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M@n@gement in Times of Economic Crisis: Insights Into Organizational Ambidexterity

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We constantly hear of the increasing complexity of our fast-paced, globalized world, and those who did not survive the succession of crises of the last decade could certainly attest to the difficulties of strategy-making in such circumstances. Of course, our reflex when confronted with fear of the future is often to run for cover, particularly if management can get away with downsizing while blaming the crisis. But of course, this only fulfils the short-term objectives of strategy. If an organization favors short-term exploitation when crisis strikes, what will become of it in the longer term? By the same token, allocating resources to long-term exploration might incur the risk of precipitating the fall. It is with this ambidexterity dilemma in mind that I approached a group of colleagues who have for some time been at the forefront of research in the field. First, of course, is Michael Tushman of Harvard Business School. Michael, besides being a leading international scholar, is also one of the editors of M@n@gement. Michael is very supportive of the journal, and I thank him for that as well as for accepting the offer to join in this attempt to reflect on the dilemma of "ambidexterity in times of crisis". Michael has been working for a long time with my dear colleague Gilbert Probst, of the University of Geneva. Working together with Michael and other colleagues, Gilbert has inspired many young scholars to research the complexity and paradoxes of ambidexterity. Finally, Achim Schmitt, an up-and-coming academic, was the final element required for a successful team. Their joint efforts produced a very thoughtful insight into the way in which ambidexterity can pass a stress test in preparation for major future crises. They offer their views on improving the theory of organizational ambidexterity in the context of economic crises, and their case study of Samsung Electronics captures the essence of ambidexterity in practice. I feel that in broader terms their text also sets the agenda for future research on ambidexterity. I hope that the readers of M@n@gement will enjoy this Unplugged essay as much as I did.

Emmanuel Josserand
Editor in Chief
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INTRODUCTION

Research has taught us that besides achieving more efficiency, organizations should also have to search for radical, discontinuous innovations that could alter the competition within an industry. Organizations can meet the challenge of increasingly complex competitive environments by combining exploitation and exploration. Exploitation refers to the leveraging of existing capabilities through activities such as "refinement, efficiency, selection, and implementation", while exploration refers to efforts to create future capabilities by means of "search, variation, experimentation, and discovery" (March, 1991: 71). In addition, an exploitation strategy focuses on existing products and services' efficiency, while exploration aims to develop products and services for new markets. Although these tasks may be interrelated, they require underlying organizational processes, structures, strategies, and cultures that differ substantially. The ability to manage these conflicting demands is fundamental for sustainable performance.

The ambidextrous organization concept has fueled the debate on how organizations should simultaneously manage the paradoxical requirements of exploiting existing competencies and exploring new opportunities. Ambidextrous organizations are focused on current business demands, while also adaptive to potential environmental changes. This ability requires specific organizational attributes, such as structural designs, supportive organizational contexts, and an adequate top management team. It has been argued that ambidexterity is primarily contingent upon the availability of slack resources (e.g., Venkatraman, Lee, & Iyer, 2007), which enables firms to exploit and explore simultaneously by establishing ambidextrous designs. Without resources, firms may not be able to sustain this complex strategy (Lubatkin, Simsek, Ling, & Veiga, 2006). Consequently, resource abundance is expected to be beneficial for ambidexterity.

Management research has largely analyzed the ambidexterity premise under stable or growing environmental conditions, but, as we know, many firms have recently encountered the reverse. Between 2000 and 2010, firms twice experienced conditions of resource scarcity: the bursting of the dot-com bubble in 2000-01 and the sub-prime crisis in late 2008. These economic conditions have increased the complexity of today's business environment and unambiguously underline the importance of knowing how to deal with turbulent economic conditions. The resultant organizational challenges are completely new and qualitatively dissimilar to those associated with growth.

The literature only vaguely addresses an appropriate analysis of the relationship between conditions of economic crises and their impact on exploitation and exploration activities. Some researchers believe that under such conditions there is a greater need for simultaneous exploitation and exploration (e.g., Jansen, van den Bosch, & Volberda, 2006). Raisch, Birkinshaw, Probst, and Tushman (2009) maintain that in organizational crisis, ambidexterity is likely to be positively related to firm survival. Other scholars have conversely argued that environmental scarcity and the need for proximate outcomes cause exploitation to

drive out exploration (Levinthal & March, 1993; March, 1991). Consequently, there is still limited and contradictory empirical evidence of a positive relation between ambidexterity and environmental hostility.
Whether and how exploitation and exploration emerge in an economic crisis have been inadequately addressed. In light of the recent economic developments, we want to stimulate more insights into the relationship between crisis conditions and the trade-off between exploiting existing competencies and exploring new opportunities.
This unplugged series addresses these questions and introduces the illustrative case example of the Korean company Samsung Electronics. Similar to other major Korean firms, Samsung Electronics experienced high growth and successful diversification for many years, which were suddenly disrupted by the Asian economic crisis in November 1997. While some companies (e.g., Daewoo) became victims of the turbulent economic conditions, Samsung Electronics navigated the crisis successfully and actually managed to progress towards becoming a global company during this period. By taking a closer look at the company's organizational crisis behavior during that time, we provide first insights into the conundrum of the relationship between resource scarcity and the simultaneous pursuit of exploration and exploitation.

ECONOMIC CRISIS: INHIBITOR OR STIMULUS OF ORGANIZATIONAL AMBIDEXTERITY?

Organizational performance relates to being aligned and adaptive to a firm's environment. During the past 50 years, adaptive strategic behavior has received support from contingency and resource dependency theorists. Both groups have emphasized that organizations have to cope with their specific environment and permanently adjust their structures and processes to constantly explore and exploit (Tushman & O'Reilly, 1996). The past decade alone has twice witnessed tremendous global economic crises. More than ever, these developments reveal a complex, highly interconnected, hostile, volatile, and 'hypercompetitive environment' (D'Aveni, 1994) for organizations.
A crisis is generally defined as an ambiguous situation that poses a major threat to organizational survival (Pearson & Clair, 1998), whose causes and effects are unknown (Dutton, 1986), to which there is little time to respond (Hermann, 1963), and which requires decisions or judgments that will result in a change for the better or the worse (Marcus & Goodman, 1991). Among other crises – such as political events (i.e. the Gulf war), natural catastrophes (i.e. hurricane Katrina), technological disasters (i.e. the Millennium Bug problem), and firm-level crises (i.e. labor strikes) – economic crises are currently a major threat to organizational survival. These crises manifest themselves in many macroeconomic indicators such as decreasing real gross domestic product (GDP), high levels of inflation and unemployment, turbulent financial markets, as well as unstable currencies. Dealing with and managing successfully during these environmental conditions are substantial challenges for all organizations.
Several scholars have argued that the environmental characteristics

and conditions may be an important condition for organizational ambidexterity (e.g., Gibson & Birkinshaw, 2004; Levinthal & March, 1993; Siggelkow & Levinthal, 2003). Jansen, van den Bosch, and Volberda (2005), for example, indicated empirically that local environmental conditions shape the intensity with which to simultaneously pursue exploitation and exploration. Moreover, Raisch and Birkinshaw (2008) call for a contingency perspective to determine the effectiveness of a firm's exploitation and exploration under different contextual conditions. Consequently, we expect economic crisis conditions to affect the relationship between exploitation and exploration. While some authors suggest that firms leverage existing competencies and capabilities through exploitation (e.g., Staw, Sandelands, & Dutton 1981), others argue that exploration is an appropriate crisis response (e.g., Hedberg, Nystrom & Starbuck, 1976).

Increased intensity towards exploitation

Similar to technological discontinuities, an economic crisis radically modifies organizational competence requirements and the bases of competition in an industry. Often combined with sharp discontinuities in demand and growth rates (Pearson & Clair, 1998), organizations face risk and uncertainty regarding their strategic planning, which may seriously threaten their market share, profitability, and/or liquidity. Firms face the difficulty of correctly estimating the likelihood of potential macroeconomic changes that may force them to radically reconfigure their value chains in response to new threats (Bowman & Hurry, 1993). In this sense, an economic crisis limits the proper development of cause and effect relationships between critical decision variables. In turn, this limitation makes it difficult for organizations to effectively align their internal structures and processes to the environment.

Scholars have repeatedly mentioned that environmental malevolence impacts organizational behavior. Cyert and March (1963) have, for instance, pointed to the release of organizational slack in bad times, while organizations tend to accumulate slack in good times. Consequently, firms under conditions of economic crisis should rather focus on short-term, visible results through exploitation than on explorative activities, which are linked to a certain degree of uncertainty regarding future costs and benefits. Several studies support this argument. For instance, Cameron, Kim, and Whetten (1987) have empirically shown that environmental turbulence increases greater standardization, centralization, conservatism, and rigidity, while simultaneously decreasing information sharing, participation, long-term planning, and innovativeness. D'Aunno and Sutton (1992), as well as Staw, Sandelands, and Dutton (1981) have also observed a greater emphasis on efficiency, reinforcement of existing policies and procedures, and routinization – all of which were found to hinder strategic change and entrepreneurial activities. Similarly, Hermann (1963) argues that organizational crisis leads to restricted information processing, consideration of fewer decision alternatives, and rigidity. These 'threat-rigidity responses' (Staw et al., 1981) during crisis conditions have often been followed by retrench-

ment activities focusing on efficiency.

Additionally, research has highlighted that top-managers' characteristics in decision making are significantly affected by environmental turbulence and crisis (Cameron et al., 1987). Thompson (1967) observes, for instance, that executive leadership buffer their firms under environmental crisis situations. The increase in stress and uncertainty in management decision making often triggers a managerial response aimed at reducing uncertainty and sustaining continuity throughout the organization (Leblebici & Salancik, 1981). Top managerial actions try to protect ("buffer") organizational members from environmental threats and turbulence (Cameron et al., 1987). Under such conditions, leveraging the firm's existing competencies and capabilities through exploitation (March, 1991) enables managers to minimize input resources and stabilize operational performance.

All these arguments suggest that an economic crisis's impending effects on organizations increase the drive towards exploitation. Since managers face unpredictable market developments, they find it difficult to decide on an appropriate level of investment to address future economic threats. Conversely, a focus on exploitation increases the chance of remaining profitable under economic conditions of scarcity, which often materialize as a drop in sales turnover or financial instability. Under these conditions, firms may tend to increase their resource commitments to exploit existing capabilities (e.g., Staw *et al.,* 1981, Cameron *et al.,* 1987).

Increased intensity towards exploration

As compelling as the arguments for an exploitative response under economic crisis conditions may seem, economic crisis can also intensify a focus on exploration. In fact, periods of economic crisis may suddenly shift organizations' existing environmental conditions, altering them fundamentally (Pearson & Clair, 1998). These unpredictable shifts may render prior organizational capabilities obsolete. Consequently, several scholars (e.g., Sanchez, 1995; Harrigan, 1985) argue for flexible organizational capabilities to better respond to environmental changes and sustain competitive advantage. Kogut and Kulatilaka (2001), for example, state that high investments in R&D create the possibility to transfer R&D capability to other uses. Furthermore, McGrath (1997) believes that these R&D investments may enable firms to change their product attributes more rapidly than their competitors can. Similarly, Bowman and Hurry (1993) mention that firms with flexible capabilities have the advantage of outperforming competitors under situations of environmental change.

This positive association between flexible capabilities and a firm's explorative activities during an economic crisis (Gilbert, 2006) reflects the fundamentals of organizational learning (Lant & Mezias, 1992). During an economic crisis, effective actions can only be known ex-post due to the high degree of environmental uncertainty. Since each crisis is unexpected and unique, organizations cannot learn to handle them in advance. Consequently, both successes and mistakes provide new

information and experience, which form the basis of learning (March, Sproull, & Tamuz, 1991). Uncertain, high-risk activities regarding an organization's resource commitments may thus have more survival value in turbulent contexts than incremental improvements of the status quo. Exploration helps overcome inertia and increases the likelihood of successfully aligning the organization with the demands of an evolving environment (Hedberg et al., 1976). Consequently, Virany, Tushman, and Romanelli (1992), as well as Tushman and Rosenkopf (1996) have positively associated major strategic reorientations with organizational adaptation under environmentally turbulent conditions. Similarly, Weick (1979) stated that random choices between plausible rival actions may enhance an organization's possibility of survival.

All these arguments suggest that only firms with a certain degree of flexibility can sustain competitive advantage during an economic crisis. Exploration provides firms with the ability to build up and maintain capabilities that demonstrate value when there is a need to adapt to a changed market environment under economic crisis situations.

A stimulus towards ambidexterity

The extant literature, then, provides well established arguments for exploration as well as for exploitation during an economic crisis. Instead of taking an 'either or' stance, we expect organizations capable of meeting both the efficiency and exploratory challenges to have a greater likelihood of enhancing their performance under economic crisis situations. Our argument mirrors recent conceptualizations of exploration and exploitation as not only distinct activities, but also as concurrent activities in the sense that high levels of exploitation and coexist with high levels of exploration (e.g., Raisch et al., 2009). Moreover, researchers (McGrath, 2001; Siggelkow & Levinthal, 2003) have argued that there is a positive relationship between dynamic organizational environments and the benefits of ambidextrous solutions. However, we aim to shed light on an important, difference: economic crisis conditions function as an amplifier of the existing trade-offs between the two orientations.

On the one hand, the inherent conditions of economic crisis impose a constant threat of emphasizing exploitation over exploration activities. Owing to the often encountered reduced attention to developing new capabilities and competences during situations of decline and turbulence (Cameron et al., 1987), firms could fall into a competence trap in which they will suffer from obsolescence. D'Aveni (1989) highlights this problem, as his results emphasized that, in comparison to surviving firms, bankrupt firms rigidly adhere to existing strategies and their authority is more centralized. Additionally, failing firms tend to focus more on input resources (i.e. creditors or suppliers) and internal factors (i.e. top managers, employees) than managers of surviving firms do (D'Aveni & MacMillan, 1990). Consequently, if a firm's performance decreases consistently, firms need to resist sustained reinforcement of the status quo through exploitation strategies as this may accentuate performance decline.

On the other hand, a focus on exploration during economic crisis always

amplifies the risk of binding too many organizational resource commitments in uncertain projects. The decreasing availability of organizational resources under crisis conditions simultaneously increases the exploration's dependency on organizational resources released through exploitation (Freeman & Cameron, 1993). Assigning too many organizational resources exclusively to exploration thus runs the risk that these investments may never yield returns (Levinthal & March, 1993). Vacillating exploration strategies could expand the firm into unfamiliar business areas that offer no, or only limited, possibilities for optimal resource allocation. Under such circumstances, the disproportionate use of the firm's limited financial and human resources for recovery activities reinforces the threat of resource depletion.

Based upon these arguments, we believe that organizational behavior during periods of economic crisis does not relate to the question of 'whether or not' to exploit or explore, but rather to 'where' and 'how much' to exploit and explore. Economic crisis conditions require even more organizations to carefully balance exploiting their current capabilities and exploring new ones. D'Aveni and MacMillan (1990) support this argument and emphasize a balanced approach to external and internal environmental demands during crisis conditions. Similarly, Volberda (1996) states that both strategies are crucial to remain flexible under environmental uncertainty. Rivkin and Siggelkow (2006) also argue for a dynamic balance between search and stability to avoid being prematurely locked into a current strategy under increased levels of uncertainty. Pursuing both strategies simultaneously allows organizations to mitigate the organizational effects of economic crisis, to remain flexible in their response to potential developments, and to reduce the degree of environmental uncertainty. Responding to various demands during economic crisis may thus depend on both the resource availability's flexibility (Harrigan, 1985) and the managerial ability to develop effective strategies in the short and long term (Smith & Tushman, 2005).

Studying organizational behavior in times of economic crisis has been difficult. Admitting failure was long considered a social taboo, which led to a 'failure paranoia' with managers often refusing to admit that their organization was in trouble (Whetten, 1980). Additionally, prior research often exemplified organizations in crisis as examples of faulty management, which gave them little incentive to cooperate with researchers. Hence, it has often been impossible to gain information about specific behavior and activities during economic crisis. The recent economic developments have, however, given firms more incentives to gain insights into economic crisis, turbulence, and uncertainty. A substantial number of organizations are increasingly challenged to substantially reconsider their competition bases and operation scales on a regular basis. Organizational decline and corporate crisis may formerly have been considered aberrations (Whetten, 1980), but they have become regular phenomena in our business society.

In a first approach to stimulate additional discourse on organizational behavior during economic crisis, this article launches a theoretical reflection on this issue. Moreover, we decided to develop our assertions

by taking a closer look at the real world and analyzing how certain companies have managed economic crises successfully. By discussing the Samsung Electronics case example in more detail, we can begin to highlight certain key characteristics that may determine organizations' ability to simultaneously exploit and explore under environmental scarcity and turbulence. Additionally, we derive potential insights from studying organizational behavior during economic crisis and discuss these from a theoretical point of view.

Samsung Electronics is an excellent setting to examine these issues. First, major Korean firms' unique economic performance prior to the late 1990s was dramatically disrupted by the Asian economic crisis in 1997 and by the IMF bailout, which allows us to isolate the economic crisis's effect. Second, this economic turmoil led to massive pressure on all Korean industries, which threatened their survival. Firms were forced to fundamentally rethink their business procedures. Third, in comparison to most of its Korean counterparts experiencing similar pre-crisis conditions, Samsung Electronics' crisis recovery response was particularly successful. During this period, the organization paved the way to transform itself from a loss-making company associated with cheap products to a global leader of high-end products. Finally, prior research (e.g., Robbins & Pearce, 1992) mentions that an average of three to four years is required before organization behavior's effectiveness during a crisis can be truly evaluated. We thus believe that Samsung Electronics' behavior at the end of the 1990s provides us with a good possibility to evaluate a specific crisis behavior.

NAVIGATING AN ECONOMIC CRISIS: THE SAMSUNG ELECTRONICS CASE

Samsung Electronics Co. (SEC) is the flagship company of the Samsung Group, the Korean 'chaebol' conglomerate. In 1996, SEC contributed nearly one-fourth of the total group earnings of $93 billion and guaranteed $4.5 billion of the other business units' debt (i.e. 21% of Samsung's auto division, Samsung Motors Inc., was paid-in capital from SEC). This strong position within the Samsung Group was based on the company's aggressive growth strategy aimed at becoming the world's dominant supplier of computer microchips (Dynamic Random Access Memories – DRAM chips – contributed almost 50% to SEC's total sales). However, SEC experienced a massive profit decline of 93% (to $194 million) in 1996 due to collapsing prices in its microchip business segment. By the end of 1996, excessive capital borrowing and poor financial management had left SEC in an economically poor condition (Ihlwan & Bremner, 1998; Weld, 1999).

Six months later, in July 1997, the emergence of the Asian financial crisis affected the regional economies' currencies, stock markets, and asset prices, triggering a precipitous increase in private debt. In South Korea alone, the crisis devalued the Korean Stock Exchange by 75% and increased unemployment to 6.8%. The entire Samsung Group's

total earnings plummeted 80%. SEC was specifically affected by the crisis through a sharp decline in the regional demand for microchips (its annual profits decreased even further to $87 million) and the financial consequences of South Korea's currency devaluation. The latter caused a significant increase in the company's debt financing ($23.4 billion owed to domestic and overseas banks). Moreover, the company faced excess production, increased inventory levels, and decreasing product life-cycles, as well as a $700 million write-off after an unsuccessful takeover of the US PC producer AST Technology (Edwards, Ihlwan, & Engardio, 2003). The company's newly appointed CEO, Yun Jong Yong, faced the challenge of dealing with these economic conditions and avoiding corporate bankruptcy. During 1997 and 1998, he implemented a turnaround program that included workforce reductions (24,000 employees or 25% of the workforce), restructuring of the business portfolio (elimination of underperforming units and assets worth $2 billion), a corporate reorganization, and a profound restructuring of the balance sheet.

SEC's strategic approach

Korea's currency deflation during the Asian crisis offered SEC a unique opportunity to focus all resources on flooding the semiconductor market (commodity market) with low-priced exports. Some competitors and experts considered this option as a promising means to generate sufficient revenue to survive the aftermath of the crisis. Additionally, boosting exports in this commodity market seemed promising, as industry analysts predicted that prices for memory chips would rebound in 1998. Although financial resources were urgently needed to support SEC's crisis situation, Yun decided to take a different approach.

First, Yun realized that stopping any investments in DRAM technology risked permanently losing the company's position as the industry's technology leader in that business segment. He knew that their competitors in the memory chip market were withholding investments due to the poor economy. This passivity offered an opportunity to further develop SEC's long-term technological strengths in the semiconductor business. With a $100 m. investment in Intel Corp., SEC invested in the manufacture and assembly of, and test sites for, its next 72-Mbit DRAM chips (Weld, 1999). These activities enabled process innovation and sustainable cost reductions. Moreover, the collaboration helped Intel to promote DRAM chips as the industry standard, while SEC secured its status as a next-generation technology supplier. Second, Yun was convinced that SEC needed to decrease its overall dependency on the semiconductor business (in 1995, memory chips accounted for about 90% of the company's profits and almost half of its sales). With additional investments in new business areas such as wireless communication, liquid-crystal displays (LCD), and high definition televisions, he aimed at balancing the company's future business activities.

Both decisions reflected Yun's overall commitment to shifting SEC from a me-too producer of low and medium-quality electronic goods towards a market leadership position in each of its markets. If SEC were only to be known as a company for cheap, efficient, and fast production, it

could not grow sustainably in the future. Instead, Yun considered the new digital age – a switch from analog to digital technology – a fundamental paradigm shift in the electronics industry that would require SEC's reinvention to pioneer new technologies to fit the emerging market conditions (Yun, 1998). Consequently, SEC was among the first and most aggressive firms to implement the digital media revolution (Andrew & Sirkin, 2006).

Structural reforms

As an immediate response to the crisis, Yun began to aggressively exit non-growing and non-innovative businesses. One example was Yun's decision to drop the VCR business, which, while profitable at that time, was not growing (Andrew & Sirkin, 2006). In total, he discontinued 52 product lines. None of these business lines were in line with SEC's overall future strategic positioning. While some of these businesses contributed positive margins, they were eliminating organizational and managerial resources required to refocus on SEC's future core business fields. Furthermore, Yun understood that the emerging business units had to be somehow separated from the traditionally dominant memory microchip business. Without this separation, Yun feared that the highly dynamic non-memory areas would lack sufficient resources and competences to be competitive. On the other hand, the highly price-competitive memory business would suffer distractions from the emerging non-memory areas. Accordingly, Yun aimed at creating a supportive organizational structure for the memory and non-memory business units.

Yun's structural reorganization was characterized by decentralization and flat hierarchical structures. Instead of the traditional Korean centralized structures, he reorganized the company into four distinct and completely independent business divisions (Digital Media, Semiconductors, Information & Communication, and Home Appliances). These divisions were autonomous and responsible for their own R&D, product development, production, marketing, and sales and distribution (Nakarmi, 1999). While competition in the traditional semiconductor business was based on exploiting capabilities and incremental innovation (i.e. the switch from the current chip generation to the next), the other businesses were based on distinct entrepreneurial capabilities characterized by innovation, speed, and intelligence (i.e. the evolution of digital mobile phones, HD televisions, MP3 music players). According to Yun (1998), only this structural setting enabled SEC to quickly respond to changes in its business climate.

Additionally, Yun decided that each business division's performance had to be benchmarked against outsiders, which would lead to a constant drive for performance and efficiency (Edwards *et al.,* 2003). Internal and external sourcing options were equally considered. Each business division could independently decide where (internally or externally) to buy its requirements, thus ensuring the best quality and price. Yun believed that SEC's fixed notions and formalism prior to the Asian crisis had to be abandoned to elevate the company's way of thinking and allow each business unit greater flexibility (Yun, 1998).

Leadership and management

Yun's decentralization approach decreased the senior team's direct involvement in operational tasks. Conversely, the business units received clear objectives (i.e. market share, innovativeness, quality, and profitability) to regularly measure their progress. The company managed to embed a "quality is my pride" management philosophy reflecting its commitment to quality rather than quantity (Andrew & Sitkin, 2006). Strengthening the business unit's power increased autonomy, decision-making speed, and implemented a corporate culture characterized by simplicity and autonomy (Yun, 1998). Yun also decided to break with traditional Korean business traditions (e.g., lifetime employment, Confucian respect for seniority) and cut salaries, introduced a performance-based remuneration system, implemented a monetary-rewarding employee suggestion system, and aimed for cultural diversity among the employees. For instance, SEC's business units hired 800 PhDs and about 300 MBAs from Western universities alone during the economic crisis (Engardio & Ihlwan, 2003). With its core strengths in microelectronics, telecom equipment, PCs, and consumer appliances, the company strived for market leadership in each major segment.

The overarching aim of Yun's turnaround effort was to lead SEC towards becoming the global electronics leader. Under the newly formulated vision of "leading the digital convergence revolution," the company launched a new corporate identity program. The slogan "SAMSUNG DIGITall, Everyone's invited!" was meaningful to all of SEC's business units. Besides producing digital products, being "DIGITall" formulated the senior team's objective of digital integration across the entire company. This emphasized the existing connections between the business units, highlighted the interrelations between the conventional and emerging business activities, and prevented organizational separation from becoming organizational fragmentation. As a result of this approach, each senior manager was required to undertake regular field visits in order to ensure a profound understanding of SEC's overall operations (Jones, 2002). In addition, the business units' processes (i.e. procurement, production, sales, and logistics) became accessible "on-line", enabling greater managerial transparency regarding SEC's value chain (Jones, 2002). Field staff were equipped with notebook computers and cellular phones enabling them to efficiently respond to customer needs (Nakarmi, 1999).

These changes were also mirrored in SEC's senior team composition. First, Yun aimed at diversifying the company's senior team composition. He appointed six outsiders (incl. foreigners) to his senior management team, where there had been none in 1997 (Nakarmi, 1999). These international recruits were actively supported to gain authority, even if they could not speak fluent Korean. Second, instead of appointing senior managers on the basis of seniority, Yun abolished this tradition and relied solely on performance evaluation criteria. Shifting from a culture granting lifetime employment towards a culture rewarding outstanding performance clarified that executive leaders were similarly expected to fulfill expectations. Finally, Yun inaugurated a new meeting culture at

the executive level. Instead of long presentations or reports within the corporate board, senior managers were urged to implement practices that both facilitated debate and encouraged people to find consensus. These discussions at the executive level enabled a sounder and more fruitful decision-making process, minimizing the risk of uncoordinated or loose links between each business unit.

Performance outcome

In 1999, SEC's overall performance already indicated the success of Yun's turnaround response to the Asian crisis. Profit increased from $87 million in 1997 to $2,700 million. The traditional strong memory chip business accounted for only 20% of the company profits. The company's monetary-rewarding employee suggestion system yielded an average of 5.5 implemented employee suggestions (Jones, 2002). In 2003, five years after the crisis, SEC achieved global market leadership in most of its market segments, employed 64,000 people, and further increased its profits to $5.9 billion in 2002 (Edwards *et al.*, 2003).

A CLOSER LOOK AT ORGANIZATIONAL BEHAVIOR DURING ECONOMIC CRISIS: PROMISING INSIGHTS IN FAVOR OF AMBIDEXTERITY

The case of Samsung Electronics reveals how the company managed to renew itself with cutting-edge products and processes without destroying its traditional business during an economic crisis. The firm's flexibility to simultaneously explore and exploit was a crucial aspect in its successful response to the emerging market threats and the opportunities that the Asian crisis presented. These activities encompass more than just sufficient financial slack to stimulate ongoing innovation. As the example shows, ambidexterity under crisis conditions requires specific organizational attributes – just as they are required under conditions of economic growth and stability (e.g., Raisch & Birkinshaw, 2008). A closer examination of our particular case during the Asian crisis allows us to outline some of the following potential insights.

Perspective #1: The performance linkage

To date, the linkage between organizational ambidexterity and performance has provided inconsistent findings. March (1991) first mentioned that engaging in either exploitation or exploration would create 'competency traps' and argued that they should be jointly pursued. Combining exploitation and exploration improves performance by allowing organizations to be innovative, flexible, and effective while remaining stable and efficient. Based on March's ambidexterity-performance assertion, several studies have analyzed the performance outcomes of ambidexterity, arriving at rather equivocal results. These findings have provided evidence of a direct (e.g., Lubatkin *et al.,* 2006), a contingent (e.g., Lin, Yang, & Demirkan, 2007), and a non-existent (e.g., Venkatraman *et al.,* 2007) relationship between ambidexterity and performance. Hence,

evidence of the linkages between organizational ambidexterity and performance remains weak.

Recently, an increasing number of scholars (Raisch & Birkinshaw, 2008; Raisch *et al.,* 2009; Simsek, 2009) have highlighted the need for a further analysis of the conditions under which ambidexterity leads to success. Instead of relying on single performance indicators that may bias the ambidexterity-performance relationship, these authors claim for multiple performance dimensions, including environmental moderators (i.e. the industry context, environmental dynamism) and various firm performance indicators of effectiveness (i.e. sales growth, market share, profit) and efficiency (i.e. return on investment, return on sales, return on assets).

In answering this call, we consider the analysis of the ambidexterity-performance relationship under economic crisis situations a fruitful avenue for future research for various reasons. First, the environmental context is an essential element in understanding ambidexterity's performance effect (Simsek, 2009). Economic crisis situations create similar environmental conditions for organizations active in the same industry and may highlight specific organizational attributes responsible for successful organizational ambidexterity. While Samsung Electronics managed to successfully navigate the Asian crisis, other companies within the same industry went bankrupt or only yielded mediocre performance results (e.g., Daewoo Electronics, LG Electronics). This facilitates the comparison between a distinct crisis behavior and performance recovery.

Second, an economic crisis often functions as a Lewinian 'unfreezing' process that leads to organizational activity through either reinforcement and/or alteration of the status quo. The presence of a triggering event enables us to attribute certain activities before and after the crisis. At SEC, Yun reinforced the traditional chip business, while simultaneously investing heavily in distinct emerging business areas. These actions allow us to identify and analyze the selection, implementation, and effectiveness of explorative and/or exploitative activities more precisely.

Finally, economic crises provide additional measures of success, such as firm survival, the overall impact of the crises on organizations, and the decrease in organizational slack, employee turnover, and corporate reputation. Besides SEC's financial performance improvement since the outbreak of the crisis in 1997, the company also achieved market leadership in most of its business activities, transformed its corporate reputation and image dramatically towards a qualitative, high-end producer in the digital media business, and constantly improved its number of commercialized R&D projects.

Perspective #2: Resource availability

Research has argued that environmental munificence positively supports multiple organizational growth opportunities (Dess & Beard, 1984). The ease with which organizations can access financial and human resources in munificent environments provides them with the

resources for exploration and exploitation (Pfeffer & Salancik, 1978). Unfortunately, only a few studies have addressed the question of how environmental munificence impacts the pursuit of ambidexterity. For instance, Cao, Gedajlovic, and Zhang (2009) empirically indicate that scarce environmental contexts increase the trade-off between exploitation and exploration. Similarly, Jansen, van den Bosch, and Volberda (2005) indicate an increased necessity for ambidexterity under situations of high environmental dynamism and competitiveness. We believe that addressing the question of how external resource constraints generally impact the pursuit of exploration and exploitation will help uncover critical elements for managerial attention.

Similarly, the inherent condition of increasing levels of organizational scarcity during economic crises provides promising insights for the ambidexterity debate. Scholars have started applying organizational slack as a moderator of exploration and exploitation. Jansen, van den Bosch, and Volberda's (2006) empirical findings indicate that the simultaneous pursuit of exploration and exploitation negatively impacts the overall level of organizational slack. Similarly, Lubatkin, Simsek, Ling, and Veiga (2006) argue that small firms with fewer organizational resources may not be able to manage the contradictory knowledge processes required to attain ambidexterity. Likewise, Ebben and Johnson (2005) provide empirical evidence that small firms benefit more from a focusing strategy than from a mixed one.

Nevertheless, there is no empirical evidence that organizational ambidexterity is contingent upon the availability of sufficient resources. In fact, organizations are not equally affected by an economic crisis. Some organizations may suffer more from financial hardship, while others may overcome the economic conditions relatively easily. Samsung's ability to excel in both exploration and exploitation may be attributed to its capability to generate sufficient slack during the implementation of the crisis response. Yun's efforts to make SEC's semiconductor business more efficient and to establish a collaboration with Intel Corp. simultaneously allowed him to finance the required investments in the emerging business areas. More importantly, however, such a procedure raised the question if firms' exploitative units need a certain strength to support the costs of the exploratory units. Analyzing the organizational conditions (i.e. the organizational resources, firm size, firm scope, market share, international context, etc.) during economic crises may better isolate these factors and allow researchers to reveal how organizations reconcile exploration and exploitation's conflicting demands.

Perspective #3: Structural dimension

Initially, the 'organizational ambidexterity' concept was conceptualized as sequential patterns of organic and mechanistic structures (Duncan, 1976). Basically, firms manage to initiate innovations through organic structures, which are followed by mechanistic structures to exploit them. This view of temporal sequencing is evident in some of the current research on organizational change and adaptation (e.g., Venkatraman *et al.,* 2007). While the temporal sequencing of exploration and exploita-

tion is based on a rate of change that permits organizations to choose their alignments sequentially, we consider this approach inadequate under situations of swift, uncertain environmental change. Like the Samsung Electronics case highlights, firms are often required to simultaneously deal with performance problems and environmental change. Failure to respond and adapt to both environmental demands within an adequate period could mean missing strategic windows, opportunities, and falling behind competition. Consequently, an environmental crisis requires organizational architectures to allow the simultaneous pursuit of exploitation and exploration.

Based upon the ideas of contingency theorists, these complex organizational forms reflect the firm's environmental uncertainty through their multiple integrated and mutually inconsistent architectures (O'Reilly & Tushman, 2004). Instead of switching between designs for exploration and exploitation, ambidextrous organizations simultaneously host exploitative and explorative subunits. They thus consist of multiple contradictory structures, processes, and cultures within the same firm. Owing to the limited structural linkages, organizations are capable of simultaneously maintaining different competences with which to address inconsistent demands arising from environmental turbulence. Generally, the literature identifies structural separation and contextual solutions as two fundamental design options (e.g., Raisch, 2008). Under structural separation, organizations are divided into distinct organizational units that pursue either exploration or exploitation. Aiming to achieve exploratory or exploitative goals, each unit contains its own structure, culture, and employees. Conversely, contextual solutions benefit from supplemental network structures that complement a dominant organizational design. This design enables employees to switch between routine tasks in the primary structures and innovative tasks in network structures. Competing demands for exploitation and exploration coexist within a single business unit.

Contextual solutions depend on a certain degree of organizational flexibility, allowing employees to divide their time between efficient operations and innovative activities. To be successful, this solution requires formally established routines, supportive organizational contexts, as well as a certain organizational culture (Birkinshaw & Gibson, 2004; Raisch, 2008). However, environmental crisis conditions may fundamentally alter these requirements. The decreasing level of organizational slack due to the economic crisis leads to an intensification of conflicts on the organizational level, as mutually exclusive resource requirements predominate (Cameron *et al.,* 1987). This increase in resource scarcity strengthens and amplifies the trade-off between exploration and exploitation (Gupta, Smith, & Shalley, 2006). As seen in our example, the organizational performance decline (i.e. the drop in sales) urged Samsung Electronics to produce short-term visible results by means of downsizing and retrenchment. This crisis response entailed greater standardization, tight controls, and routinization. However, Samsung also managed to ensure that both exploitation strategies and their organizational effects did not negatively impact the organization's overall exploration strategy in some of the other business

units. In this respect, the absence of a clear separation between the two orientations could destroy an organization's explorative capability. Consequently, we believe that conditions of economic crisis and turbulence decrease the likelihood of performance improvement through contextual solutions.

Based on Samsung Electronics' example, we argue that, generally, structural separation has a positive impact on the pursuit of exploitation and exploration during economic crises. An organizational design consisting of fundamentally different subunits enables each unit to be aligned and adapted to specific environmental demands. To protect the benefits of historically rooted learning, as well as to escape from this learning regime, structural separation creates multiple internally inconsistent organizational architectures simultaneously (O'Reilly & Tushman, 2004). Separation allows cross-fertilization between units and prevents cross-contamination, as explorative units are protected from exploitative units' routines and established processes (O'Reilly & Tushman, 2004). In comparison to semi-structures that are both loose and tightly designed, such architectural design enables organizations to set clear objectives for exploitation and exploration. Under economic crisis conditions, separation evades the impending threat of having to sacrifice efficiency for innovative activities and vice versa.

Perspective #4: Senior team capabilities

Combining exploration and exploitation within an organization creates considerable challenges for senior teams (Denison & Mishra, 1995). Leading ambidextrous organizations demand that both the ability to seek integration across contradictory tensions and the ability to engage in multiple leadership behaviors that may appear conflicting should be achieved (Smith, Binns, & Tushman, 2010). For instance, senior teams need to facilitate organizational activities and ensure strategic coherence, yet allow for variety and local adaptation (O'Reilly & Tushman, 2004). Following the example of Samsung Electronics' CEO Yun, leaders need to find the right balance between rigorous cost cutting and creating an entrepreneurial context that allows sustainable growth.

Although scholars have emphasized that senior executives are decisive in mitigating the implicit tensions between exploration and exploitation (Gibson & Birkinshaw, 2004; Smith & Tushman, 2005), there is little empirical evidence for this assertion (Jansen, George, van den Bosch, & Volberda, 2008). While Smith and Tushman (2005) established a conceptual framework, only a few studies have empirically investigated senior executives' contributions to ambidexterity. In this respect, economic crises are occasions for managers to demonstrate competence (Kiesler & Sproull, 1982). Prior research has argued that leaders' behavior contributes strongly to organizational performance under changing environmental conditions (e.g., Wu, Levitas, & Priem, 2005). Moreover, Jansen, Vera, and Crossan (2009) provide empirical support for the suggestion that environmental dynamism functions as an important moderator when analyzing leadership behavior and organizational ambidexterity. In a similar vein, we consider the following aspects as potential outcomes of leadership behavior under situations

of economic crisis.

First, coordination at the managerial level becomes more important during an economic crisis, as it provides emerging exploratory businesses with the necessary resources from exploitative units. In the Samsung Electronics case, senior managers were able to balance their managerial attention adequately in order to remain flexible and efficient regarding any potential changes within the environment during the economic crisis. If senior managers do not consider exploratory units as important as subunits for exploitation, these units will become subordinate to a focus on exploitation, and vice versa. Consequently, senior management has to create the supportive political, social, and financial context in which both orientations can coexist (O'Reilly & Tushman, 2004). This creates the opportunity to create new business models and overcome competency traps.

Second, the role of a clear and compelling vision for ambidexterity became evident in our case example (O'Reilly & Tushman, 2008). Samsung Electronics' vision was an enabler that gave Yun's organizational activities meaning and reduced confusion, motivated employees, and assured stakeholders of the senior managers' confidence that they could effectively manage the crisis conditions and that they were competent to do so. Leaving stakeholders in doubt about the company's long-term direction leads to rumors, passivity, or a wait-and-see attitude, none of which generate stakeholder commitment. Studying how senior teams communicate their 'vision out of the crisis' may unfold how effective explorative and exploitative goals can be aligned under one common objective.

Third, studying economic crisis situations may spur interesting insights into distinct leadership styles for ambidexterity. While exploitation requires the status quo to be maintained by setting goals, clearly communicating expectations, and how efforts will be rewarded, exploration needs a leadership style characterized by the ability to inspire others, by allowing them to challenge existing assumptions, generate employee commitments, motivate risk-taking, and by directing individuals to new objectives and assumptions. Some scholars (e.g., Jansen et al., 2009) refer to Bass's (1998) framework, labeling the above-mentioned leadership behavior as a 'transformational leadership' style for exploration and 'transactional leadership' style for exploitation. However, how senior leaders attain these requirements remains unanswered. Economic crisis conditions create organizational contexts characterized by stress, anxiety, and risk (Waldman, Ramirez, House, & Puranam, 2001). Given the speed and complexity with which changes may occur, senior leaders must be able to balance the contradicting tensions between exploitation and exploration more rigorously – they need to become consistently inconsistent (Benner & Tushman, 2003). In this regard, Smith and Tushman (2005) consider the ability to engage in paradoxical thinking vital for effectively managing exploration and exploitation.

Finally, alterations in the senior team's composition are often considered during economic crises and under situations of organizational decline (Barker, Patterson & Mueller, 2001). At Samsung Electronics,

Yun broke with the established cultural and managerial traditions and brought outsiders into the senior team. Scholars have previously mentioned that the senior team's composition influences the organizational ability to deal with environmental conditions profoundly (e.g., Tushman & Rosenkopf, 1996). While the existing team members become experts at maintaining and exploiting the status quo (Virany et al., 1992), new team members bring in new competencies, perspectives, and heterogeneity of experiences, which form the basis of experimentation (Grinyer & McKiernan, 1990). Accordingly, the senior team's competences, capabilities, and internal processes mediate between exploration and exploitation during economic crises and form the connection between stability and change (Tushman & Rosenkopf, 1996). In this respect, strategy scholars (e.g., Adner & Helfat, 2003) have particularly emphasized senior teams' three distinct skills and abilities that help prevent organizational failure, namely a balance between human capital (i.e. the right mix of general, industry-specific, and firm-specific skills) (Castanias & Helfat, 2001), social capital (i.e. managerial ties inside and outside the firm) (Volberda & Baden-Fuller, 1998), and managerial cognition (i.e. beliefs and mental models for decision making) (Walsh, 1995). Consequently, the leadership challenge during an economic crisis relates to the question of how individuals adequately complement their ambidexterity-managing skills.

In sum, the resolution of role conflicts between exploitation and exploration (e.g., O'Reilly & Tushman, 2004) becomes a crucial element under economic crisis situations. By studying senior teams (i.e. team-composition, leadership-style, decision-making, information-processing capabilities, and inter-organizational power distribution) under severe environmental conditions, we gain insights into the specific senior team characteristics that are necessary to achieve ambidexterity (Simsek, Veiga, Lubatkin, & Dino, 2005). These potential insights may uncover and resolve some of the contradictory arguments related to how to create synergetic value across exploitative and exploratory units.

CONCLUDING REMARKS

Early management research often outlined the difficulties with simultaneously addressing efficient exploitation and effective exploration, thus arguing for one orientation at a time (Miller & Friesen, 1986). However, recent discussions on the ambidexterity concept have increasingly highlighted the importance of simultaneously balancing exploitation and exploration (Raisch et al., 2009). In this respect, Raisch and Birkinshaw (2008) have called for more studies on antecedents, outcomes, and moderators to fully explain a firm's explorative and exploitative search activities. So far, the question of how to address exploitation and exploration under increased economic crisis conditions has not found its way into the ambidexterity debate.

Motivated by the recent global crises, we consider the inherent conditions related to an external economic crisis with promising avenues

that could contribute to the current debate. For instance, prior research has postulated the necessity to simultaneously exploit and explore under conditions of increased competition and performance demands (e.g., Jansen et al., 2006). Research in this area helps us gain insights for a more complete theory of organizational ambidexterity, and to identify moderators that may need managerial attention in order to successfully pursue exploration and exploitation.

A popular approach for studying firms in economic crisis is to compare failed crisis recovery efforts with successful ones to either identify key factors which distinguish successful approaches from failed ones, or to compare corporate characteristics before and after an economic crisis. The research designs for such studies mostly centre on three approaches: anecdotal studies (the documentation and analysis of a particular person's experiences), large sample studies (data analysis of publicly available databases), and longitudinal case studies. We consider the use of anecdotal and longitudinal case studies on the inter-firm and intra-firm level of analysis (e.g., Whetten, 1980) as the most promising approach. These study designs seem to provide sufficient insights into the complexity of managing an economic crisis. Since a substantial number of well-established organizations were faced with the necessity to address the recent economic crisis, they are more likely to participate in such study designs.

To this end, it is our hope that this unplugged series will motivate future research to the challenges related to organizational ambidexterity, sustainable value creation, organizational decline, and crisis management.

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REFERENCES

■ Adner, R., & Helfat, C. (2003).
Corporate effects and dynamic managerial capabilities. Strategic *Management Journal, 19,* 1011-1025.

■ Andrew, J. P., & Sirkin, H. L. (2006).
Payback. Eaping the Rewards of Innovation. Boston, MA: *Harvard Business School Press.*

■ Barker, V. L., Patterson, P. W., & Mueller, G. C. (2001).
Organizational causes and strategic consequences of the extent of top management team replacement during turnaround attempts. *Journal of Management Studies, 38,* 235-269.

■ Bass, B. M. (1998).
Transformational Leadership: Industry, Military and Educational Impact. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

■ Benner, M. J., & Tushman, M. L. (2003).
Exploitation, exploration, and process management: The productivity dilemma revisited. *Academy of Management Review, 28,* 238-256.

■ Birkinshaw, J., & Gibson, C. (2004).
Building ambidexterity into an organization. *MIT Sloan Management Review, 45*, 47-55.

■ Bowman, E., & Hurry, D. (1993).
Strategy through the option lens: an integrated view of resource investments and the incremental-choice process. *Academy of Management Review, 18*, 760-782.

■ Cameron, K. S., Kim, M. U., & Whetten, D. A. (1987).
Organizational effects of decline and turbulence. *Administrative Science Quarterly, 32*, 222-240.

■ Cao, Q., Gedajlovic, E., & Zhang, H. (2009).
Unpacking organizational ambidexterity: Dimensions, contingencies, and synergistic effects. *Organization Science, 20,* 781-796.

■ Castanias, R., & Helfat, C. E. (2001).
The managerial rents model. *Journal of Management, 27*, 661-678.

■ Cyert, R. M., & March, J. G. (1963).
A Behavioral Theory of the Firm. Englewood Cliffs, NJ: Prentice-Hall.

■ D'Aunno, T., & Sutton, R. I. (1992).
The responses of drug abuse treatment organizations to financial adversity: A partial test of the threat-rigidity thesis. *Journal of Management, 18,* 117-131.

■ D'Aveni, R. A. (1989).
The aftermath of organizational decline: A longitudinal study of the strategic and managerial characteristics of declining firms. *Academy of Management Journal, 32,* 577-605.

■ D'Aveni, R. A. (1994).
Hypercompetition. Free Press: New York.

■ D'Aveni, R. A., & MacMillan I. C. (1990).
Crisis and the content of managerial communications: a study of the focus of attention of top managers in surviving and failing firms. *Administrative Science Quarterly, 35,* 634-657.

■ Denison, D. R., & Mishra, A. K. (1995).
Toward a theory of organizational culture and effectiveness. *Organization Science, 6,* 204-223.

■ Dess, G. D., & Beard, D. W. (1984).
Dimension of organizational task environments. *Administrative Science Quarterly, 29*, 52-73.

■ Duncan, R. (1976).
The ambidextrous organization: designing dual structures for innovation. In R. H. Killman, L. R. Pondy, & D. Sleven (Eds.), The Management of Organization, Vol. 1 (pp. 167-188). New York: North-Holland.

■ Dutton, J. E. (1986).
The processing of crisis and non-crisis strategic issues. *Journal of Management Studie,s 23*, 501-517.

■ Ebben, J. J., & Johnson, A. C. (2005).
Efficiency, flexibility, or both? evidence linking strategy to performance in small firms. *Strategic Management Journa,l 26,* 1249-1259.

■ Edwards, C., Ihlwan, M., & Engardio, P. (2003).
The Samsung way. Business Week (3837).

■ Engardio, P., & Ihlwan, M. (2003).
Samsung's «Sashimi Theory» of success. Business Week (3837).

■ Freeman, S. J., & Cameron, K. S. (1993).
Organizational downsizing: a convergence and reorientation framework. *Organization Science, 4,* 10-29.

- Gibson, C., & Birkinshaw, J. (2004).
The antecedents, consequences and mediating role of organizational ambidexterity. Academy of Management Journal, 47, 209-226.

- Gilbert, C. (2006).
Change in the presence of residual fit: can competing frames coexist? Organization Science, 17, 150-167.

- Grinyer, P. H., & McKiernan, P. (1990).
Generating major change in stagnating companies. Strategic Management Journal 11, 131-146.

- Gupta, A. K., Smith, K. G., & Shalley, C. E. (2006).
The interplay between exploration and exploitation. Academy of Management Journal, 49, 693-706.

- Harrigan, K. R. (1985).
Strategic Flexibility: A Management Guide for Changing Times. Lexington, MA: Lexington Books.

- Hedberg, B. L. T., Nystrom, P. C., & Starbuck, W. H. (1976).
Camping on seesaws: Prescriptions for a self-designing organization. Administrative Science Quarterly, 21, 41-65.

- Hermann, C. F. (1963).
Some consequences of crisis which limit the viability of organizations. Administrative Science Quarterly, 8, 61-82.

- Ihlwan, M., & Bremner, B. (1998).
The crisis at Samsung. Business Week (3570).

- Jansen, J. J. P., George, G., Van den Bosch, F. A. J., & Volberda, H. W. (2008).
Senior team attributes and organizational ambidexterity: The moderating role of transformational leadership. Journal of Management Studies, 45, 982-1007.

- Jansen, J. J. P., van den Bosch, F. A. J., & Volberda, H. W. (2005).
Exploratory innovation, exploitative innovation, and ambidexterity: The impact of environmental and organizational antecedents. *Schmalenbach Business Review, 57*, 351-363.

- Jansen, J. J. P., van den Bosch, F. A. J., & Volberda, H. W. (2006).
Exploratory innovation, exploitative innovation, and performance: Effects of organizational antecedents and environmental moderators. *Management Science, 52,* 1661-1674.

- Jansen, J. J. P., Vera, D., & Crossan, M. (2009).
Strategic leadership for exploration and exploitation: The moderating role of environmental dynamism. *The Leadership Quarterly, 20,* 5-18.

- Jones, T. (2002).
Innovating at the Edge: How Organizations Evolve and Embed Innovation capability. Woburn, MA: Butterworth-Heinemann.

- Kiesler, C., & Sproull, L. S. (1982).
Managerial response to changing environments: Perspectives on problem sensing from social cognition. *Administrative Science Quarterly, 27,* 548-570.

- Kogut, B., & Kulatilaka, N. (2001).
Capabilities as real options. *Organization Science, 12*, 744-758.

- Lant, T. K, & Mezias, S. J. (1992).
An organizational learning model of convergence and reorientation. *Organization Science, 3,* 47-71.

- Leblebici, H., & Salancik, G. R. (1981).
Effects of uncertainty on information and decision processes in banks. *Administrative Science Quarterly 26,* 578-596.

- Levinthal, D. A, & March, J. G. (1993).
The myopia of learning. *Strategic Management Journal, 14*, 95-112.

- Lin, Z., Yang, H., & Demirkan, I. (2007).
The performance consequences of ambidexterity in strategic alliance formations: empirical investigation and computational theorizing. *Management Science, 53,* 1645-1658.

- Lubatkin, M. H., Simsek, Z., Ling, Y., & Veiga, J. F. (2006).
Ambidexterity and performance in small- to medium-sized firms: The pivotal role of top management team behavioral integration. *Journal of Management, 32,* 646-672.

- March, J. G. (1991).
Exploration and exploitation in organizational learning. *Organization Science 2,* 71-87.

■ March, J. G., Sproull, L. S, & Tamuz, M. (1991).
Learning from samples of one or fewer. Organization Science, 2, 1-14.

■ Marcus, A. A., & Goodman, R. S. (1991).
Victims and shareholders: The dilemmas of presenting corporate policy during a crisis. *Academy of Management Journal, 34,* 281-305.

■ McGrath, R. (1997).
A real options logic for initiating technology positioning investments. Academy of Management Review, 22, 947-966.

■ McGrath, R. (2001).
Exploratory learning, innovative capacity, and managerial oversight. Academy of Management Journal, 44, 118-131.

■ Miller, D., & Friesen, P. (1986).
Generic strategies and performance: An empirical examination with American data part I: testing Porter. Organization Studies, 7, 37-55.

■ Nakarmi, L. (1999).
Reinventing an Asian brand. Asiaweek.

■ O'Reilly, C. A., & Tushman, M. L. (2004).
The ambidextrous organization. *Harvard Business Review, 82,* 74-81.

■ O'Reilly, C. A, & Tushman, M. L. (2008).
Ambidexterity as a dynamic capability: Resolving the innovator's dilemma. *Research on Organizational Behavior, 28,* 185-206.

■ Pearson, C. M, & Clair, J. A. (1998).
Reframing crisis management. *Academy of Management Review, 23,* 59-76.

■ Pfeffer, J., & Salancik, G. R. (1978).
The External Control of Organizations: A Resource Dependence Perspective. Harper & Row: New York.

■ Raisch, S. (2008).
Balanced structures: Designing organizations for profitable growth. *Long Range Planning, 41*, 483-508.

■ Raisch, S., & Birkinshaw, J. (2008).
Organizational ambidexterity: Antecedents, outcomes, and moderators. *Journal of Management, 34,* 375-409.

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

■ Rivkin, J. W., & Siggelkow, N. (2006).
Organizing to strategize in the face of interactions: Preventing premature lock-in. *Long Range Planning, 39*, 591-614.

■ Robbins, D. K., & Pearce, J. A. (1992).
Turnaround: Retrenchment and recovery. *Strategic Management Journal, 13,* 287-309.

■ Sanchez, R. (1995).
Strategic flexibility in product competition. *Strategic Management Journal, 16*, 135-159.

■ Siggelkow, N., & Levinthal, D. A. (2003).
Temporarily divide to conquer: Centralized, decentralized, and reintegrated organizational approaches to exploration and adaptation. *Organization Science, 14*, 650-669.

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

■ Simsek, Z., Veiga, J. F., Lubatkin, M. H., & Dino, R. N. (2005).
Modeling the multilevel determinants of top management team behavioral integration. *Academy of Management Journal, 48,* 69-84.

■ Smith, W. K., Binns, A., & Tushman, M. L. (2010).
Complex business models: Managing strategic paradoxes simultaneously. *Long Range Planning, 43,* 448-461.

■ Smith, W. K., & Tushman, M. L. (2005).
Managing strategic contradictions: A top management model for managing innovation streams. *Organization Science 16,* 522-536.

■ Staw, B. M, Sandelands, L. E, & Dutton, J. E. (1981).
Threat-rigidity effects in organizational behavior: A multilevel analysis. *Administrative Science Quarterly, 26,* 501-524.

■ Thompson, J. D. (1967).
Organizations in Action. New York: McGraw-Hill.

■ Tushman, M. L., & O'Reilly, C. A. (1996).
Ambidextrous organizations: Managing evolutionary and revolutionary change. *California Management Review, 38,* 8-30.

■ Tushman, M. L., & Rosenkopf, L. (1996).
Executive succession, strategic reorientation and performance growth: A longitudinal study in the U.S. cement industry. *Management Science, 42,* 939-953.

■ Venkatraman, N., Lee, C. H., & Iyer, B. (2007).
Strategic ambidexterity and sales growth: a longitudinal test in the software sector. Unpublished Manuscript (earlier version presented at the AOM Meetings, 2005).

■ Virany, B., Tushman, M. L., & Romanelli, E. (1992).
Executive succession and organization outcomes in turbulent environments: An organization learning approach. *Organization Science, 3*, 72-92.

■ Volberda, H. (1996).
Towards the flexible form: how to remain vital in hypercompetitive environments. *Organization Science, 7,* 359-374.

■ Volberda, H., & Baden-Fuller, C. (1998).
Strategic renewal and competence building: Four dynamic mechanisms. In G. Hamel, C. Prahalad, H. Thomas, & D. O'Neal (Eds.), Strategic Flexibility: Managing in a Turbulent Environment (pp. 371-390). London: John Wiley.

■ Waldman, D. A., Ramirez, G. G., House, R. J., & Puranam, P. (2001).
Does leadership matter? CEO leadership attributes and profitability under conditions of perceived environmental uncertainty. *Academy of Management Journal, 44*, 134-143.

■ Walsh, J. P. (1995).
Managerial and organizational cognition: Notes from trip down memory lane. *Organization Science, 6,* 280-321.

■ Weick, K. E. (1979).
The Social Psychology of Organizing. Reading, MA: Addison-Wesley.

■ Weld, R. (1999).
Samsung Electronics Co. Ltd. *Industryweek, 42*.

■ Whetten, D. A. (1980). `
Organizational decline: A neglected topic in organizational science. *Academy of Management Review, 5,* 577-588.

■ Wu, S., Levitas, E., & Priem, R. L. (2005).
CEO tenure and company invention under differing levels of technological dynamism. *Academy of Management Journal, 48,* 859-873.

■ Yun, J.-Y. (1998),
President Message, Samsung Electronics, Annual Report.