



Factors *Driving* Innovation

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Resources

Innovation refers to the process that follows the conception of a novel idea, and often involves several people who each offer different suggestions and contributions (Fuller, 1995). Rosenfeld and Servo (1990 in Fuller, 1995) define innovation as:

Innovation = Conception + Invention + Exploitation.

Invention creates something new. Innovation is more than that: It introduces something new. Innovation is invention plus introduction. It is not easy to introduce something new. Anybody who has had a bright idea about how to improve his or her workplace will know this. People say they want progress, but they resist change.

With the increased emphasis on creativity and innovation in the world of work, organisations face the challenge of

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This study aims at exploring the factors determining and supporting corporate strategic innovations as perceived by employees. A pool of variables was formed and refined using literature review survey. The questionnaire designed from this pool was administered to the managers of firms having successful record of strategic innovations. The data analysis suggests four dimensions determining and supporting corporate strategic innovation-leadership, organizational culture, process and systems and resources.

nurturing new ideas and effectively transforming these creative new ideas into innovative products. According to Pinchot and Pellman (1999) innovation is necessary in order to keep up with the soaring productivity of competitors.

The main types of innovation are divided into product innovations, service innovations, and organizational (procedural or process) innovations (Peter Drucker. 1985). The most common are market-led or market-push innovation; others are technology-led innovations (for which markets must be developed). All can be

classified depending on the degree of their impact, viz., incremental, radical, or systemic. Peter Drucker (1985) identified seven sources of innovation: (i) unexpected occurrences, (ii) incongruities of various kinds, (iii) process needs, (iv) changes in an industry or market, (v) demographic changes, (vi) changes in perceptions, and (vii) new knowledge. (These seven sources overlap, and the potential for innovation may lie in more than one area at a time.) He explained that purposeful, systematic innovation begins with the analysis of the sources of new opportunities. However, he emphasized that in seeking opportunities, innovative organizations need to look for simple, focused solutions to real problems. That takes diligence, persistence, ingenuity, and knowledge.

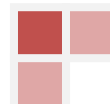
Fuller (1990) points out that profitable inventions are often discarded because the innovation appeared to be a misfit with the organisation's core competency.

Evidence clearly demonstrates that innovation is within the grasp of managers in public organizations (Borins 1998; Light 1998; Moore 1995; Osborne 1998; Walker et al. 2001). A growing number of research studies have sought to place this phenomenon under the empirical microscope—issues examined include adoption (Berry 1994; Borins 1998; Boyne et al. 2005; Light 1998; Walker 2006) and, more recently, performance consequences (Walker and Damanpour, forthcoming; Walker, Damanpour, et al. 2007). The evidence base, although growing, remains limited and it is therefore necessary for scholars to develop more knowledge about the nature of public services innovation.

According to Tsai (1997), Organisational Innovation theory may be categorised into: the System or Process type, as per Becker and Whisler (1967), Kanter (1988) and Amabile (1988); the Innovation Deployment Rate type, as per Knight (1967), Shepard (1967), Damanpour and Evan (1984); and the Classification type, as

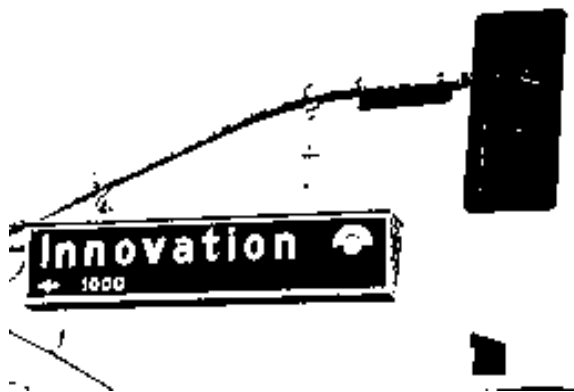
per Evan and Black (1967), Knight (1967), Kimberly *et al.* (1986) and Drazin (1990). Furthermore, research on OI has also been categorised according to different viewpoints, including research based on products, processes, and both products and processes, and multiple views. Those who use the product viewpoint define OI in accordance with the new products produced or designed by the organisation (Burgess, 1989), which were subsequently marketed successfully or obtained merits (Blau and McKinley, 1979). Based on the process viewpoint, as per Amabile (1988), OI is regarded as a process. The product and process viewpoint looks at OI from the point of view of the creation of new products or processes within an organisation. Dougherty *et al.* (1995) described OI as a complex process in problem solving, which involved activities like product design, coordination between product innovation functional departments, and matching from company resources, structure and strategy. Those who define OI within the context of multiple viewpoints suggest that most people with product or process viewpoints only emphasise the technical innovation (TI) of an enterprise, whilst administrative innovation (AI), like management policy and practice, are neglected. Thus, both TI and AI are possible expressions of OI. The following discussion on OI theory is mainly based on the analysis of the literature collated by Tsai (1997) and Damanpour (1991).

Chun-Chu Liu (2004) did a research to construct organisational innovation dimensions and the associated evaluation index for Taiwan's high-tech industries, in order to evaluate Taiwan's current level of ability in this area, and provide a guideline for businesses. After the organisational innovation model was constructed, the empirical study concluded that the most important dimensions for measuring organisational innovation included product innovation, process innovation and



organisational structure and climate innovation.

Richard M. Walker (2007) identified the antecedents of service, organizational process (organization and marketization), and ancillary innovation types. The drivers of the study are twofold: prior research has not adequately addressed how organizational and environmental antecedents may vary by innovation type, and the impact of complementary relationships between innovation types has not been systematically estimated in public organizations. The results of the study show that the antecedents of different innovation types are complex and those complementary relationships between innovation types might not be as widespread as is theorized. Configuration theory is proposed as a framework to move away from examining the myriad of individual variables and toward a consideration of the relationships between antecedents and innovation types.



Amram R. Shapiro (2006) profound that innovation can be achieved in many ways, measuring innovativeness is difficult to do well with a single measure. One effective approach is to pair a 'fixed' with a 'variable' measure that is Revenue from New Products with Revenue from New Platforms. The former focuses on product and the latter on any kind of relevant platform that leads to advantage through innovation: product, technology, manufacturing, operational, or business. By considering the accounting-based new product measure in concert with the more

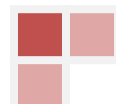
flexible measure of new platforms, a company can explore meaningfully the quality of its innovation and how sustainable is its innovativeness.

D V R Seshadri and Arabinda Tripathy (2006) study found that large companies worldwide are on a journey to create organizational cultures, conditions, and processes that facilitate innovation and enable large numbers of employees to move from an 'employee mindset' to an 'innovative mindset.' Very few companies have actually succeeded in making this transition. The situation is not very different in India. The task is clearly non-trivial and the roadblocks are many resulting in a considerable gap between intent and reality in making this happen.

Fariborz Damanpour (1991) conducted a meta-analysis of the relationships between organizational innovation and 13 of its potential determinants resulted in statistically significant associations for specialization, functional differentiation, professionalism, centralization, managerial attitude toward change, technical knowledge resources, administrative intensity, slack resources, and external and internal communication. Results suggest that the relations between the determinants and innovation are stable, casting doubt on previous assertions of their instability. Moderator analyses indicated that the type of organization adopting innovations and their scope are more effective moderators of the focal relationships than the type of innovation and the stage of adoption. Several theories of innovation are examined in terms of the aggregated data.

It has been proposed in several studies that for organizations to be successful and effective in innovations need their senior leaders to engage in behaviors that promote multiple types of innovation (O'Reilly & Tushman, 2004; March 1991).

Both theoretical discussion and empirical investigations suggest that the



promotion of an innovation enabling culture requires senior leaders' support and involvement (Drucker, 1985; Ireland & Hitt, 1999; Jassawalla & Sashittal, 2000; Elenkov et al., 2005; Sosik et al., 2005; Uhl-Bien et al., 2007; Vera & Crossan, 2004).

J.M. Plehn-Dujowich (2007) proposed a general theory of innovation that illustrates the relative benefits of performing process versus product R&D when firm size is endogenous. A firm's size, scope, and R&D portfolio are shown to reflect the same underlying characteristic of the firm, namely manufacturing efficiency. We demonstrate that efficient firms become larger, have greater scope, and perform more of both process and product R&D. In light of decreasing returns to R&D, this implies small firms obtain more product innovations per dollar of R&D than large firms, which is consistent with evidence we present that small firms are more innovative than large firms as they obtain more patent counts and citations per dollar of R&D.

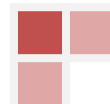
There have been other studies that address innovation success (Alegre et al., 2006; Griffin, 1993; Jonash and Sommerlate, 1999), however the primary focus of these are premised on specific concerns or theoretical foundations – usually associated with uni-dimensionality related to the activities and elements of innovation, and not scale development. Any attempts to measure innovativeness have been ad hoc at best with the exception of Wang and Ahmed (2004) in which they conceptualize a multi-dimensional construct of innovation. Their study is significant in that it is the first known attempt to operationally validate the innovativeness construct, of which they proposed a validated 20-item measurement construct. Their findings provided a basic framework and a direction for future research, in which they recommended among other things, the expansion of construct items. Another study by Hult et al. in 2004 confirmed innovativeness as an important antecedent of business

performance (Hult et al., 2004). Their study also underscored the importance of a market orientation, learning orientation and entrepreneurial orientation in the creation of an environment conducive to innovation activities. These orientations were deemed to have a significant and positive impact on organizational innovativeness, and ultimately, performance.

Studies at both the organizational and subunit level have offered empirical support for climate's effects on innovation (Abbey & Dickson, 1983; Paolillo & Brown, 1978; Siegel & Kaemmerer, 1978). However, empirical study of climate's effects on individual innovative behavior has been limited (Amabile and Gryskiewicz [1989] is an exception).

Others have noted that innovative organizations are characterized by an orientation toward creativity and innovative change, support for their members in functioning independently in the pursuit of new ideas [Kanter, 1983; Siegel & Kaemmerer, 1978] and a tolerance for diversity among their members (Siegel & Kaemmerer, 1978). Finally, adequate supplies of such resources as equipment, facilities, and time are critical to innovation (Amabile, 1988; Angle, 1989; Taylor, 1963), and the supply of sub resources is another manifestation of the organizational support for innovation.

Schneider (1975) suggested that there are many types of climates, and Schneider and Reichers wrote that "to speak of organizational climate per se, without attaching a referent, is meaningless" (1983: 21). Not all of the dimensions contained within omnibus climate measures [e.g., Jones & James, 1979; Pritchard & Karasick, 1973] are relevant to the criteria of interest in a specific research study. For example, in the often-cited Abbey and Dickson (1983) study of innovative performance among R&D units, only two of the ten generic work-climate dimensions examined, performance-reward dependency and



flexibility, were consistently correlated with measures of R&D innovation.

The focus of this study is to explore the supporting factors for corporate innovation as perceived by employees. Literature suggests there are two broad dimensions supporting corporate innovation:

- The first dimension consists of environmental factors and the
- Other consists of individual characteristics represented by the employee orientation toward corporate innovation.

With a discussion about the topic to certain experts and looking at the existing literature about innovation, we have identified the following variables:

Measure Innovation by:

Over the last three years in my organization

- There has been overall skill and knowledge enhancement in terms of product and technology (Overall Skill enhancement)
- There has been investment in enhancing skills in exploiting mature technologies that improve productivity of current innovation operations (investment in Mature technology)
- There has been improvement in the competency to provide completely new solutions to customer problems (Competency to provide new solutions)
- There has been strengthening of knowledge and skills for projects that improve efficiency of existing innovation activities (more knowledge and skill enhancement for existing innovation projects)
- There has been speedily introduction of new products to market.

Organisational Strategies:

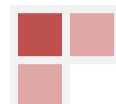
- My organization has ability to develop creative marketing strategies for new products. (creative marketing strategies)
- My organisation has high focus on Innovations initiatives in comparison to Quarterly results (Overall strategic aim other than profits)
- My organisation wants to grow through innovation (Growth based on innovation)
- Innovation is focused on the R&D department and its collaborations only. (reliance on R and D department)

Leadership

- The senior leaders of my organisation accept change in accordance with competitive conditions (accept change with increasing competition)
- The senior leaders of my organisation arouse my curiosity about new ways of doing things. (Develop orientation for new methods)
- Top management of my organisation puts efforts in place to support innovation (supportive)
- Top management of my organization praises and follows carefully most innovation efforts in your organisation. (positive stimuli)
- Top management of my organization provides scope for experimentation and change. (scope for experimentation)

Culture

- My organization encourages employees to take risks. (encourage risk taking abilities)
- My organization encourages rewards to those who take risk. (Rewards for risks)



- My organization shares knowledge widely.(Knowledge sharing)
- Transparency is very important in my organization(Transparency)
- My organization always makes it clear to everybody how the company intends to innovate.(Clarity of goals with respect to innovation)

Resources

- My organization has ability to invest significant resources in marketing new products (financial resources)
- My organization considers the network of Employees, customer and feedback as the fundamental building block of innovation (Network of employees ,customers and feedback)
- Innovation is facilitated by technological resources in my organization (technological resources)

Process & systems

- My organisation is open to new process (open to new systems)
- My organisation has processes with operating procedures that cannot be changed. (Rigidity in systems)
- My company creates the right metrics and rewards for innovation. (Appropriate Control /performance measures)
- For innovation restructuring is allowed by the organization.(Flexibility in systems)

Research Objective:

The literature survey reveals that very limited number of empirical research was carried out using environmental factors and employee orientation together to explain the

determinant of innovation. In order to fill this gap, this study is designed to explore the employees' perceived factors supporting the corporate innovation, and to find the relative importance of these factors. The results of the empirical analysis would be able to provide a ranking among various perceived factors supporting a successful innovative firm.

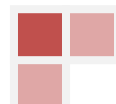
Research Methodology

Questionnaire Design and Data Collection:

A pool of 21 independent variable items and five dependent variable items was prepared after the literature survey. The items were converted to questions using Likert scale. List of questions is presented in Table 2. Questionnaire was pretested and modified using opinions from three academicians and three practitioners in the field of corporate innovation. The questionnaire was then administered to the managers at junior and middle levels across three food and beverage firms who are practicing corporate innovation and having a good track record of innovations in the industry in India. Total 150 responses were obtained. Out of those 136 were found valid for the purpose of data analysis.

Data Analysis

Exploratory factor analysis for the independent variable items followed by reliability analysis was performed initially to explore the data structure. After a sequential and iterative process of factor extractions, checking reliabilities of extracted factors, removing the cross loading items and then factor extraction and rechecking reliabilities, the final solution with 21 items spread across 5 factors was accepted. Oblique rotation was used in factor extraction due to presence of high correlations between factors. Cronabach alpha of extracted factors



ranged from 0.693 to 0.947. The next step was to find out the impact of extracted factors on innovation practice of the firm. Therefore a multiple regression was

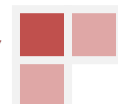
carried out using the factor score of dependent variable items and factor scores of 5 extracted independent factors as independent variables.

Item Mean and Factor Analysis Result

Overall KMO: 0.83

Sig(Bartlett's test of Sphericity) :0.00

Item	Item Mean	Std Dev	Factor name (cronabach Alpha)	Factor loading
Creative Marketing strategies	3.90	0.59	Strategic orientation(.71)	0.72
Overall strategic aim on innovativeness other than profits	3.42	1.09		0.58
Growth based on innovation	3.65	1.13		0.89
Reliance on R&D Department	3.67	0.91		0.81
Accept change with increasing competition	3.80	0.91	Leader Encouragement and Support(.83)	
Develop orientation for new methods	4.10	0.45		0.94
supportive	3.19	1.12		0.53
positive stimuli	3.22	1.06		0.76
scope for experimentation	3.65	1.32	Freedom(0.95)	0.99
encourage risk taking abilities	3.14	1.14	Org Culture(.91)	0.79
Rewards for risks	3.29	1.26		.42
Knowledge sharing	3.27	1.25		.87
Transparency	3.27	1.25		0.78
Clarity of goals with respect to innovation	3.22	1.06		0.76
financial resources	3.96	1.07	Resources(.79)	0.97
Network of employees ,customers and feedback	3.56	1.05		0.85
technological resources	3.86	1.06		0.92
open to new systems	4.03	0.96	Organisational systems(.86)	0.81
Rigidity in systems	3.32	1.01		0.72
Appropriate Control /performance measures	3.46	1.05		0.70
Flexibility in systems	3.43	1.18		0.52



Dependent Variable Items

Items	Mean	Standard Deviation
Skill Enhancement	3.75	0.91
Investment in Mature technology	3.75	0.96
Competency to provide new solution	3.95	0.91
Innovation in existing products/services	3.89	1.14
New Product innovation	4.06	0.91

Regression Results

Dependent variable: Organisational Innovation

Independent variables	Unstandardised Coefficients		Standardised Coefficients	T Value
	B	Std Error	Beta	
Constant	5.764	1.245		4.630
Strategic orientation	0.028	0.057	0.037	0.496
Leader Encouragement and Support*	0.242	0.117	0.162	2.069
Freedom	0.028	0.057	0.037	0.496
Org Culture*	0.82	0.083	0.085	0.993
Resources*	0.211	0.108	0.127	1.949
Organisational systems*	0.218	0.057	0.337	3.800

*represents significant variables

R square=0.55

Variables with t values greater than 1.8 are considered significant at 5% level.

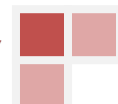
Results:

The pool of thirty five items from the literature survey was refined into 24 attributes spread across six factors using principal component analysis - oblique rotation. All these six extracted factors were found reliable. The six factors together explain more than 55% variance in the organizational innovation. Out of the six extracted factors, four factors were found having significant impact on the organizational innovation. These are Organisational System, Resources,

Organizational Culture, and Leader Encouragement and Support.

Discussion

The importance of this study and the results of the study can be understood simultaneously. Only when the supporting factors are perceived as existing in the organization, a successful practice of corporate innovativeness can be realized. Factors like perceived reward and freedom were found insignificant to the corporate



innovation. On the other hand, factors like Strategic Orientation, Organizational Culture, Resources, and Leader's Encouragement were found significantly impacting corporate innovation.

The highest impact of the factor organizational system suggests that the first priority for the firms who want to be successful in corporate innovation should be to establish a favourable organizational system having a perceived supportive organizational structure, job design, supportive job rotation, and freedom to employees to manage in their own work and flexibility in solving problems. Organizational systems and structure will have a critical bearing on how decisions are made throughout a company, and it will define the network of relationships and interactions along with processes that contribute to the execution of the company's strategy. The organizational structure has to evolve to deal with changing priorities and increased business complexity.

The next perceived factor is leader encouragement and support, consisting of attributes like acceptance to change with increasing competition, Developing orientation for new methods, being supportive, always motivate with positive stimuli and provide scope for Scope for experimentation. Leaders' support is required to instill a philosophy of innovation in the organisation by supporting and encouraging teamwork initiative. This is a perceived factor derived from the study that supports corporate innovation positively. An important role of a company's leaders is to communicate and reinforce the core values, beliefs, and norms of corporate culture.

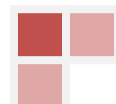
Company leaders also serve as role models to the employees who look to them to provide inspiration, support for their ideas, and the guidance required to excel.

In addition, availability of resources to the employee was found having a significant impact too, the resources in terms of financial, social and technical aspects were found positively significant. The organization need to ensure that the employees have the information and resources they need to follow through with their ideas.

The study clearly suggests the importance of organisational system, leaders' support and resources all of which are more of collective and organisational attributes.

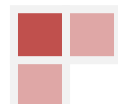
Though strategic orientation and freedom emerge as important factors supporting corporate innovation in the previous studies, but in this study, where the basis is the perceived factors – strategic orientation and freedom are found having an insignificant impact. Organisations need not to over emphasize the overall strategic orientation for innovations and freedom to employees.

Though, perceived supportive reward and freedom to employees can be designed and adopted in a comparatively easy manner and in less time, a carefully designed organisational system, supportive leaders, collaborative work environment and sufficient resources to the employees can lead to a more significant and positive corporate innovation consequences. In order to foster a culture of innovation, companies need to motivate their employees with rewards, recognition, and empowerment.



References:

- Alegre, J., Lapiedra, R. and Chiva, R. (2006), A measurement scale for product innovation performance, *European Journal of Innovation Management*, 9 (40) , 333-46.
- Amabile, TM (1988). A model of creativity and innovation in organizations. *Research in Organizational Behavior*, 10, 123–167.
- Blau, J R .and McKinley, W. (1979). Idea, complexity, and innovation. *Administrative Science Quarterly*, 24, 200–219.
- Becker, S W.and Whisler T .L. (1967).The innovative organization: A selective view of current theory and research. *Journal of Business*, 4, 462–469.
- Burgess, BH (1989). *Industrial Organization*. Englewood Cliffs, NJ: Prentice-Hall
- Chun-Chu Liu ,(2004). An Empirical Study on the Construction of a Model for Measuring Organisational Innovation in Taiwanese High-Tech Enterprises, *International Journal of Innovation Management*, 9(2) , 241–257, Imperial College Press
- Fariborz Damanpour (1991) Organizational Innovation: A Meta-Analysis of Effects of Determinants And Moderators, *Academy of Management Journal*, 34. 3, WS-SM.
- Damanpour,Fariborz (1991).Organizational innovation: A meta analysis of effects of determinants and moderators ,*Academy of Management Journal*, 34(3), 555–590.
- Damanpour, F and WM Evan (1990). The adoption of innovation overtime: Structural characteristics and performance of organizations. Paper presented at the annual meeting of the Decision Science Institute, San Diego
- Drazin, R (1990). Professionals and innovation: Structural-functional versus radical structural perspectives. *Journal of Management Studies*, 27(3), 245–263.
- Drucker, PF. 1985. The discipline of innovation. *Harvard Business Review*, 63(3): 67-72
- Dougherty,D and EH Bowman (1995). The effects of organizational downsizing of product innovation. *California Management Review*, 37(4), 28–44.
- Fuller, B. (1995). A process for intrapreneurship: empowered innovation. Available: www.bradfuller.com/Publications/innovate.html.
- Griffin, A. (1993), Metrics for measuring product development cycle time, *Journal of Product Innovation Management*, 10 (2), 112-25.



Hult, G.T.M., Hurley, R.F. and Knight, G.A. (2004), Innovativeness: its antecedents and impact on business performance, *Industrial Marketing Management*, 33 (5), 429-38.

Ireland, RD, Hitt, MA. 1999. Achieving and maintaining strategic competitiveness in the 21st century: the role of strategic leadership. *Academy of Management Executive* 13(1): 43-57

J.M. Plehn-Dujowich(2009), Firm size and types of innovation, *Economics of Innovation and New Technology*, 18(3), 205–223

Jonash, R.S. and Sommerlate, T. (1999), *The Innovation Premium*, Perseus Books, Reading, MA, pp. 115-35.

Kanter, RM (1988). When a thousand flowers bloom: Structural, collective, and social conditions for innovation in organization. *Research in Organizational Behavior*, 10,169–211.

Kimberly, JR (1986). The organization context of technological innovation. *In Managing Technological Innovation*, DD Davis (ed.), 23–43, San Francisco.

Knight, KE (1967). A descriptive model of the intra-firm innovation process. *Journal of Business*, 40, 478–496.

Pinchot, G., & Pellman, R. (1999). *Intrapreneuring in action*. San Francisco: Berrett-Koehler.

Shepard,HA(1967). Innovation-resisting and innovation-producing organizations. *Journal of Business*, 4, 470–477.

Tsai, ST (1997). Organizational factors, creativity of organizational members and organizational innovation. Ph.D. Thesis, National Taiwan University.

Van Aardt, I., Van Aardt, C., & Bezuidenhout, S. (2000). *Entrepreneurship and new venture management*. Cape Town: Oxford University

Walker Richard M. (2007) Organizational and Environmental Characteristics of Innovation Types, *Journal of Public Administration Research and Theory*, 18,591–615

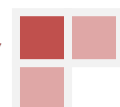
Amram R. Shapiro (2006) *Measuring Beyond Revenues Innovation from New Products*

Seshadri D V R and Tripathy A (2006) Innovation through Intrapreneurship: The Road Less Traveled *Vikalpa Journa* , *Vikalpa* , 31 (1), 17-29

Olivier Serrat(2009), *Harnessing Creativity and Innovation in the Workplace Knowledge Solutions* , Asian Development bank

O'Reilly III, CA, Tushman, ML. 2004. The Ambidextrous Organization. *Harvard Business Review* (Apr), 82(4): 74-81.

O'Reilly III, CA, Chatman, J, Caldwell, DF. 1991. People and organizational culture: A



profile comparison approach to assessing person-organizational fit. *Academy of Management Journal* 34(3): 487-516

Uhl-Bien, M, Marion, R, McKelvey, B. 2007. Complexity leadership theory: Shifting leadership from industrial age to the knowledge era

Vera, D, Crossan, M. 2004. Strategic leadership and organizational learning. *Academy of Management Review* 29(2): 222-240

