Listening to Luddites:
Innovation Antibodies and Corporate Success

Gary OSTER
Regent University, Virginia Beach, USA
E-mail: garyost@regent.edu

Abstract

Protracted innovation is an essential activity of every organization in the modern global marketplace and is fueled by a continuous stream of fresh ideas. Contemporary business literature decries the innovation antibody, employees who intentionally thwart the acquisition and dissemination of crucial new ideas. The business press posits but one uniform type of innovation antibody often unwittingly encouraged by corporate actions, and should be quickly and effectively neutralized. This paper asserts that, like biological antibodies in the human body, the work of innovation antibodies in the corporate body can be either positive or negative. It is true that recalcitrant negative innovation antibodies determined to slow or eliminate innovation must be excised from the organization. Positive innovation antibodies are important to organizational sensemaking and innovation activities, and should not be suppressed or overcome. A revised innovation sequencing model is put forth to guide the activities of positive innovation antibodies, as are specific actions recommended for organizations to encourage the appropriate growth and use of positive innovation antibodies to effect corporate innovation success.

Keywords*: innovation, innovation antibodies, sensemaking, strategy, sustainability, values*

JEL Classification: O16, G34

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"One of the most important ways to start your organization down the innovation road is to honor those who naturally want to speak truth to power, even if they feel infuriating to deal with."

~Francis Horibe~

1. Introduction

Regardless of corporate size or industry, innovation is an *essential* activity of every organization in the modern global marketplace (Hamel, 2002). A steady stream of fresh, new ideas is the foundation of innovation. Organizational change is hindered by the presence of innovation antibodies (Lawrence, 1969). Some

contend that one well-placed innovation antibody can quietly reinterpret corporate strategies to co-workers and ultimately wreak havoc on the corporation's future (Kelley, 2005). Contemporary business literature decries the *innovation antibody*, also referred to as an *organizational antibody* or *devil's advocate*, asserting that innovation antibodies routinely thwart the acquisition and dissemination of crucial new ideas (Sutton, 2002). Moreover, the business press posits that there is one uniform type of innovation antibody, that organizations unwittingly encourage the proliferation of negative innovation antibodies, that innovation antibodies have a devastating effect on innovation and the viability of the organization, and that all innovation antibodies should be effectively neutralized (Skarzynski & Gibson, 2008).

This paper asserts there to be *many* types of innovation antibodies, delineated primarily by their motivations and methods. In addition, innovation antibodies resemble biological antibodies in many ways—too many or unfocused innovation antibodies are injurious to the body (*negative* antibodies), whereas the right number and proper focus of antibodies (*positive* antibodies) is critical to the sustenance of idea generation, the proper vetting of those ideas, and initiation of organizational innovation. Positive innovation antibodies ultimately determine corporate viability. The role of positive innovation antibodies in organizational sensemaking and innovation activities is considered, and an innovation sequencing model most likely to utilize positive innovation antibodies is reviewed. The paper concludes with specific recommended actions to develop an environment that encourages the appropriate growth and use of positive innovation antibodies toward the goal of corporate innovation success.

2. Contemporary Views of Innovation Antibodies

"Antibody" is typically used in reference to an important biological process within the human body. The first known usage of the term "antibody" occurred in a German text by Paul Ehrlich. Ehrlich used the term *antikörper* (the German word for *antibody*) in the conclusion of his article "Experimental Studies on Immunity", published in October 1891, which stated that "if two substances give rise to two different antikörper, then they themselves must be different" (Lindenmann, 1984). Antibodies are gamma globulin proteins found in the blood and other bodily fluids of vertebrates. Their fundamental role is to identify and neutralize foreign invaders, including bacteria and viruses.

An innovation antibody is a malcontent employee who may effectively shortstop corporate innovation (Oster, 2008d, 2008e). Innovation antibodies are considered the greatest threat to innovation in the modern era, and, when considering change, innovation antibodies only see the downside, the problems, the disasters-in-waiting (Kelley, 2001). The more radical the innovation and the more it challenges the status quo, the more and stronger are the antibodies (Davila, Epstein, & Shelton, 2006). Complacency engendered by historical successes of the

organization similarly encourages the replication and growth of innovation antibodies (Davila et al., 2006).

Before reviewing the characteristics of "typical" innovation antibodies, it is important to consider the behaviors intentionally or mistakenly labeled as resistance. A person who exhibits an unusual personality or disagrees with company policies or methodologies is not necessarily an innovation antibody (Hirshberg, 1998). "Background resistance," such as foot dragging, failing to follow procedures, being late for or missing meetings, complaining, gossiping, failing to perform, and so forth, are common behaviors found in all organizations and do not necessarily indicate the presence of innovation antibodies (Caruth, Middlebrook, & Rachel, 1985; Ford & Ford, 2009). Personal qualities that often accompany the ability to successfully innovate—passion, drive, out-of-the-box thinking—are often viewed as arrogance, unreasonableness, and uncompromising behavior in some organizations (Horibe, 2001). Innovation antibodies similarly are not employees who seem wayward but actually have received insufficient or incomplete training or instructions (Fournies, 1988). "Innovation antibodies" does not refer to those who loudly and dramatically disrupt company operations. These are considered "saboteurs," from the French "sabot," a wooden sandal worn by workers and intentionally thrown into machinery to wreck its functionality. Interestingly, approach-avoidance theory (Knowles & Linn, 2004a) posits that people can be simultaneously for (approach) and against (avoid) change. Because of the relentless pressure to perform in modern organizations, virtually *every person* consciously or inadvertently resists change at one time or another (Lawrence, 1969).

Innovation antibodies are not just non-supporters (Gatignon & Robertson, 1989; Herbig & Day, 1992; Ram & Sheth, 1989). Instead, they possess numerous motivations and demonstrate a continuum of methods for engaging change—from passively resisting it, to aggressively trying to undermine it, to sincerely embracing it (Kotter & Schlesinger, 2008; Piderit, 2000). Outspoken critics of change in an organization are often those who care most deeply about corporate success and are cognizant enough of the inner machinations of the organization to recognize the potential pitfalls (Ford & Ford, 2009; Lawrence, 1969). By wrongly assuming that resistance is necessarily bad, corporate leaders often miss potential contributions toward eliminating unnecessary, impractical, or counterproductive elements in the innovation efforts. Pain in the human body caused by the actions of biological antibodies does not tell *what* is wrong, only that *something* is wrong. It is likewise spurious to try to overcome resistance in the corporate body without first diagnosing the specific ailment (Lawrence, 1969). Because of the varied ways in which individuals and groups can react to change, correct assessments often are not intuitively obvious and require careful thought (Gatignon & Robertson, 1989; Herbig & Day, 1992; Kotter & Schlesinger, 2008; Ram & Sheth, 1989; Rogers, 2003).

In almost all cases, organizational resistance is mistakenly portrayed as being "irrational," based on the assumption that innovation antibodies result from a lack of knowledge, motivation, consideration, or ability, and that subjects always face a clear choice between acceptance/compliance and resistance (Brunsson, 1986). It is presumed that corporate leaders are doing the right and proper things while innovation antibodies throw up unreasonable obstacles or barriers to thwart proposed innovation (Dent & Goldberg, 1999). Innovation antibodies are virtually never shown to exhibit rationally coherent strategies and objectives (Jermier, Knights, & Nord, 1994). Portrayal of personal and organizational change resistance as uniformly dysfunctional ignores substantive research demonstrating that authentic dissent has been shown to be functional in other areas of management (Nemeth, Brown, & Rogers, 2001; Nemeth, Connell, Rogers, & Brown, 2001) and that innovation antibodies may serve as an asset and a vital resource in the implementation of successful corporate innovation (Knowles & Linn, 2004b, 2004c).

During periods of fiscal exigency, corporate innovation efforts may be associated with greater urgency, pressure, and risk than are organizational activities in more tranquil times (Kotter, 1995). Corporate leadership may be more frustrated by and less tolerant of behavior exhibited by employees and customers (Caruth et al., 1985), and may become competitive, defensive, or uncommunicative (Ford & Ford, 2009). Moreover, leaders may label a broad range of behavior as indicative of resistance to innovation efforts, and may consider such behavior as justification for operating in different and potentially more aggressive ways toward employees to signal that the behaviors are not aligned with the innovation process and are therefore unacceptable.

3. Corporate Encouragement of Negative Innovation Antibodies

Innovation antibodies thrive in an environment of uncertainty, doubt, weakness, and fear (Carlson & Wilmot, 2006). Individual behavior and institutional infrastructure intentionally resist the instability of change (Oster, 2008d; Stacey, 1996; Taylor, Wacker, & Means, 2000). Innovation resistance rarely arises because of technical factors, but because of social and human considerations (Berkun, 2007; Lawrence, 1969). In many instances, innovation antibodies stealthily move in such an environment to accomplish their own goals (Bossidy & Charan, 2004; Oster, 2008e; Stacey, 1996). Corporations aid and abet innovation antibodies by rewarding employees for their allegiance to the historical past of the company (Lawler & Worley, 2006; Pfeffer & Sutton, 2000). Employee commitment to historical decisions demonstrates the desirable traits of consistency and persistence, reaffirms the organization's social identity, and limits possible loss of valuable personal or corporate assets and benefits (Kotter & Schlesinger, 2008). Employees resist change because they are comfortable with the historical trajectory and habits of the organization and in their complacency resist all innovation (Grieskiewicz, 1999; Sheth, 1981). Those who choose to engage in innovative

practices are sometimes publically sanctioned by superiors and peers (Berkun, 2007; Horibe, 2001; Sutton, 2002). Earlier innovation failure causes sanctions to be applied to new innovative efforts to limit possible corporate damage (Ford & Ford, 2009), may promote ongoing skepticism and cynicism (Beer et al., 1990), and inoculates employees, thereby increasing their immunity to future innovation efforts (McGuire, 1964; McGuire & Papageorgis, 1961; Tormala & Petty, 2004). Perhaps the most common support network for negative innovation antibodies is weak and unfocused corporate leadership. Leaders who consider innovation as inefficient and a waste of corporate resources often provide tepid support to those who innovate, and employees lack trust in leadership support of innovation efforts (Kotter & Schlesinger, 2008). The commitment of leaders to the innovation process may be temporary, and the internal corporate market for creativity and innovation may be opaque or non-existent (Davila, et. al., 2006). Leaders may use inappropriate or imprecise language in their transmission of innovation objectives (Fournies, 1988; Lawrence, 1969). Negative innovation antibodies thrive in such an environment and quickly overrun all new innovation initiatives (Kelley, 2005).

4. Damage By Negative Innovation Antibodies

In the hyper-competitive global economic environment, protracted innovation is a matter of corporate viability (Davila et al., 2006; Gryskiewicz, 1999). The personal compensation and tenure of corporate leaders are often tied directly to the development of a consistently innovative organization by Boards of Directors (Oster, 2008a). The foundation of innovation is the new, the unusual, the unique ideas developed by employees, customers, and others (Hamel, 2002). While both the development of internal innovation capabilities and an environment for protracted innovation success are essential to the survival of every modern corporation, the business press often portrays the lifework of every innovation antibody as the thwarting of that effort (Kelley, 2005; Oster, 2008d; Sutton, 2002). The success of innovation antibodies intimidates other employees (Dundon, 2002), and causes employees to hide their insights (Kotter, 1995). The motivations, methods, and outcomes of innovation antibodies are usually considered to be homogenous, and are detailed hereafter:

- **Derail Change** – The fundamental descriptor of an innovation antibody is the ability to spell out instantly dozens of reasons why a new idea or corporate action will fail, but the uniform inability to provide any alternatives that might help them succeed (Kelley, 2005: Oster, 2008d, 2008e; Sutton, 2002). New ideas for products, procedures, or organizational configurations are harshly met with historical tales of similar earlier attempts and the untimely demise of those who championed them (Berkun, 2007). Negative innovation antibodies vehemently attack ideas in their most rough concept or prototype stage to ensure that they never garner enough support to

reach viability (Kelley, 2005; Oster 2008b, 2009c). One successful method used by innovation antibodies is to push for the absolute elimination of the possibility of failure: before something new is tried its ultimate success must be proven beyond a shadow of a doubt (Heifetz, Grashow, & Linsky, 2009; Martin, 2004, 2005; Oster, 2008b, 2009a).

- **Quietly Erode Corporate Communications** – Most texts generalize the insidiousness of innovation antibodies is due to their working "off radar," evidenced only in projects not done on time, done poorly, or in need of rework (Horibe, 2001). Their power comes from being undetectable to superiors. In fact, innovation antibodies often curry the favor of superiors, even eagerly volunteering publically for the very projects they effectively secretly thwart. Innovation antibodies are particularly adept at "malicious obedience." As the term implies, malicious obedience occurs when preliminary plans for a new product, strategy, or program is unveiled by corporate leadership, and the innovation antibody possesses information necessary to make those plans effective. By participating in the plan "by the book," the innovation antibody gains substantial strength when the plan ultimately fails (Oster, 2008e).

- **Proceduralize Progress** – Experts assert innovation antibodies never publicly challenge innovation efforts "head-on," but instead quietly influence and take control of the development of corporate policies and procedures surrounding innovation practices (Oster, 2008d). Burying innovation practices in convoluted policies and procedures slows innovation so that it finally experiences death by inertia.

- **Ignore Customer Needs** – The business press also opines that the focus of a corporate antibody is ever inward to the internal machinations of the organization (Pfeffer & Sutton, 2000). According to innovation antibodies, contemporary decisions related to innovation must perfectly align with the historical trajectory of the company, regardless of current changes in customer needs, the competitive environment, or economic marketplace (Davila et al., 2006). For the innovation antibody, the company will exist in its present state forever and the external environment (including current and prospective customers) is caustic or irrelevant (Argyris, 1991; Sutton, 2002).

- **Evade Objective Metrics** – Business literature also notes that innovation antibodies despise corporate metrics, primarily because objective facts serve as a constant hindrance to internal political manipulation (Davila et al., 2006; Oster, 2008e). Innovation antibodies are portrayed as living in a fantasy world where costs and revenue are unimportant and customer intimacy confounds their goals.

5. Prune Recalcitrant Innovation Antibodies

Organizing a corporation for innovation ultimately requires the efforts of each individual to be aligned with the fundamental purpose of the organization (Labovitz, 1997). Despite significant support and direction and months (or years) to internalize the changed environment, some employees cannot or will not change (Beer et al., 1990). There are negative innovation antibodies in many organizations who will not end their quiet guerrilla war with the company leaders for power (Bennis & Biederman, 1997; Hirshberg, 1998), simply refusing to use their behind-the-scenes machinations to encourage positive change (Erwin, 2009). When that is the case, it is the obligation of senior leadership to act swiftly and surely to permanently remove the corporate antibody from the organization (Hirshberg, 1998; Davila et al., 2006; Beer et al., 1990; Heifitz et al., 2009).

6. Organizational Sensemaking

The dynamic global marketplace is characterized by informational chaos (Gleick, 1987). An unending deluge of seemingly non-differentiated data buffets individuals and organizations. Perception and prioritization of the data is limited by the rational boundaries of those receiving it (Manu, 2007). When confronted with ambiguous information, humans often judge too quickly: incoming facts are automatically shaped to fit the preconceptions of those receiving them (Day & Schoemaker, 2006). Those biases are based on status, historical experience, corporate politics, the "bandwidth" of the receiver, etc. (Day & Schoemaker, 2006). To recognize, interpret, and act on the weak signals of forthcoming threats and opportunities contained in the streams of ongoing events requires intentional "sensemaking," a process involving the interaction of information gathering, assignment of meaning, and related responses (Thomas, Clark, & Gioia, 1993). Sensemaking is fundamentally a series of methodologies for ordering and extracting meaning from equivocal inputs, for sensing anomalies and enacting order into flux (Chia, 2000). Sensemaking is not about absolute truth or scientific accuracy, but is instead about a continued redrafting of an emerging story so that it becomes more comprehensive, incorporates additional data, becomes increasingly understandable to others, and is more resilient in the face of criticism (Weick, Sutcliffe, & Obstfeld, 2005). Sensemaking allows people to generally understand information and circumstances in ways that approximate movement toward general long-term goals. Sensemaking therefore does not focus solely on complete, conspicuous, simple, written, significant, longstanding concepts. Instead, sensemaking appreciates and makes use of the small, subtle, fleeting, ambiguous, fragmentary, oral or visual information that may ultimately have major implications for innovation in the organization. An interesting characteristic of sensemaking is that participants interpret incoming knowledge using trusted frameworks, yet demonstrate their mistrust of those same frameworks by continually testing new frameworks and new interpretations. Sensemaking

simultaneously honors and rejects the past, and is cyclical in that inputs are organized and intentionally fed back into the world to make it more orderly (Weick, 1979).

An important sensemaking process involves "noticing" and "bracketing." Noticing and bracketing are triggered by the recognition of discrepancies and anomalies in the data stream, and are the initial crude acts of simple informational categorization. Concepts must be bracketed from an amorphous stream of experience and labeled as relevant before additional action can be focused on them (Weick et al., 2005). The resultant rough categorization may have several meanings but does result in the affixing of a preliminary interpretation and label (Magala, 1997), so that specific concepts may be more easily communicated between people (Chia, 2000). The primary "filter" used in bracketing is the question of whether an idea is plausible. By using mental models and articulation, the number of possible meanings attached to the bracketed material is reduced (Obstfeld, 2004). Sensemaking is sometimes referred to as an activity that "talks" events, situations, environments, and organizations into existence because of the important and dynamic role of articulation in the process, and in sensemaking, action and talk are cycolinear, with alternation between action and ideas as they are continually refined (Weick et al., 2005).

Level	Process	Inputs/Outcomes	Interpretive Questions
Leadership	Institutionalizing	Corporate values	"What should we measure?"
	Normalization	Routines	
		Diagnostic systems	
		Rules and procedures	
Employees		Shared understandings	
		Capability	"How do we accomplish this?"
	Integration	Mutual adjustment	
		Interactive systems	
		Experimentation	
		Production	
Customers	Intuiting	Experiences	
	Ideation	Images	"What do I see?"
		Metaphors	
	Interpreting	Language	
	Elaboration	Cognitive map	"Does it fit a pattern?"
		Conversation/dialogue	

Adapted from Blackaby & King, 1994; Crossnan, Lane & White, 1999; Nonaka, 1994.

Figure 1 Innovation Sensemaking Antecedents/Process

Innovation is a function of corporate sensemaking. As shown in Figure 1 above, innovation is not a simple process to be learned and then occasionally applied in the workplace. Instead, innovation is a complex *environment* that requires clearly delineated objectives, avenues to acquire resources and initiate

processes to encourage innovation to occur, and the freedom to pursue innovative ideas wherever they lead. As noted in Figure 1, the lines between leadership, employees, and customers are highly permeable. The flow of action and information is bi-directional and participation in the processes and inputs/outcomes often moves freely among leadership, employees, and customers. Sensemaking is ongoing and iterative within and between levels. In addition, each input/outcome may be comprised of multiple levels. For example, capability can include productive capacity, implicit and explicit knowledge, and individual and group motivation. All three levels of innovation sensemaking require informal "interloculators," individuals who name, actively debate, and talk through emergent elements of the innovation sensemaking with each other (Weick et al., 2005).

7. The Critical Role of Positive Antibodies in Corporate Innovation

Positive innovation antibodies who align their motivations and methodologies for the good of the organization are crucial to its viability. Resistance must be considered a "gift" to be intentionally reviewed, considered carefully, and acted upon as necessary (Carlson & Wilmot, 2006). Rather than dismissing antibody resistance as irrational and acceptance as rational, resistance in the form of comments, complaints, and criticisms provide valuable cues to adjust the pace, scope, direction, or sequencing of innovation (Amason, 1996; Schweiger, Sandberg, & Rechner, 1989). An absence of or disengagement from innovation antibodies may be a sign of future problems resulting from unthinking acceptance (Wegener, Petty, Smoak, & Fabrigar, 2004). The foundation of innovation is the generation of many widely different ideas (Salk, 1972; Sutton, 2002). Those ideas come from people who are diverse in education, experience, and thought patterns (Dyson, 2003), sometimes called "wild ducks" because they are often quirky, individualistic, highly intelligent employees who ignore procedures, shun set schedules, and resist attempts to make them more efficient (Horibe, 2001). In addition to being idiosyncratic, these positive antibodies may lack traditional education or credentials and exist on the margins of their professions (Bennis & Biederman, 1997). Like biological antibodies, the divergent viewpoints of positive innovation antibodies may be harnessed effectively to recognize, polarize, and refine new and potentially valuable concepts flowing into the organization (Hirshberg, 1998) while bracketing those that should be rejected (Berkun, 2007; Weick et al., 2005). For example, some positive innovation antibodies utilize empathic research to ascertain important customer needs not regularly appearing on traditional market research reports (Oster, 2008c, 2009a, 2009b; Suri, 2005, 2006) but absolutely essential to the development of new products, services, ideas, environments, or processes for the marketplace. Without positive innovation antibodies, organizational sensemaking and innovation are quickly homogenized and rapidly decline in effectiveness (Hirshberg, 1998; Weick, 1979, 1995; Kanter, 1977).

8. Encouraging the Proliferation of Positive Innovation Antibodies

Corporate leadership has responsibility for neutralizing negative innovation antibodies and focusing the energy of positive innovation antibodies onto efforts that inform and propel progress within the corporation (Bennis & Biederman, 1997; Davila et al., 2006; Hirshberg, 1998; Manu, 2007). While there is no uniform *process* that may be communicated to guarantee protracted innovation, the following elements are crucial to the development of an *environment* that is conducive to innovation (Schrage, 1989):

- **Hire An Intentionally Diverse Employee Group** – Innovation is fueled by innovative ideas, and the only way to get better ideas is to get more ideas (Day & Schoemaker, 2006; Salk, 1972). Internally, companies must function much like a constructive intellectual arena, where new ideas are constantly pitted against each other and the best ideas win out (Sutton, 2002). Because only "stupid" questions can create new wealth (Hamel, 2002), and those questions reside in the heads of employees (Page, 2007), diversity needs to be *deeper*. The acquisition of ideas benefits from a workforce that is intentionally diverse (Amabile, 1998; DePree, 1989; Heifetz et al., 2009; Page, 2007), in characteristics such as age, experience, gender, race, education, interests, attitudes, etc. which generates enthusiasm, refreshing ideas, and remarkable new opportunities (Day & Schoemaker, 2006; Gryskiewicz, 1999; Kawasaki, 1999; Schwartz, 2004; Sutton, 2002). The purpose of hiring is quantitative expansion, but qualitative expansion, including enlarging the range of a company's capabilities and the breadth of its vision, is far more important (Bennis & Biederman, 1997; Hirschberg, 1998). Innovation is substantially enhanced by deliberately seeking divergent pairs of employees (Hirschberg, 1998), and selecting employees with a broad range of backgrounds and skills (Bennis & Biederman, 1997; Gryskiewicz, 1999; Kelley, 2001, 2005; Skarzynski & Gibson, 2008). In addition to diverse capabilities, employees must have diverse attitudes (Bennis & Biederman, 1997; Hamel, 2002). Recruits must be selected who are slow learners of the organizational code--the history, memories, procedures, precedents, rules, and assumptions of the company (Kotter, 1995; Sutton, 2002). For ideas to be generated and innovation to follow, it is incumbent on corporate leaders to intentionally hire and routinely tolerate what most companies label as deviants, heretics, eccentrics, crackpots, weirdos, or just plain original thinkers (Horibe, 2001; Sutton, 2002).
- **Align Innovation Efforts With Historical Corporate Values -** Values are constant, passionate, enduring core or central beliefs, collectively called a "worldview," that propel the actions of individuals and corporations (Malphurs, 2004; Rokeach, 1973). Personal values

are generally acquired through education, observation, and experiences, and may be taught or influenced by parents, friends, work associates, religious organizations, community, and educational institutions. Because *personal* values are capable of being openly articulated, advocated, exhorted, and defended, they ultimately shape *organizational* values (Rokeach, 1973, 1979; Schein, 1983, 1985). All activities of an organization are considered through the lens of the corporate values, and values therefore have major import to the long-term viability and growth of an organization (Malphurs, 2004). Values serve as the conceptual foundation upon which individual and group life is constructed. Sustainable innovation *always* aligns with organizational values (Heifetz et al., 2009; Labovitz, 1997). When considering new ideas during the process of organizational sensemaking, participants must decide if they align with actual organizational values (doctrine) or, in fact, are being compared to non-essential elements of corporate culture (dogma) (Oster, 2008b, 2009a; Zades & Stephens, 2003). Positive innovation antibodies do not call historical corporate values into question. They may, however, actively protest innovation that is not aligned with those values (Herbig & Day, 1992, Taylor, et. al., 2000).

- **Develop a Culture of Honesty and Transparency** – Honesty, transparency, and realism diffuse the actions of negative innovation antibodies, and are the responsibility of corporate leaders (Bossidy & Charan, 2004; DePree, 1989; Kouzes & Posner, 1993; Gryskiewicz, 1999; Heifetz et al., 2009; Lawrence, 1969). Leaders subsequently institutionalize innovation environments through formal policies, systems, and structures (Beer et al., 1990). Transparency is especially important for employees to observe the connection between innovation activities and the purpose of the organization (Ford & Ford, 2009). Transparency similarly offers employees a sense of belonging to the innovative process, an idea of how their self-interests will be addressed, and a sense of urgency about the corporate purpose (Beer et al., 1990; Guttman, 2008; Kotter, 1995, 1996; Kotter & Schlesinger, 2008). Because the transparency is for all participants it promotes critical evaluation and requisite changes in theories-in-use (Argyris, 1991).
- **Initiate Frequent and Varied Communications** – As shown in Diagram 1, communications in sensemaking is iterative and bi-directional. Frequent communications using a broad spectrum of formats is a crucial method to diffuse the efforts of negative innovation antibodies by lessening their ability to reinterpret intended messages (Guttman, 2008; Kotter, 1995; Kotter & Schlesinger, 2008). Communications regarding innovation efforts from leaders to

employees must be simple, regular, and consistent with the personal actions of individual leaders (Erwin, 2009; Kotter, 1995, 1996). Participants in the sensemaking process include leadership, employees, customers, suppliers, competitors, stockholders, trustees, the general public, etc. (Carlson & Wilmot, 2006; Oster, 2009a; Zades & Stephens, 2003). Communications may be either explicit or implicit when evaluating the compensatory behavior of customers through empathic research (Nonaka, 1991; Oster, 2008c; Suri, 2005). Communications with current and potential customers, utilizing low-cost prototypes, is an especially effective innovation method which concomitantly reduces corporate risk (Hamel, 2002; Oster, 2009a, 2009b, 2009c; Rodriguez and Jacoby, 2007a, 2007b; Taylor et al., 2000; Utterback, 1994). Courageous conversations, no matter how strident, can provide important feedback if input is treated with respect and candor (Ford & Ford, 2009; Heifetz et al., 2009).

- **Enunciate Aggressive Objectives Measured By Meaningful Metrics** –- Substantive, nonlinear innovation is *always* led by aggressive, simple, objective metrics aligned with the values, vision, strategy, and tactics of the organization (Hamel, 2002). Successful innovation leaders embrace the challenge of *quantum* objectives, knowing they automatically inspire and require new pathways of thought and action (Davila et al., 2006; Hamel, 2002; Kelley, 2001; Martin, 2005; May, 2007; Heifetz et al., 2009). Leaders also intentionally fragment the overall objectives into achievable short-term stretch objectives (Kotter, 1995). Appropriate metrics promote the achievement of value and creativity in the organization at the same time (Davila et al., 2006), and balance individual autonomy with collective goals (Bennis & Biederman, 1997).

As shown in Figure 2 below, traditional activity-centered innovation is built on a specific process because it is the "right thing to do" (Schaffer & Thomson, 1992). Corporate objectives (A), the metrics to measure them (B), the rules (policies and procedures) to guide them (B), and the capabilities thought to be necessary to carry them out (C) are developed by corporate leadership apart from the influence of employees and customers. Traditionally, the role of employees is to efficiently produce and distribute the products, services, ideas, environments, or processes ordained by organizational leadership (D), and then to find customers who are willing to exchange money for them (E). Activity-centered innovation programs assume that an appropriate *process* necessarily leads to innovation, and that significant upfront investment in training to insure uniform vocabulary, competencies, and principles will ultimately lead to successful innovation in some distant future (Beer et al., 1990; Schaffer & Thompson, 1992).
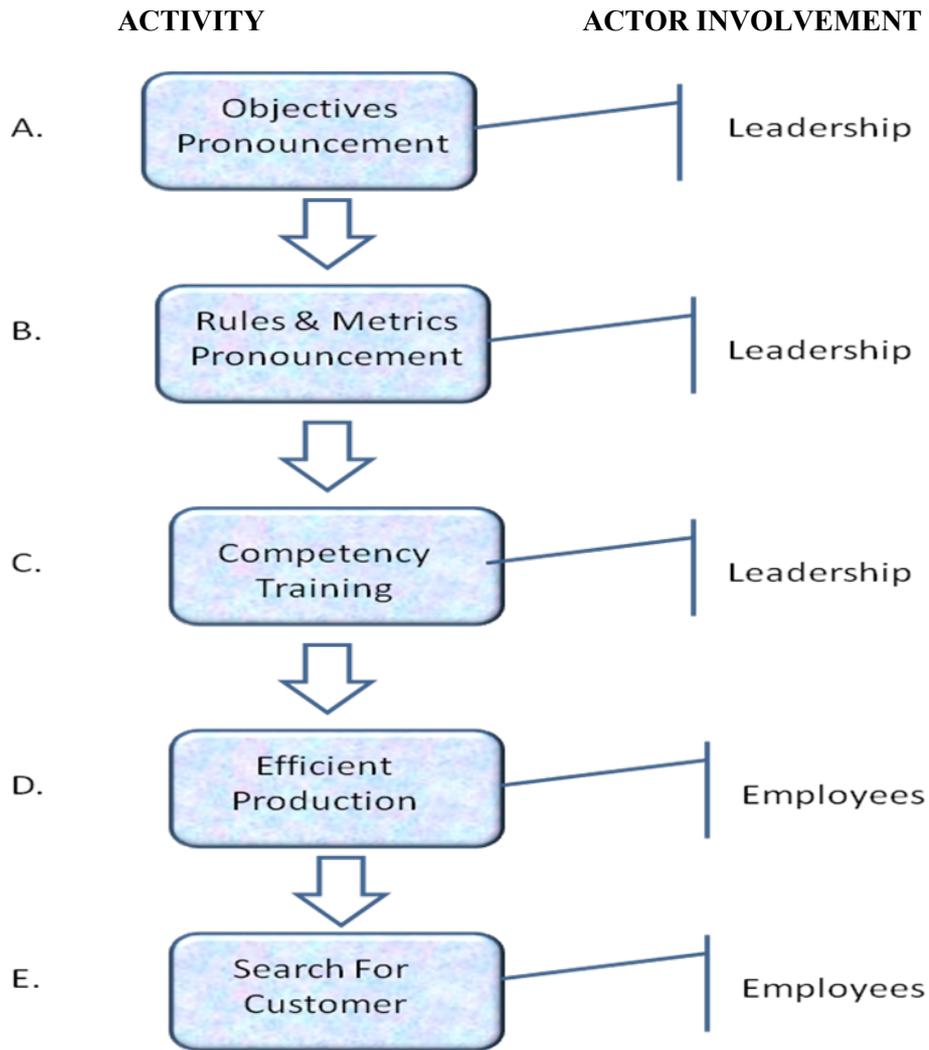
ACTIVITY   **ACTOR INVOLVEMENT**

A.   [Objectives Pronouncement] ———| Leadership

B.   [Rules & Metrics Pronouncement] ———| Leadership

C.   [Competency Training] ———| Leadership

D.   [Efficient Production] ———| Employees

E.   [Search For Customer] ———| Employees

Figure 2 Innovation Sequencing (Traditional activity-centered)
Source: developed for this research

Conversely, results-driven innovation (Figure 3 below) begins with leadership and employees jointly establishing significant objectives (AA), and then introducing necessary changes in management styles, work methods, information systems, the utilization of underexploited resources, and employee capabilities (DD) in a just-in-time mode when (and only when) the change will speed achievement of measurable objectives (EE) (Manu, 2007; Schaffer & Thomson, 1992). This "bottom-up" model has historical precedent in the early years of the automobile industry, material production during World War II, and developments

during the "space-race" of the 1960's. It features impatience, rapid, inexpensive experimentation, objective measurement of results, and a race to find practical solutions to meet customer needs. This model is foundationally based on the contention that employees desire to actively participate in the success of their workplace, that they have the ability to recognize the gap between their competencies and those needed to accomplish corporate objectives, and that they can be trusted to acquire and fully employ needed competencies. Customer intimacy is paramount, and customers are integral to ideation, experimentation (CC), and definition of needs and prospective answers (BB).
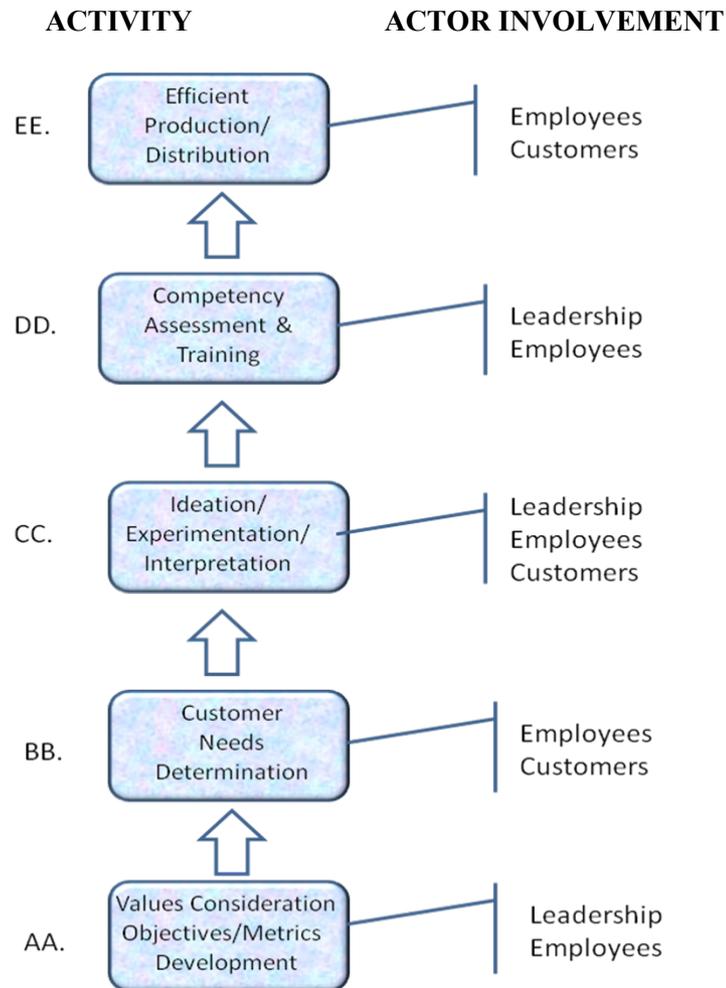
ACTIVITY   **ACTOR INVOLVEMENT**

	Activity	Actor Involvement
EE.	Efficient Production/ Distribution	Employees Customers
DD.	Competency Assessment & Training	Leadership Employees
CC.	Ideation/ Experimentation/ Interpretation	Leadership Employees Customers
BB.	Customer Needs Determination	Employees Customers
AA.	Values Consideration Objectives/Metrics Development	Leadership Employees

Figure 3 Innovation Sequencing (Contemporary results-driven)
Source: developed for this research

- **Build Employee Competencies** – As shown in Figure 2 - C (above), traditional activity-centered views consider innovation to be a *process*, and employee training, suggested by hundreds of membership associations, professional societies, business journals, and consulting firms, is attacked with the same vigor that zero-based budgeting, Theory Z, quality circles, and re-engineering were in earlier eras (Schrage, 1989). Significant resources are often expended to enhance employee competencies without a clear picture of what competencies are actually needed to initiate successful corporate innovation (Schaffer & Thomson, 1992). This has been termed the "fallacy of programmatic change" (Beer et al., 1990). Innovation may not subsequently flourish, cynicism may grow among employees, and leaders may ultimately abandon innovation efforts (Davila et al., 2006). Again, employees may be inoculated against participation in future corporate innovation efforts (Kotter & Schlesinger, 2008). If, however, employees seek and acquire only those competencies that emerge as clearly essential to achieve stated organizational objectives (Figure 3, DD), they become supportive and energized participants because of their recognition and appreciation of the importance of their personal contribution to corporate success (Argyris, 1991; DePree, 1989; Kotter & Schlesinger, 2008). Results-driven innovation throws into stark relief the *what* and *why* of capabilities acquisition (Beer et al., 1990).
- **Develop a Culture of Continuous Experimentation** -- Not all innovative ideas will be successful, and corporations must value and consistently encourage unusual ideas and small experiments that sometimes fail (Argyris, 1991; Davila et al., 2006; Hamel, 2002; Heifetz, et. al., 2009; Oster, 2008b, 2009a; Spear, 2004). Failure on small, rapid, inexpensive, iterative hypotheses and experiments provides highly valuable information (Schwartz, 2004) that may lead to answers that substantively meet customer needs (Suri, 2006). Developing a corporate prototyping culture is an essential element of this experimentation (Brown, 2005). A prototype, regardless of its format, is not meant to represent a *final* idea: an explosion of prototypes is utilized to acquire and refine *many* possible ideas on the path toward a smaller number of useful ideas (May, 2007). Innovation cannot occur unless new combinations of ideas are communicated from one person to another (Bennis and Biederman, 1997; von Grogh, Ichijo, & Nonaka, 2000), and prototypes are the vehicle for doing so (Kawasaki, 1999; Oster, 2009c; Schrage, 2000). Co-creating with current and prospective customers requires the subjects to view and consider many early prototypes (Figure 3, CC), which they either approve or reject along the way (Davila et al., 2006). Prototypes

provide valuable information about the strengths and weaknesses of ideas and identify new directions for additional research (Brown, 2008). Inexpensive and rapidly developed 'models' should be regularly produced using paper, computer simulations, clay, foamcore, process maps, spreadsheets, bubble charts, videos, digital pictures, or any other malleable material (Kawasaki, 1999). Prototypes help people to experience a possible future in tangible ways, encouraging them to revise their thinking about a particular subject and to 'try on' a multitude of possibilities (May, 2007; Schrage, 2000).

- **Encourage Hospitable Dissent From Antibodies** – Positive antibodies flourish when hospitable dissent is routinely sought, accepted, internalized, and acted upon (Bennis & Biederman, 1997; Horibe, 2001). Leaders have numerous terms for describing employee resistance: pushback, not buying in, criticism, foot-dragging, etc., and perceive resistance in a broad spectrum of behaviors--from a direct question to a roll of the eyes to overt sabotage (Ford & Ford, 2009). To help prevent positive antibodies from changing to negative antibodies requires group norms, regular education and communications between leaders and employees, as well as appropriate corporate structures (Hamel, 2002; Horibe, 2001; Taylor et al., 2000).

Conclusion

To remain an active and successful participant in the global economy, companies require an unending stream of innovative ideas from their employees, customers, partners, and external contacts. Positive innovation antibodies, employees who routinely dissent or bring surprising alternative ideas to the table, are vitally important to the sensemaking and innovative process (Davila et al., 2006; Ford & Ford, 2009; Lawrence, 1969). Innovation antibodies should not automatically be suppressed or overcome, but instead should be considered candidates for portals to sustainable corporate growth (Larson & Tompkins, 2005; Zades & Stephens, 2003). Conversely, recalcitrant negative innovation antibodies determined to slow or eliminate innovation and change must be abruptly excised from the organization (Kelley, 2005). A revised innovation sequencing model has been identified to guide the activities of positive innovation antibodies. Failure to appropriately integrate the capabilities and methodologies of positive innovation antibodies may negatively impact corporate viability (Gryskiewicz, 1999; Hamel, 2002).

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