

DECISION SCIENCES INSTITUTE**Strategic Management of Learning Resources, Organizational Ambidexterity, and Firm Performance: A Creation-Dispersion Perspective****ABSTRACT**

Our paper seeks to advance the knowledge on organizational learning by showing that four distinct learning orientations (team, learning, memory, and systems), previously studied only as a collective, can be parsed and employed strategically and synergistically to enhance either exploration (short-term) or exploitation (long-term) practices. We introduce the creation-dispersion model of organizational learning to align these learning orientations to organizational ambidexterity. We provide new insights to organizational ambidexterity by suggesting that most firms both simultaneously and sequentially explore and exploit. We suggest that exploration practices indirectly influence firm performance through exploitation practices.

KEYWORDS: Exploration, Exploitation, Ambidexterity, Organizational Learning, Creation Capacity, Dispersion Capacity

INTRODUCTION

Organizations today are facing unprecedented headwinds – a low growth global economy, domestic and geo-political uncertainty, oppressive regulation, deflationary forces, global competition without standards, currency issues, disruptive technological change and a general expectation of increased volatility (PwC, 2016; Mitchell, Ray, & van Ark, 2016). In this tumultuous environment, a Chief Executive Officer's job to deliver short-term results and stability as well as long-term growth and viability is more challenging than ever (BCG, 2016). Management scholars have labeled this confounding performance challenge as a paradox (Lavie, Stettner, & Tushman, 2010; O'Reilly & Tushman, 2013), a dynamic tension or trade-off, needing simultaneous focus on exploration and exploitation activities (Crossan, Lane & White, 1999; Farjoun, 2010; Lavie et al., 2010; March, 1991; Raisch, Birkinshaw, Probst & Gupta, 2009).

March (1991) first characterized the need to simultaneously explore and exploit in the context of a learning organization. Though, there is general consensus that firms are required to simultaneously exploit and explore for short-term performance and long-term survival (PwC, 2016; O'Reilly & Tushman, 2013; Birkinshaw & Gupta, 2013); there is little consensus on how exploration and exploitation should be managed. The challenge of simultaneous management of exploration and exploitation practices is pronounced in the supply chain organization. As the vital operating system of the company, the supply chain organization is responsible for up to 90 percent of an organization's cost base (IMA, 2008). Supply chain leaders have the unique challenge to minimize inventory levels, drive down costs, and deliver flawless customer service (exploitative practices), while looking towards new technologies and practices that will allow flexibility and improvements (explorative practices) (Marchese & Dollar, 2015).

While critical to survival, exploration and exploitation represent different approaches or modes to organizational learning and have been characterized in literature as being incompatible, contradictory and mutually exclusive (March, 1991; Birkinshaw & Gupta, 2013; Farjoun, 2010; Lavie et al., 2010). This paper explores the answers to two research questions related to the academic gaps mentioned above. First, can distinct learning orientations, previously viewed only as a collective capability, be parsed and synergistically employed to enhance organizational ambidexterity? Second, what is the best way to conduct exploration and exploitation practices to positively influence organizational performance?

We draw on the resource-based view and organizational learning theory to bring new insight into the challenge of managing the trade-off between exploration and exploitation. We explore the differences in organizational learning required to ignite exploration and exploitation practices using Hult & Ferrell's (1997) conceptualization of organizational learning. We propose a *Creation-Dispersion view of organizational learning* to align the organizational learning orientations to organizational ambidexterity.

LITERATURE REVIEW

Resource-based View and Organizational Learning

Resource-based view (RBV) proposes that firms need to become adept at both applying and refining existing capabilities as well as developing or acquiring new ones (Hamel & Prahalad, 1990; Prahalad & Hamel, 1994). When capabilities are managed strategically, through purposeful cultivation of existing capabilities and activation of new capabilities and competencies, a remarkably strong resource-performance link exists (Crook, Ketchen, Combs & Todd, 2008).

Edith Penrose (1950) is credited with broadening the economic definition of resources to include skills, capabilities and competencies. She was first to introduce the notion of organizational learning as a firm resource. Organizational learning is defined as simply “the process of improving actions through better knowledge and understanding” (Fiol & Lyles, 1985; p. 803) and has since been described as perhaps the most “vital competency” of an organization and a primary responsibility of its leaders (Dixon, 1992).

Hult and Ferrell (1997) created a parsimonious four-dimensional conceptualization of organizational learning that includes *team orientation*, *systems orientation*, *learning orientation*, and *memory orientation*. Team orientation is an environment supporting team collaboration and cooperation to develop better outcomes than would be generated from an individual. Systems orientation provides for an understanding of the big picture versus individual tasks or parts. An organization that encourages continuous learning for the benefit of the company has a learning orientation. Memory orientation is found in organizational culture that encourages communication and sharing of embedded knowledge, routines, and past experiences (Hult & Ferrell, 1997, Hult, 1998).

We have chosen to adopt the Hult and Ferrell (1997) conceptualization of organizational learning (OL) for five important reasons. First, the unit of analysis in Hult and Ferrell (1997) study is the supply chain organization, which is of the context of our study. Second, the four dimension OL conceptualization is both parsimonious and at the same time inclusive of previous conceptualizations. Third, the authors demonstrate how the construct uniquely incorporates Huber's (1991) learning sub-processes (knowledge acquisition, information distribution, information interpretation, and organizational memory) which are fundamental to any study on organizational learning. Fourth, the Hult and Ferrell conceptualization stresses the importance of proactive management of the learning orientations and the opportunity for intervention. Finally, the Hult and Ferrell conceptualization (1997) reinforces the important premise that for learning to become a resource it must convert to behavior or action – “true learning organizations learn and then behave accordingly, by that realizing the potential of their learning capacity by applying the knowledge gained in their learning endeavors to new purchasing situations” (p. 98). Knowledge is not learning unless it transforms into practice (Argyris, 2004). This is important to our model because we explore how learning orientations influence exploration and exploitation practices.

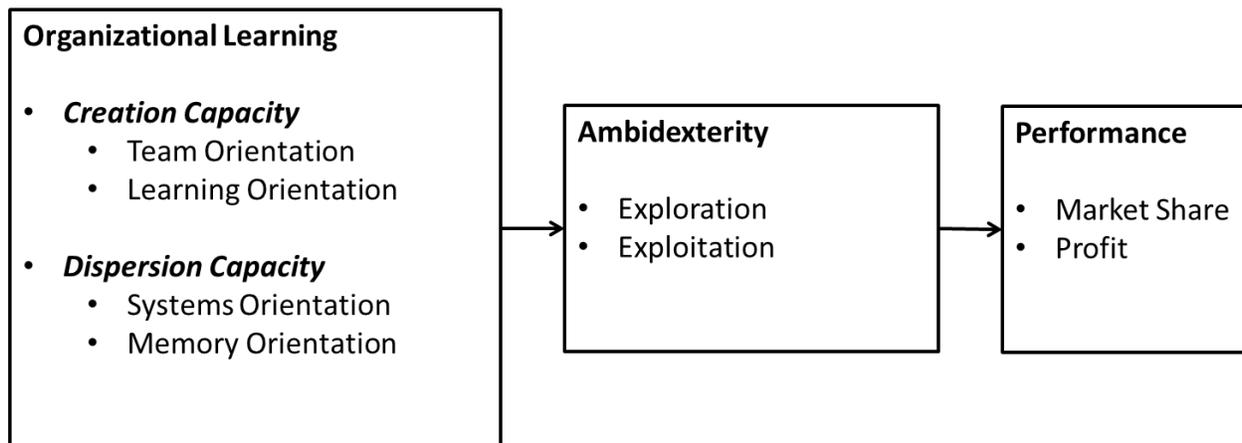
Organizational Learning and Ambidexterity

As previously discussed, organizational learning is comprised of distinct constructs, designed to work together to provide for ideal organizational learning. This also suggests that learning orientations can be separated and flexed to support an organization's need to shift attention and resources to and away from exploration and exploitation practices. A proactive leader who understands his or her team's organizational learning capacity can identify ways to refine, increase and decrease learning resource to enhance explorative and exploitive practices and ultimately firm performance (Kane & Alavi, 2007; Fang et al., 2010). A related question is: can certain learning orientations be aligned to influence either exploration or exploitation practice?

We suggest that managers can cultivate and manage two of the Hult & Ferrel (1979) learning orientations can be developed and managed to enhance exploration practices (team orientation and learning orientation) while the other two (memory orientation and systems orientation) can be developed and managed to enhance exploitation practices. To explore these issues, we propose a creation-dispersion view of organizational learning, grounded in the resource based view, Hult, and Ferrell's (1997) conceptualization of organizational learning, to explain how organizational learning orientations affect organizational ambidexterity and performance.

THEORY AND PROPOSITIONS

Figure 1. A Creation-Dispersion View of Organizational Learning and Its Influence on Ambidexterity, and Performance



The Creation-Dispersion Model of Organizational Learning

Garvin (2014) defines a learning organization as one “skilled at creating, acquiring, and transferring knowledge, and at modifying its behavior to reflect new knowledge and insights” (p.2). We build on this definition to introduce the *Creation-Dispersion Model of Organizational Learning* (Figure 1), a system of learning analogous to a production-distribution system where the system both produces knowledge and distributes knowledge to all the members of an organization to utilize it, expand on it and refine it. Just as a production-distribution system functions smoothly as long as there is a system that allows an interaction between various entities comprising of vendors, manufacturing facilities, distribution centers, warehouse and customers (Dasci & Verter, 2001), so does the learning system.

Creation Capacity – Team and Learning Orientation. We argue that in a learning system, creation capacity represents the search and production of new knowledge to be utilized for new products or processes, using individuals and teams and their knowledge as the tools of

production. Creation capacity consists of team orientation and learning orientation, which are analogues to the production system that requires tools, people, and products – providing the people (team orientation) and the infrastructure support for learning (learning orientation).

Team orientation provides a learning environment supportive of team collaboration and cooperation to develop better outcomes than would be generated from individuals on their own (Hult & Ferrell, 1997). Elements such as team spirit, commonality of purpose, agreement, and commitment to organizational vision enable employees to work together to achieve organizational goals (Hult, 1998). Learning orientation, on the other hand, emphasizes a learning culture within an organization and acknowledges learning as an investment (Hult & Ferrell, 1997). Reward from the refinement of individual knowledge and activities encourages the pursuit of life-long learning. In this perspective, learning is an investment and crucial to self, team and organizational improvement and as such insufficient cultivation of learning orientation has been found to place firms in danger of long-term survival (Hult, 1998).

Proposition 1: Team orientation and learning orientation synergistically work to provide the foundation for an organization to develop creation capacity.

Dispersion Capacity – Systems and Memory Orientation. Dispersion capacity represents the organization's ability to distribute knowledge and skills that are learned, throughout the organization, and to store knowledge for future access, extension and refinement (March, 1991; Easterby-Smith et al., 2000). Dispersion capacity consists of systems orientation and memory orientation.

Systems orientation enables workers to view the overall picture of supply chain activity by understanding where their work fits into the overall system – understanding the interconnectedness of all the activities (Hult & Ferrell, 1997; Hult, 1998). Understanding the system, the integration of the individual elements and activities that make up the whole, enhances the social networking among members - vital for information sharing across the system and for organizational goal alignment (Argote & Ophir, 2002). Memory orientation represents the capacity to store learning (Hult, 1998). Memory orientation is demonstrated by a culture that encourages communication and sharing of embedded knowledge, routines, and past experiences (Hult & Ferrell, 1997, Hult, 1998). Knowledge can be codified, and stored as a template, routine or database (Alavi & Leidner, 2016). Such codification of knowledge eases the transfer of knowledge at an inter-organizational setting (Hoetker & Agarwal, 2007).

Proposition 2: Systems orientation and memory orientation synergistically work to provide the foundation for an organization to develop creation capacity.

Organizational Learning Capacities, Exploration, and Exploitation

Creation Capacity and Exploration Practices

Creation capacity aligns with exploration practices - search, explore, experiment, and discover (March, 1991; Levinthal & March, 1993) - enhanced by the proper development and active management of learning resources that emphasize *team orientations* and *learning orientation*. These two learning orientations work together to develop creation capacity and enhance exploration practices.

Team Orientation. Team orientation ensures that there is a high level of alignment of organizational vision among team members, resulting in a tightly coupled team structure – an integral element of creation capacity. Team orientation is a learning environment supporting team collaboration and cooperation to develop creation capacity. For a team to excel, “a dialogue must exist among members focused on sharing assumptions, thinking together to solve problems, and charting the future operations of the organization” (Hult & Ferrell, 1997, p.

380). When individuals interact with each other in a team, new knowledge is created through the process of socialization, combination, externalization, and internalization (Nonaka, 1994; Smith et al., 2013). The frequency of collaboration results in increased search activity, which ultimately leads to innovation (Katila & Ahuja, 2002).

Learning Orientation. Learning orientation describes an organizational climate with a high commitment to learning, shared vision and open-mindedness (Hult, 1998; Huber, 1991; Sinkula, Baker & Noordewier, 1997) leading to active inquiry, experimentation (Lin et al., 2013; Huber, 1991; Hurley & Hult, 1998; Lumpkin & Dess, 1996), and the search for new ideas, knowledge, and opportunities (Lin et al., 2013; Huber, 1991; Lumpkin & Dess, 1996). These behaviors are consistent with dispersion capacity and exploration practices.

Proposition 3: Creation capacity can be developed and employed by an organization to positively enhance exploration practices.

Dispersion Capacity and Exploitation Practices

Dispersion capacity encourages and reinforces the recycling, sharing, application, replication and refinement of existing knowledge necessary for exploitation practice (Kirstal et al., 2010; Gupta et al., 2006; Kane and Alavi, 2007). We argue that memory orientations and systems orientations, work synergistically to develop an organization's dispersion capacity which is essential to exploitation practices.

Memory Orientation. Through *Memory orientation, dispersion capacity* allows repeated use of knowledge across various projects, enabling users to uncover faulty assumptions and reconcile contradictions of their knowledge domain (Padmanabhan and Tuzhilin, 2002). In fact, the utilization of existing knowledge, routines and experience is what provides an organization with the capability to cinch incremental (exploitative) solutions quickly and at low costs to the company (Fang et al., 2010).

Systems Orientation. Systems orientation enhance an organization's dispersion capacity by helping employees become aware of how their clearly defined personal tasks and the tasks of immediate work group are integrated into a complex value chain (Hult, 1998), transforming individuals into system thinkers and increasing their efficiency in identifying and solving problems (Senge, 1990; Hult, 1998; Hult & Ferrell, 1997).

Much of the work of the supply chain organization is dedicated to improving operational efficiencies of the existing system like tightening process controls, reducing downtime, and minimizing waste in an effort to lower cost and improve reliability and stability - exploitation (Tajima, 2007; Kristal et al., 2010). In supply chain, systems orientation requires chain wide access to a complex system of information and shared meaning (Hult et al., 2004). Therefore, dispersion capacity encourages and reinforces the recycling, sharing, application, replication and refinement of existing knowledge necessary for exploitation practice

Proposition 4: Dispersion capacity can be developed and employed by an organization to positively enhance exploitation practices.

The Relationship between Exploration and Exploitation Practices

We argue that within a firm or a function like the supply chain organization, exploration (search) practices and exploitation (implementation, refinement, etc.) practices are both simultaneously and sequentially underway. As previously discussed, the output of a given exploration process will ultimately convert to exploitation (sequential). The two are also sequentially approached when a new technology is discovered in the exploration process and is then developed, tested and commercialized - exploitation). (Simsek, et al., 2009; Rothaermel & Deeds, 2004). Exploration is about searching and discovery and exploitation is about implementing and refining. As such, successful exploration activity yields from a wide net of

explored initiatives, a few new concepts (processes, knowledge, technologies) that move to development, testing, refinement and ultimately commercialization.

Proposition 5: Exploration and exploitation practices occur simultaneously and sequentially and ultimately work together to positively influence exploitation practices.

Exploitation and Organizational Performance

Exploitation tasks require managers to learn to reduce redundancies in the operational processes. It also requires that they improve their dispersion competencies to lower costs and improve operational reliability (Kristal et al., 2010). Once costs are reduced, the higher proportion of sales revenue contributes toward the profitability of a firm, increasing a profit margin.

Continuous improvement, an exploitation practice, has a positive impact on the market performance (Hua and Wemmerlöv, 2006). For instance, Sony operated in the technological intensive environment, which required product improvements at great frequency. During 1990s, Sony launched Walkman (portable music playing device), which allowed Sony to retain 50-percent of the total market share. By continuously improving on the device features Sony was able to maintain its market leadership (Sanderson and Uzumeri, 1995). Based on the above discussion, we propose that:

Proposition 6: Exploitation practices help improve organizational profit and market share.

DISCUSSION

We use a resource-based-view approach (Barney, 1991; Wernerfelt, 1984) to examine how four dimensions of organizational learning orientations - valuable intangible resources (capabilities) - are uniquely employed to develop an organization's creation and dispersion capacities and to facilitate supply chain partners' ability to explore and exploit. We argue that, learning orientation and team orientation emphasize more collaboration and long-term learning and develop creation capacity to enhance exploration practices. On the other hand, dispersion capacity is developed through systems orientation and memory orientation, by providing mechanisms for knowledge sharing, facilitating understanding of the interconnectedness of various events and activities.

Theoretical Contributions

The conceptual study contributes to literature on resource theory, organizational learning, and organizational ambidexterity and makes five important theoretical contributions. First, our propositions are consistent with studies that suggest that exploration and exploitation practices require different skills, structures, management systems, cultures, capabilities, and even organizational routines (Bierly & Chakrabarti, 1996; O'Reilly & Tushman, 2013). It is important to understand that when firms perform either exploration or exploitation practices (or both), resources, skills, and orientations should be aligned with each of the practices (O'Reilly & Tushman, 2007).

Second, the study contributes to the literature on organizational ambidexterity. We suggest that organizations that engage in exploration activity will ultimately engage in sequential exploitation. A new idea (exploration) must be selected, tested and commercialized (exploitation). As such we suggest that firms that engage in exploration activity simultaneously and sequentially explore and exploit.

Third, the arguments in this study contribute to the performance implication of exploration and exploitation studies. The cornerstone of March's (1991) argument is that exploration activities yield long-term gains such as market share growth, whereas exploitation

practices generate short-term returns such as return on assets (Auh & Menguc, 2005). We provide arguments that exploration practices can only indirectly influence firm performance. Exploration practices (search, explore, experiment) yield new knowledge and ideas, but only after the ideas are exploited (selected, implemented, produced) can they create value (Kornish & Ulrich, 2014; Teece, 1986; Utterback, 1994).

Managerial Implications

Our paper provides information to practitioners regarding the importance of proactively developing and managing learning orientations that uniquely support exploration and exploitation practices. Our suggestion to managers is that leveraging the existing competencies of a firm is equally important to an organization to gain profitability and market share. While continuous refinement of existing knowledge is important, implementing newly generated knowledge is also important because only after its implementation can organizations realize value (profits) and achieve competitive advantage.

CONCLUSION

Certain learning orientations are more aligned with exploration and others with exploitation. By better understanding these unique dimensions of learning, a manager can make decisions about how to invest scarce resources in the development of certain learning orientations to achieve a purposeful mix between exploration and exploitation activities and ultimately achieve better performance and competitive advantage. We argue that learning orientations and team orientations develop an organization's creation capacity which helps to generate skills necessary to support exploration practices of employees. On the other hand, memory orientations and systems orientations work together to develop an organization's dispersion capacity that fosters exploitation practices. Moreover, we also suggest that only exploitation practices enhance firms' performance directly. Our thesis is that the creation of an idea is not enough. Only when the idea is developed and implemented one sees performance improvements.

REFERENCES

- Alavi, M., & Leidner, D. E. (2001). Review: Knowledge management and knowledge management systems: Conceptual foundations and research issues. *MIS Quarterly*, 107-136.
- Argyris, C. (2004). Double-loop Learning and Organizational Change. *Dynamics of Organizational Change and Learning*, 389-402.
- Auh, S., & Menguc, B. (2005). Balancing exploration and exploitation: The moderating role of competitive intensity. *Journal of Business Research*, 58(12), 1652–1661.
- Barney J. 1991. Firm resources and sustained competitive advantage. *Journal of Management* 17(1): 99–120.
- BCG (2016). The Challenge of Value Creation When Profits are High: Balancing the Short Term and the Long Term. BCG Perspectives.
- Bierly, P., & Chakrabarti, A. (1996). Generic knowledge strategies in the US pharmaceutical industry. *Strategic Management Journal*, 17(S2), 123-135.
- Birkinshaw, J., & Gupta, K. (2013). Clarifying the distinctive contribution of ambidexterity to the field of organization studies. *The Academy of Management Perspectives*, 27(4), 287-298.
- Crook, T. R., Ketchen, D. J., Combs, J. G., & Todd, S. Y. (2008). Strategic resources and performance: a meta-analysis. *Strategic Management Journal*, 29(11), 1141-1154.

- Crossan, M. M., Lane, H. W., & White, R. E. (1999). An organizational learning framework: From intuition to institution. *Academy of Management Review*, 24(3), 522-537.
- Dasci, A., & Verter, V. (2001). Continuous model for production-distribution system design. *European Journal of Operational Research*, 129(2), 287-298.
- Dixon, N. M. (1992). Organizational learning: A review of the literature with implications for HRD professionals. *Human Resource Development Quarterly*, 3(1), 29-49.
- Easterby-Smith, M., Crossan, M. M., & Nicolini, D. (2000). Organizational Learning: Debates past, present and future. *Journal of Management Studies*, 37(6), 783-796.
- Fang, C., Lee, J., & Schilling, M. A. (2010). Balancing exploration and exploitation through structural design: The isolation of subgroups and organizational learning. *Organization Science*, 21(3), 625-642.
- Farjoun, M. (2010). Beyond dualism: Stability and change as a duality. *Academy of Management Review*, 35(2), 202-225.
- Fiol, C., & Lyles, M. (1985). Organizational Learning. *The Academy of Management Review*, 10(4), 803-813.
- Garvin, D. a. (2014). Building a learning organization. *Harvard Business Review*, 71(4), 78-91.
- Gupta AK, Smith KG, Shalley CE. 2006. The interplay between exploration and exploitation. *Academy of Management Journal*, 49(4): 693-706.
- Hamel, G., & Prahalad, C. K. (1990). Corporate imagination and expeditionary marketing. *Harvard Business Review*, 69(4), 81-92.
- Hoetker, G., & Agarwal, R. (2007). Death hurts, but it isn't fatal: The postexit diffusion of knowledge created by innovative companies. *Academy of Management Journal*, 50(2), 446-467.
- Hua SY, Wemmerlöv U. 2006. Product change intensity, product advantage, and market performance: an empirical investigation of the PC industry. *Journal of Product Innovation Management*, 23(4): 316-329.
- Huber, G. P. (1991). Organizational learning: The contributing processes and the literatures. *Organization Science*, 2(1), 88-115.
- Hult, G. T. M., & Ferrell, O. C. (1997). Global organizational learning capacity in purchasing: Construct and measurement. *Journal of Business Research*, 40(2), 97-111.
- IMA, (2008). Managing the Total Costs of Global Supply Chains. Institute of Management Accountants.
- Hult, G. T. M. (1998). Managing the international strategic sourcing process as a market-driven organizational learning system. *Decision Sciences*, 29(1), 193-214.
- Katila, R., & Ahuja, G. (2002). Something old, something new: A longitudinal study of search behavior and new product introduction. *Academy of Management Journal*, 45(6), 1183-1194.
- Kornish, L. J., & Ulrich, K. T. (2014). The importance of the raw idea in innovation: Testing the sow's ear hypothesis. *Journal of Marketing Research*, 51(1), 14-26.
- Kristal MM, Huang X, Roth AV. 2010. The effect of an ambidextrous supply chain strategy on combinative competitive capabilities and business performance. *Journal of Operations Management*, 28(5): 415-429.
- Lavie, D., Stettner, U., & Tushman, M. L. (2010). Exploration and Exploitation Within and Across Organizations. *Academy of Management Annals*, 4(1), 109-155.
- Levinthal DA, March JG. 1993. The myopia of learning. *Strategic Management Journal*, 14(S2): 95-112.
- Lin, H. E., McDonough, E. F., Lin, S. J., & Lin, C. Y. Y. (2013). Managing the exploitation/exploration paradox: The role of a learning capability and innovation ambidexterity. *Journal of Product Innovation Management*, 30(2), 262-278.
- Lumpkin, G. T., & Dess, G. G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review*, 21(1), 135-172.

- March, J. G. (1991). Exploration and exploitation in organizational learning. *Organization Science*, 2(1), 71-87.
- Marchese, K. and Dollar, B. (2015). Supply Chain Talent of the Future: findings from the third annual supply chain survey. Deloitte. 2015.
- Mitchell, C., Ray, R., and van Ark, B. (2016). The Conference Board CEO Challenge 2016: CEO Strategic Implications. <https://www.conference-board.org>. January, 2016.
- Nonaka, I. (1994). A dynamic theory of organizational knowledge creation. *Organization Science*, 5(1), 14-37.
- O'Reilly, C., & Tushman, M. L. (2013). Organizational Ambidexterity: Past, Present and Future. *Academy of Management Perspectives*, 27(4), 324–338.
- Padmanabhan B, Tuzhilin A. 2002. Knowledge refinement based on the discovery of unexpected patterns in data mining. *Decision Support Systems*, 33(3): 309–321.
- Penrose, E. T. (1950). *The Theory of the Growth of the Firm*. New York: John Wiley.
- Prahalad, C. K., & Hamel, G. (1994). Strategy as a field of study: Why search for a new paradigm?. *Strategic Management Journal*, 15(S2), 5-16.
- PwC (2016). Driving business growth in 2016: Insights from PwC's Annual US CEO Survey.
- Raisch S, Birkinshaw J, Probst G, Tushman ML. 2009. Organizational ambidexterity: balancing exploitation and exploration for sustained performance. *Organization Science*, 20(4): 685–695.
- Rothaermel, F. T., & Deeds, D. L. (2004). Exploration and exploitation alliances in biotechnology: A system of new product development. *Strategic Management Journal*, 25(3), 201-221.
- Sanderson S, Uzumeri M. 1995. Managing product families: the case of the Sony Walkman. *Research Policy*, 24(5): 761–782.
- Senge, P. M. (1990). *The fifth discipline: The art and practice of the learning organization*. Broadway Business.
- Simsek, Z., Heavey, C., Veiga, J. F., & Souder, D. (2009). A typology for aligning organizational ambidexterity's conceptualizations, antecedents, and outcomes. *Journal of Management Studies*, 46(5), 864-894.
- Sinkula, J. M., Baker, W.E., & Noordewier, T. (1997). A Framework for Market-Based Organisational Learning: Linking Values, Knowledge, and Behavior. *Journal of the Academy of Marketing Science*, 25(4), 305–318.
- Tajima, M. (2007). Strategic value of RFID in supply chain management. *Journal of Purchasing and Supply Management*, 13(4), 261-273.
- Teece, D. J. (1986). Profiting from technological innovation: Implications for integration, collaboration, licensing and public policy. *Research Policy*, 15(6), 285-305.
- Utterback, J. (1994). *Mastering the dynamics of innovation: how companies can seize opportunities in the face of technological change*. University of Illinois at Urbana-Champaign's Academy for Entrepreneurial Leadership Historical Research Reference in Entrepreneurship.
- Waber, B., Magnolfi, J., & Lindsay, G. (2014). Workspaces that move people. *Harvard Business Review*, 92(10), 121–77.
- Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal*, 5(2), 171-180.