution for coping with the countervailing requirements by creating a context which stimulates the appropriate behavior "whatever it takes to deliver results" (p.213).

Whilst appreciating this fresh approach to overcome the pitfalls of structural ambidexterity, it raises a lot of new questions: e.g. can we actually conceive of organizational behavior as plastic as is assumed here? Can organizational members actually switch without friction from one behavioral mode to the other, contradicting one? Apart from questions on the cognitive limits of individuals (see Raisch et al. 2009), this seems too abstract a view of organizational behavior. Organizational behavior has been studied for decades as being imprinted by occupational history and organizational features, which are both subject to all those institutional and self-reinforcing dynamics and which, among others, bring about inertia and possibly path dependence – as shown in detail above. The reference and trust in an organizational "context" designed to free the individual from all these dynamics and empower full flexibility cannot be fully convincing. Organizational theory does not provide good reasons to assume that the organizational context design is so powerful that it can

decouple organizational members from institutional dynamics or the force of structural principles. It also seems to us an overly optimistic view that a universal culture and climate of trust, stretch, discipline, and support can induce highly problem-specific behavior. Is the idea of a universal organizational culture sustainable at all (see for a discussion Alvesson 2002)? And finally, to what extent does organizational knowledge support the causality of the assumption that a universal context can bring about foreseeable behavioral reactions towards ambidexterity ("to do whatever it takes")?

Considering these problems, we favor an alternative conceptualization which suggests a concurrent balancing of both contradictory demands within a single organizational unit. Modern systems theory and structuration theory, as well as other more recent streams of organizational thought, offer insights to support this alternative approach. These theories shift the focus from specialization and resulting trade-offs to working with contradictions by simultaneously balancing paradoxical tensions on the systems level (Luhmann 1995, Bouchikhi 1998, Weick 2000, De Rond and Bouchikhi 2004, Andriopoulos and Lewis 2009). The following section elaborates on these basic ideas.

4.2. Balancing Countervailing Processes

This approach views the contradictory functions of fluidity and efficient replication as countervailing processes which organizations *and* their subunits have to balance. These contradictory functional requirements fundamentally result from the – already discussed – pursuit of building a partially invariant system in a complex and dynamic environment. Organizational practices, routines, and capabilities provide a set of problem-solving patterns that enable the system to master tasks in a complex environment. To make use of these advantages implies that only a specific set of procedures/connections is employed, whereas

other potentially available alternatives are excluded or ignored. Thus, organizing is by its very nature as selective as it is repetitive.

This selectivity of organizing creates an inherent structural risk (Luhmann 1995): misleading or inadequate patterns, ignored critical signals, or unanticipated events threaten the system's survival. This risk of being selective in boundary setting and the operative problem-solving architecture cannot be eliminated by switching to whatever forms of full flexibility – be it on the organizational or behavioral level. Rather, it has to be accepted as a matter of fact which must be observed and reflexively integrated into the organization's management. In other words, a system *has* to develop boundaries, identities, procedures, practices, and competencies which bring about institutionalizing effects (replicability, inertia, selectivity etc.) likely to damage the system's adaptability and flexibility. Responding to those inevitable tendencies (trade-offs), an organization has to find ways to handle this risk of inherent dysfunctional flips and rigidity.

Apart from design principles which attenuate the conflict, such as buffering, building redundancies, and loose coupling (Staber and Sydow 2002), the requirement of *balancing* these countervailing processes amounts to a separate function of an organization designed to take care of potentially failing or misleading mind maps, change requirements, and adaptation needs. It is by its very character a second order or meta function, which is designed to safeguard the dynamics of the organizational system.

1. The balancing process means, first of all, that the system itself reflexively monitors its stabilization mechanisms (e.g., exploitation, standard operating procedures, capability building), their evolution, their usage, the resulting effects internal and external to the organization, as well as critical issues and surprises which call their the system's adaptability into question.

2. By continuously observing (scanning) the system's operations vis-à-vis the environment, potential failures and "maladaptations" can be identified – preferably at a very early stage. By pursuing this goal and becoming aware of critical developments, the issue of *potential* change requirements is constantly put on the agenda. It becomes a permanent theme in organizational discourse. The suggested process is similar to "double loop learning" (Argyris 1976) or to "meta-learning" (Zollo and Winter 2002).

3. By continuously checking and discussing whether its established problem-solving architecture still works in light of recent internal and external developments, the organization gains flexibility in terms of critical reflection and response options for redirecting its routines. Executed in this way, the monitoring process takes care of the system's dynamics. It fosters awareness for outrun routines and competencies, thereby pressing for changes.

It should be pointed out, however, that discrepancies or rigidities registered this way, even if they are made into the subject of organizational discourse, do not automatically lead to actual change activities. Rather, facing such discrepancies the organization always has the option to learn and change the way of selecting and linking resources, or to stay with the established patterns nevertheless. The ideal of permanent transformation is replaced by the idea of a combination of learning and "non-learning", i.e. the decision to stay with the routines despite discrepant information (Schreyögg and Noss 2000). In many cases there may be good reasons to stay preliminarily with the established problem solving patterns, for example, because discrepant signals are not strong enough, their potential negative effects are too vague, switching costs are too high, or the firm perceives good chances to respond to the environment in such a way that the established competence remains valid (e.g. change of the competitive rules or acquisition of competitors).

It should be noted, however, that such reflexive monitoring is only effective if the evolved patterns of organizational activities are still reversible, not yet completely frozen. In other words, while these activities may be deeply embedded in organizational practices and even rooted in organizational paths, they are assumed nevertheless to become subject to change. Organizational routines can be displaced and organizational paths can be broken, at least potentially (Zollo and Winter 2002, Sydow et al. 2009).

The *focus* of monitoring activities should be kept as open as possible, similar to ad-hoc problem solving and spontaneous coordination. Any general rules or mechanistic routinization are likely to bring about counterproductive effects. Since the monitoring function is designed to compensate for dysfunctional effects of patterned routines, it has to develop a countervailing or complementary logic of functioning. Organizing for monitoring should therefore refrain from making use of the logic of routines (Schreyögg and Kliesch-Eberl 2007).

In a nutshell, our alternative conception is designed to exploit, on the one hand, the power of boundary building and maintaining mechanisms, patterned problem solving, organizational identity, and commitment. On the other hand, it is intended to *constantly balance* the inherent and inevitable risk of becoming ignorant, rigid or even path dependent. "Constant balancing" in this sense can be viewed as a meta-level process that permeates the system through surveillance and the identification of critical information and change necessities. This information is intended to encourage a re-thinking of the problem-solving procedures and priorities in use, to initiate a new translation of environmental demands, and possibly even to break or to depart from existing organizational paths.

Critical signals that call the operating mindset and procedures into question should, however, not be conceived as triggers that automatically lead to change. Organizations also have the

option to stay with the established rules, interpretation patterns, identities, and boundaries built in the past. The system has to learn not only to monitor its practices and their intended and unintended outcomes, but also to make use of the advantages of non-learning in terms of intentional *non*-adaptation to new or non-anticipated challenges. Organizations are not relentlessly changing systems; they have the *option* of adaptation (learning) or non-adaptation (non-learning). But, once again, non-learning also needs monitoring to decide whether it works or does not work. Instead of the ideal of full flexibility, boundary and identity building on the one hand, and system adaptation and flexibility on the other hand, the contemporary organization is conceived here as containing two separate countervailing processes that are to be performed simultaneously (Schreyögg and Kliesch-Eberl 2007).

This countervailing or paradoxical concept of constantly balancing conflicting demands differs from the structural concept of ambidexterity briefly outlined above. It does not favor a regime in which the two functions, exploitation and exploration, are delegated to different subunits and are kept separate, coupled by some structural integration efforts. Instead, it builds on the idea of balancing a countervailing set of processes within an organization and its subunits. Patterning and boundary building are the basis of this view; an inevitable function that all organizations (and their subunits) have to serve. The balancing perspective focuses on the dysfunctional effects of these organizational processes in the light of change requirements. The establishment of a monitoring meta function enables organizations to reflect on the conflicting demands for efficiency and flexibility.

In contrast to the fixed structural view of the ambidextrous organization, this model is processual in nature and open-ended. Organization designers cannot know in advance which routine process will need to be changed and which one will need to be retained. This seems to us a potentially more promising model than structural separation, because it facilitates,

beyond routines, the adaptation and learning of the *entire* organization and all its subunits. In contrast to the view of a contextual ambidexterity, the balancing perspective neither de-centers institutional logics and structural principles nor overstretches the behavioral flexibility of individual members. At this point, however, these ideas remain suggestions. Their workability and practicality has to be explored in the future. It seems obvious that the realization of this conceptualization will produce many modifications not yet anticipated. Further research is needed to determine whether the processual model actually moves us closer to a better solution of the paradox contemporary organizations face than the models of structural or contextual ambidexterity.

5. Implications for Organization Theory

What do all these considerations of the role of patterned problem solving and institutional dynamics mean for organization theory at a more general level? We would like to modify the widely applauded call for new fluid theories for "new" organizational forms (e.g. Daft and Lewin 1993, Child and McGrath 2001). We think that the focus should shift from an emphasis on fluidity, virtuality, and complete adaptability to a concern for countervailing processes and the mastering of contradictory or even paradoxical requirements in organizations and networks. This re-focusing would boil down to the need to build a new process-based organizational theory, which elaborates on the contradictory requirements systematically as well as mastering them. This new theorizing would also show and explain why these new organizational forms cannot be as flexible and fluid as promised after all.

Post Scriptum

Appreciating the thoughts of Eisenhardt et al. (2010) and, in particular, their strong emphasis on the idea of balancing, there seem to be two major challenges for advancing future organizational thinking in this direction. First of all, it seems necessary to develop an organizational framework which allows for conceptualizing contradictions and paradoxes. Most organization theories – explicitly or implicitly – are still based on a *linear* logic. Consistency is still among the predominant design principles. However, we need a non-linear logic in order to capture countervailing processes. The question is, what logic helps us to explain the genesis of contradictory organizational processes? Where do they come from and how can we integrate paradoxes into organizational theory and design systematically? We think modern systems theory and structuration theory offer an interesting template for this endeavor.

The second major concern is explaining the need for flexibility or fluidity. If we use the contingency logic that stresses environmental fitting, then we build on a classical cause and effect relationship. Subscribing to this logic binds us to a specific argument: the more dynamic the environment, the more fluid the organization has to be. Once underway, there is no stopping this line of reasoning. The logic of this reasoning does not change when we conceptualize the environment as multidimensional instead of one-dimensional. Pursuing this logic does not provide us with an explanation for the need for balancing. To explain this need, other theoretical perspectives have to be imported. Adding up latent contradicting perspectives has always been a subtle endeavor. From our point of view it is therefore preferable to look for an integrated theoretical model, which allows for countervailing forces from the very beginning.

References

Aldrich H. E. 1971. Organizational boundaries and inter-organizational conflict. *Human Relations* **24** 279-293.

Alvesson, M. 2002.*Understanding organizational culture.* Sage, London

Andriopoulos, C., M.W. Lewis 2009. Exploitation-exploration tensions and organizational ambidexterity: Managing paradoxes of innovation. *Organ. Sci.* **20**(4) 696-717.

Argote L. 1999. *Organizational learning: Creating, retaining and transferring knowledge*. Kluwer Academic, Boston.

Arthur W. B. 1994. *Increasing returns and path dependency in the economy*. University of Michigan Press, Ann Arbor.

Ashkenas R. 1999. Creating the boundaryless organization. *Business Horizons* **42**(5) 5-10.

Ashkenas R., D. Ulrich, T. Jick, S. Kerr. 2002. *The boundaryless organization: Breaking the chains of organizational structure,* 3rd ed. Jossey-Bass, San Francisco.

Argyris C. 1976. Single-loop and double-loop models in research on decision making. *Admin. Sci. Quart.* **21** 363-375.

Badaracco J. L. 1988. Changing forms of the corporation. J. R. Meyer, J. M. Gustafson, eds. *The U.S. business corporation - An institution in transition.* Ballinger, Cambridge, MA, 67-91.

Barney J. B. 1991. Firm resources and sustained competitive advantage. *J. Management* **17** 99-120.

Beech N., C. Huxham. 2004. Cycles of identity formation in interorganizational collaborations. *International Studies of Management & Organization* **33**(3) 28-52.

Benner M. J., M. L. Tushman. 2003. Exploitation, exploration, and process management: The productivity dilemma revisited. *Acad. Management Rev.* **28** 238-256.

Bouchikhi H. 1998. Living with and building on complexity: A constructivist perspective on organizations. *Organization* **5** 217-232.

Brown S. L., K. M. Eisenhardt. 1998. *Competing on the edge: Strategy as structured chaos*. Harvard Business School Press, Boston.

Burgelman, R. A. Strategic consequences of co-evolutionary lock-in: Insights from a longitudinal process study. G. Schreyögg, J. Sydow, eds. *The hidden dynamics of path dependence*. Palgrave-Macmillan, London, 233-248.

Carroll J. B. 1993. *Human cognitive abilities: A survey of factor-analytic studies*. Cambridge University Press, New York.

Child J., R. G. McGrath. 2001. Organizations unfettered: Organizational form in an information-intensive economy. *Acad. Management J.* **44** 1135-1148.

Ciborra C. U. 1996. The platform organization: Recombining strategies, structures and surprises. *Organ. Sci.* **7** 103-118.

Crozier M. 1993. Will a new logic of management emerge? J. Child, M. Crozier, R. Mayntz, eds. *Societal change between market and organization.* Aldershot, Avebury, 19-29.

Daft R., A. Y. Lewin. 1993. Where are the theories for the "new" organizational forms. An editorial essay. *Organ. Sci.* **4**(4) i-vi.

Daft R. L., K. E. Weick. 1984. Toward a model of organizations as interpretation systems. *Acad. Management Rev.* **9** 284-295.

D'Aveni R. A. 1994. *Hypercompetition: Managing the dynamics of strategic manoeuvring*, The Free Press, New York.

David P. A. 1985. Clio and the economics of QWERTY. *The American Economic Review* **75** 332-337.

Davidow W. H., M. S. Malone. 1992. *The virtual corporation*, Harper Collins, New York.

De Rond M., H. Bouchikhi. 2004. On the dialectics of strategic alliances. *Organ. Sci.* **15** 56-69.

DeFillipi R. J., M. B. Arthur. 1998. Paradox in project-based enterprise: The case of film making. *California Management Review* **40**(2) 125-139.

DeSanctis G., P. Monge. 1999. Introduction to the special issue: Communication processes for virtual organizations. *Organ. Sci.* **10** 693-703.

Dierickx I., K. Cool. 1989. Asset stock accumulation and sustainability of competitive advantage. *Management Sci.* **35** 1504-1510.

Dosi G., M. Hobday, L. Marengo. 2003. Problem-solving behavior, organizational forms, and the complexity of tasks. C. E. Helfat, ed. *The SMS Blackwell Handbook of Organizational Capabilities*, Blackwell, Malden, 167-192.

Duncan B. L. 1976. The ambidextrous organization: Designing dual structures for innovation. R. H. Kilmann, L. R. Pondy, D. P. Slevin, eds. *The Management of Organization. Strategy and Implementation.* Vol. 1 North-Holland, New York, 167-188.

Duschek, S., G. Ortmann, J. Sydow. 2001. Grenzmanagement in Unternehmungsnetzwerken: Theoretische Zugänge und der Fall eines strategischen Dienstleistungsnetzwerks. G. Ortmann, J. Sydow, J., eds. *Strategie und Strukturation*. Gabler, Wiesbaden, 191-233.

Eisenhardt K. M., J. A. Martin. 2000. Dynamic capabilities: What are they? *Strategic Management J.* **21** 1105-1121.

Eisenhardt, K. M., N. R. Furr, C. B. Bingham 2010. Organizing for simultaneity: Solutions for balancing efficiency and flexibility in dynamic environments. *Organ. Sci*. 2**1**

Feldman M. S. 2000. Organizational routines as a source of continuous change. *Organ. Sci.* **11** 611-629.

Flint D. J. 2002. Compressing new product success-to-success cycle time. Deep customer value understanding and idea generation. *Industrial Marketing Management* **31**(4) 305-315.

Ford J. D., L. W. Ford. 1994. Logics of Identity, Contradiction, and Attraction in Change. *Acad. Management Rev.* **19** 756-785.

Garud R., A. Kumaraswamy, R. Langlois. 2002. *Managing in the modular age: Architectures, networks, and organizations*. Wiley, New York.

Ghemawat P. 1991. *Commitment. The dynamics of strategy*, New York.

Gibson C. B., J. Birkinshaw. 2004. The antecedents, consequences, and mediating role of organizational ambidexterity. *Acad. Management* J. **47** 209-226.

Giddens A. 1984. *The constitution of society. Outline of the theory of structuration*. Polity, Cambridge.

Graetz, F., A.C.T. Smith 2007. The role of dualities in arbitrating continuity and change in forms of organizing. *Int. J. of Management Rev*. **9**(4) 1-16.

Gulati R. 1995. Social structure and alliance formation: A longitudinal analysis. *Admin. Sci. Quart.* **40** 619-652.

Gulati R., M. Gargiulo. 1999. Where do interorganizational networks come from? *Amer. J. Sociology* **104** 1439-1493.

Gupta A. K., K. G. Smith, C. E. Shalley. 2006. The interplay between exploration and exploitation. *Acad. Management J.* **49** 693-706.

Hannan M. T., J. Freeman. 1977. The population ecology of organizations. *Amer. J. Sociology* **82** 929-964.

Hannan M. T., J. Freeman. 1984. Structural inertia and organizational change. *Amer. Sociological Rev.* **49** 149-164.

Hedlund G. 1994. A model of knowledge management and the N-form corporation. *Strategic Management J.* **15**(S2) 73-90.

Helfat C. E., S. Finkelstein, W. Mitchell, M. A. Peteraf, H. Singh, D. J. Teece, S. G. Winter. 2007. *Dynamic capabilities*. Blackwell, Malden.

Helfat C. E., M. A. Peteraf. 2003. The dynamic resource-based view: Capability lifecycles. *Strategic Management J.* **24** 997-1010.

Heracleous L., M. Barrett. 2001. Organizational change as discourse: Communicative actions and deep structures in the context of information technology implementation. *Acad. Management J.* **44** 755-778.

Hoetker G. 2006. Do modular products lead to modular organizations. *Strategic Management J.* **27** 501-518.

Ilinitch A. Y., R. A. D'Aveni, A. Y. Lewin. 1996. New organizational forms and strategies for managing in hypercompetitive environments. *Organ. Sci.* 7 211-220.

Jacobides,M.G., St. Billinger.2006. Designing the boundaries of the firm: From "Make, Buy, or Ally" to the dynamic benefits of vertical architecture. *Organ. Sci.* **17** 249-261.

Kellogg K. C., W. J. Orlikowski, J. Yates. 2006. Life in the trading zone: Structuring coordination across boundaries in postbureaucratic organizations. *Organ. Sci.* **17** 22-44.

Kenis, P., M. Janowicz-Panjaitan, B. Chambré 2009. eds. *Temporary organizations*. Edward Elgar, Cheltenham:

Lawrence, P., J. Lorsch 1969.*Organization and environment*. Harvard Business School Press, Boston.

Leonard-Barton D. 1995. *Wellsprings of knowledge*, Harvard Business School Press, Boston.

Lewin K. 1947. Frontiers in group dynamics. *Human Relations* **1** 5-41.

Lewis M. W. 2000. Exploring paradox: Toward a more comprehensive guide. *Acad. Management Rev.* **25** 760-776.

Lindkvist L. 2004. Governing project-based firms: Promoting market-like processes within hierarchies. *J. of Management and Governance* **8**(1) 3-25.

Luhmann N. 1993. *Risk: A sociological theory (Social institutions and social change)*. DeGruyter, Berlin.

Luhmann N. 1995. *Social systems*. Stanford University Press, Stanford, CA.

Lundin, R.A., A. Söderholm. 1995. A theory of temporary organization. *Scand. J. of Management* **11**(4) 437-455.

Lytras M. D., M.-A. Sicilia. 2005. The knowledge society: A manifesto for knowledge and learning. *Interdisciplinary J. of Knowledge and Learning Objects* **1** 1-11.

Madsen P., V. Desai, K. Roberts, D.Wong. 2006. Mitigating hazards through continuing design: The birth and evolution of pediatric intensive care unit. *Organ. Sci.* **17** 239-248.

March, J.G. 1991. Exploration and exploitation in organizational learning. *Organ. Sci.* **2** 71-87.

Marengo L. 1992. Coordination and organizational learning in the firm. *J. of Evolutionary Economics* **2**(4) 313-326.

Miles R. E., C. C. Snow, J. A. Mathews, G. Miles, H. J. Coleman. 1997. Organizing in the knowledge age: Anticipating the cellular form. *Acad. Management Executive* **11**(4) 117-124.

Miller D. 1993. The architecture of simplicity. *Acad. Management Rev.* **18** 116-138.

Miller D. 1994. What happens after success: The perils of excellence. *J. of Management Studies* **31** 325-358.

Miner A. S., P. Bassoff, C. Moorman. 2001. Organizational improvisation and learning: A field study. *Admin. Sci. Quart.* **46** 304-337.

Mintzberg H. 1979. *The structuring of organizations*, Englewood Cliffs, NJ.

Mom,T.J.M., F.A.J van den Bosch, H. Volberda. 2009. Understanding variation in managers' ambidexterity: Investigating direct and interaction effects of formal structural and personal coordination mechanisms. *Organ.Sci*. **20** 812-828.

Neisser U. 1976. *Cognition and reality: Principles and implications of cognitive psychology*. W.H. Freeman, San Francisco.

Nelson R. R., S. G. Winter. 1982. *An evolutionary theory of economic change*. Harvard University Press, Cambridge, Mass.

O'Reilly C. A., M. Tushman. 2008. Ambidexterity as a dynamic capability: Resolving the innovator's dilemma. *Res. Organ. Behav*. **28** 185-206.

Parsons, T. 1991. *The social system,* Routledge*,* London (Reprint).

Pedler M., J. Burgoyne, J. Boydell. 1991. *The Learning Company. A strategy for sustainable development*. McGraw-Hill, London.

Piaget J. 1985. *The equilibration of cognitive structures: The central problem of intellectual development*. University of Chicago Press, Chicago.

Pierson P. 2000. Increasing returns, path dependence, and the study of politics. *American Political Science Review* **94** 251-267.

Piore M. J., C. F. Sabel. 1984. *Second industrial divide: Possibilities for prosperity*. Basic Books, New York.

Raisch, S., J. Birkinshaw, G. Probst, M.L. Tushman 2009. Organizational ambidexterity: Balancing exploitation and exploration for sustained performance. *Organ. Sci.* **20** (4) 685-695.

Rometsch M., J. Sydow. 2006. On identities of networks and organizations. M. Kornberger, S. Gudergan, eds. *Only Connect: Neat Words, Networks and Identities.* Liber & Copenhagen Business School Press, Copenhagen, 19-47.

Sanchez R., J. T. Mahoney. 1996. Modularity, flexibility, and knowledge management in product and organization design. *Strategic Management J.* **17** 63-76.

Santos F. M., K. M. Eisenhardt. 2005. Organizational boundaries and theories of organization. *Organ. Sci.* **16** 491-508.

Schilling M. A. 2000. Toward a general modular systems theory and its application to interfirm product modularity. *Acad. Management Rev.* **25** 312-334.

Schreyögg G., M. Kliesch-Eberl. 2007. How dynamic can capabilities be? *Strategic Management J.* **28** 913-933.

Schreyögg G., C. Noss. 2000. Reframing change in organizations: The equilibrium logic and beyond. *Acad. Management Best Paper Proc.* B1-B6.

Schumpeter J. A. 1934. *Theory of economic development*. Harvard University Press, Cambridge, MA.

Seidl D. 2005. *Organisational identity and self-transformation*, Ashgate, Burlington.

Siggelkow N., J. W. Rivkin. 2005. Speed and search: Designing organizations for turbulence and complexity. *Organ. Sci.***16** 101-122.

Simsek, Z. 2009. Organizational ambidexterity: Towards a multilevel understanding. *J. of Management Studies* **46**(4) 597-624.

Smith, W.K., M.L.Tushman.2005. Managing strategic contradictions: A top management model for managing innovation dreams. *Organ. Sci*. **16** 522-536.

Staber U., J. Sydow. 2002. Organizational adaptive capacity: A structuration perspective. *J. of Management Inquiry* **11**(4) 408-424.

Starkey K., C. Barnatt, S. Tempest. 2000. Beyond networks and hierarchies: Latent organizations in the U.K. television industry. *Organ. Sci.* **11** 299-305.

Sydow, J., G. Schreyögg, J. Koch 2009. Organizational path dependence: Opening the black box. *Acad. of Management Rev.* **34** 689-709.

Teece, D.J. 2007. Explicating dynamic capabilities: The nature of microfoundations of (sustainable) enterprise advantage. *Strategic Management J.* **28** 1319-1350.

Teece D. J., G. Pisano, A. Shuen. 1997. Dynamic capabilities and strategic management. *Strategic Management J.* **18** 509-533.

Tolbert P. S., L. Zucker. 1996. The institutionalization of institutional theory. S. R. Clegg, Hardy, C. North, C.E., eds. *Handbook of Organizational Studies.* Sage, London, 175-190.

Tsoukas H., R. Chia. 2002. On organizational becoming: Rethinking organizational change. *Organ. Sci.* **13** 567-582.

Vaill P. B. 1996. *Learning as a way of being: Strategies for survival in a world of permanent white water*. Jossey-Bass, San Francisco.

Weick K. E. 1977. Organization design: Organizations as self-designing systems. *Organizational Dynamics* **6**(2) 31-46.

Weick K. E. 1995. *Sensemaking in organizations*. Sage, Thousand Oaks.

Weick K. E. 2000. *Making sense of the organization*. Blackwell, Maiden, MA.

Wiggins R. R., T. W. Ruefli. 2005. Schumpeter's ghost: Is hypercompetition making the best of times shorter? *Strategic Management J.* **26** 887 - 911.

Wildavsky A. 1983. Information as an organizational problem. *J. of Management Studies* **20**(1) 29-40.

Williamson O. E. 1985. *The economic institutions of capitalism - firms, markets, relational contracting*. The Free Press, New York.

Winter S. G. 2000. The satisficing principle in capability learning. *Strategic Management J.* **21** 981-996.

Winter S. G. 2003. Understanding dynamic capabilities. *Strategic Management J.* **24** 991-995.

Zollo M., J. J. Reuer, H. Singh. 2002. Interorganizational routines and performance in strategic alliances. *Organ. Sci.* **13** 701-713.

Zollo M., S. Winter. 2002. Deliberate learning and the evolution of dynamic capabilities. *Organ. Sci.* **13** 339-351.

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