International Journal of Business, Human and Social Sciences
ISSN: 2517-9411
Vol:8, No:10, 2014

Mastering the Innovation Paradox: The Five Unexpected Qualities of Innovation Leaders

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***Abstract*—**From an organizational perspective, leaders are a variation of the same talent pool in that they all score a larger than average value on the bell curve that maps leadership behaviors and characteristics, namely competence, vision, communication, confidence, cultural sensibility, stewardship, empowerment, authenticity, reinforcement, and creativity. The question that remains unanswered and essentially unresolved is how to explain the irony that leaders are so much alike yet their organizations diverge so noticeably in their ability to innovate. Leadership intersects with innovation at the point where human interactions get exceedingly complex and where certain paradoxical forces cohabit: conflict with conciliation, sovereignty with interdependence, and imagination with realism. Rather than accepting that leadership is without context, we argue that leaders are specialists of their domain and that those effective at leading for innovation are distinct within the broader pool of leaders. Keeping in view the extensive literature on leadership and innovation, we carried out a quantitative study with data collected over a five-year period involving 240 participants from across five dissimilar companies based in the United States. We found that while innovation and leadership are, in general, strongly interrelated (r = .89, p = 0.0), there are five qualities that set leaders apart on innovation. These qualities include a large radius of trust, a restless curiosity with a low need for acceptance, an honest sense of self and other, a sense for knowledge and creativity as the yin and yang of innovation, and an ability to use multiple senses in the engagement with followers. When these particular behaviors and characteristics are present in leaders, organizations out-innovate their rivals by a margin of 29.3 per cent to gain an unassailable edge in a business environment that is regularly disruptive. A strategic outcome of this study is a psychometric scale named iLeadership, proposed with the underlying evidence, limitations, and potential for leadership and innovation in organizations.

***Keywords*—**Innovation, leadership, ileadership, stewardship, communication, empowerment, creativity, vision, influence, emotional connection, group membership, sense of community, knowledge creation.

I. Introduction

INNOVATION is the direct product of organized human effort; it derives its nature from the complexity of human knowledge and it is revealing of the existence of cooperation among people. The capacity to innovate enables organizations to be first to concept, build, and market products and services their customers yearn for [1]. Given the fast-changing global markets and fierce competition of the New Economy, it is no wonder that demands placed on organizations have intensified. Stagnant organizations satisfied with past wins or a current book of business are akin to butcher's livestock before the feast of the sacrifice [2]. Such organizations quickly learn that only the naïve believe that investments are enough to create new knowledge, past recipes are sufficient to stay apace the competition, and a handful of heroes are a force enough to cope with the volatile realities of advancing markets and price-erosion of even the most highly-regarded brands [3]. Knowledge creation is an art of managing a conundrum heavily influenced by human interaction among people sharing a sense of community and purpose.

The process of innovation begins with elemental human ideas. Dialectic collaboration among diverse individuals and their organizations and environment exposes contentions and contradictions, which have to be reconciled and synthesized in order for complicated products and services to be produced and delivered [4]. The responsibility for managing the paradox of fostering constructive confrontation without alienating the participants, producing win-win resolutions, and building a sense of community rests on the shoulders of organizational leaders [5], [6]. However, leaders admit that they find dealing with the innovation dilemma difficult [3]. Little wonder then that a staggering 8 per cent of the S&P 500 companies are in leadership transition, the highest rate since the 2008 financial crisis [7].

Leading the innovation agenda really stresses leadership capability. Not only do leaders need to understand their own strengths and weaknesses, they also need to know how to surround themselves with people complementing their skills. Further, they need the capacity to consider the qualities of influencers they have to deal with. The literature on leadership is variegated and prolific, but only tantalizing [8]. The subtleties distinguishing effective leaders from ineffective leaders have not been explored, in particular, in the context of leading knowledge workers [9], [10]. Much of the guidance for leading innovation-centered organizations is either retrospect or gleaned from recipe books, such as biographies of great innovators. Neither is ideal, for it is difficult to associate past behaviors associated with legacy views of leadership to predictable actions that ignite the creative energies of today's workforce [11], [12]. Gazzaniga noted that theories and biographies may make sense, but their applications cannot be executed from retrograde models [13]. Further, no longer is leadership position-based, where those chosen for management track get elevated to lead with the rest relegated to following them [14], [15]. Leaders are instruments as much for guiding the accomplishment of work in organization as for the conduct of collective units composed of talent [16]. There is a need, therefore, to understand with greater specificity the actionable qualities that need to be

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honed by organizational leaders to foster the engagement of talent in their quest for innovations in an increasingly capricious and omni-connected world.

II. Literature Review

People have been obsessed with leadership since the time of Lord Krishna, several millennia before the Greek trio of Socrates, Aristotle, and Plato arrived on the scene with the philosophy of life governed by reason and self-determination [17]. Mahabharata and Ramayana, the great epics of the Hindu religion, noted of transcendent men and women who could do wonders. The view that leaders are born with charisma, self-confidence, intellect, physical stature, social status, and wisdom constituted the trait or Great Man theory [18], [19]. Although marked by chauvinism, whimsicality, and fickleness, the trait theory monopolized leadership thought well into the 18th century. The bias for reason, scientific mindset, and focus on the individual in the rationalist revolution started casting a shadow on the trait theory. It was ultimately debunked in the mid-19th century after research confirmed that physical characteristics, among other attributes claimed by the theory, had little to do with effective leadership [10].

The socio-psychoanalytic works of Max Weber, Sigmund Freud, Carl Jung and others brought to light the limits of rationality and theorized the presence of an unconscious under the surface of the reasoning mind [17]. The lived experiences of the bureaucracies under leaders, such as Hitler and Stalin inspired another shift in leadership thought. Power theory linked leadership to sources such as legal power, reward power, expertise power, etc. and examined how power was used by leaders, as in authoritatively, democratically, benevolently, etc. [20]-[22]. Transactional theory viewed leadership as a platform for social exchange and contingent reinforcement [23], [24]. Situational or contingency theory argued that leaders are a product of their situation and that they lead by task-orientation or relationship-orientation depending on needs of their followers [25]. Since organizational dynamics involve interminable situations, a leader following the contingency approach risks appearing schizophrenic and inauthentic to followers [10], [17].

The next wave focused on values-based leadership [26], stewardship [27], servant leadership [28], transformational leadership [29], [30], and culture-based leadership [31], [32], portraying leaders as culture-sensitive instruments of change in service of their followers. Handy shared the agenda for understanding the construct of leadership in virtual organizations [33]. Leaders, Handy noted, have to have passion for the jobs they are entrusted with, prefer to be with people but have the capacity for aloneness, and possess the ability to build alliances with partners [33]. Bridges argued that technology-assisted, knowledge-based organizations, as they get de-jobbed and unbundled, require ad hoc and ubiquitous leadership [34]. Although each theory contributed valuable ideas, no single philosophy offered a widely embraced explanation of the phenomenon.

Bennis held that leaders are leaders because of their belief that they are on a mission to make the world a better place [29]. Leaders are characteristically optimistic and action-oriented dreamers. Covey acknowledged leadership as a two-way process between leaders and followers. Only those who consider it their solemn responsibility to develop their people, and act upon it, are leaders [35]. The role of leaders as social architects and culture designers is to leverage personal influence in mobilizing people's commitment [30], [32]. Collins observed that effective leaders, and followers, operate at the intersection of: their inherent and cultivated strengths [36], the value of those strengths bring to their organizations, and the missions they were born to accomplish in life. Steve Jobs, one of the great innovator-leaders of our time, was known for his intentionality and reality distortion field that allowed him to reach for what others could only imagine [37]. To identify and piece together the common themes across prominent leadership theories, Lakhani surveyed the vast literature and found there to be a general agreement on ten dimensions of leadership: competence, vision, confidence, communication, authenticity, culture-savvy, creativity, reinforcement, service-orientation, and empowerment [38]. Since then, the model proposed by Lakhani has served as the basis of more than half-a-dozen research studies in the area of leadership.

The metal, silicon, glass, chemicals, and plastic that make up complex human innovations, such as smart phones, aircrafts, and medical scanners are tangible, but the ingredient most significant to their creation is an intangible: knowledge. Creation of knowledge is an art of managing paradox heavily influenced by human interaction. Knowledge creation is an interpersonal process, where five skills of innovation, namely questioning, observing, networking, experimenting, and associating are exercised [39], [40]. Research has shown that R&D investments are not a silver bullet [41]. Rather, it is the passion of the people that brings innovative products to life and builds enduring companies [37], even in the absence of outsized investments. The only way for organizations to build the capacity for innovation is to connect the virtues of their people [42]. However, the nature of knowledge-creating work is inherently prone to conflict [43]. The misunderstandings among knowledge participants can be resolved by building a sense of community, which is a unifying force that inspires trust and loyalty [6], [44], [45]. The IDEO methodology of tapping into people's creativity is premised in understanding that everyone has ideas and insights to offer [1]. The role of a leader is to be a "multiplier" by bringing out the best efforts of talented individuals [46]. Nayar observed that empowerment of employees is the process of an organization's transformation [47]. Followers start seeing the organization as their own enterprise only when the all-powerful leaders let go. Letting go is not a process of stepping back, but embracing the intellectual capital in their trust. Although the past two decades of leadership research have found meaningful traction, the additive perspectives from researchers, scholars, consultants, biographers, and popular authors have turned leadership into an encompassing and elusive construct, further confounding the qualities leader truly need to lead effectively,

particularly in a given domain, such as knowledge creation or innovation. Leadership plays a crucial role in fostering continuous improvement and innovation; however, the specific characteristics and behaviors through which leaders lead knowledge creation and innovation have not yet been adequately explored.

III. Purpose

Innovation is a paradoxical process of dialectic alliance through which fundamental ideas, both implicit and explicit, are combined to produce advanced products and services [43], [48]. The dilemma involves simultaneous balancing of constructive dissonance and conciliation. As organizations become flatter, more dynamic, and increasingly dependent on innovation, leadership responsibility shifts to developing higher-order structures in their organizations, fostering self-organization of teams, and supporting the autonomy and participation of the knowledge workers driving innovation. Leading the innovation agenda in organization is a complex challenge. Given the gaps in leadership literature, there is a need to understand with greater specificity the actionable qualities that need to be honed by organizational leaders to foster the engagement of talent in their quest for innovations. In this vein, some pointed questions need to be addressed. Most people agree on the general attributes of organizational leadership, but few understand the specific qualities needed for leading an innovative organization, and there are questions abound. What is the nature of relationship between leaders and followers? How can an organization select and recruit leaders capable of effectively driving the innovation agenda? The purpose of this study was to establish specific and actionable linkages between leadership and innovation and explore how those qualities can be used to evaluate, assess, and build leaders, unleash the full talent in the organization, and frame a culture of sustained innovation.

IV. Methodology

The same phenomenon can be understood in opposite ways by people sitting in different contexts. For example, what is a rising sun to a person in the East is a setting sun for a person in the West. To minimize this problem, this study combined evidence-based approach and philosophical interest. The construct of leadership for innovation in this study was examined through a three-tiered lens. Firstly, an integrated model of leadership was used as a starting point. Secondly, empirical data consisting of actual 360-degree feedback provided not only by leaders themselves, but also by anonymous knowledge workers on the caliber of their leaders in real organizational settings was used. Thirdly, and more importantly, the leadership construct was evaluated not only from the behaviors and practices that are effective in a knowledge-creating organization, but also from those that do not work or do not work as effectively. Drawing on this approach could allow the identification of specific leadership behaviors and characteristics crucial to promoting the knowledge-creating ability of organizations. This section provides the methodological choices and justifications, showing how data was empirically collected from real organizations using a psychometrically-sound instrument.

A. Research Setting

The base data for this study were collected in five companies belonging to the technology, energy, education, construction, and gaming industries. These companies varied in magnitude from a Fortune 500 technology company with more than 30,000 employees to a Native American-owned casino gambling and poker business with more than 1,000 employees. All the companies were based in the United States.

B. Instrument

Data were collected on the Culturally-Adapted Leadership for Inspired Business Excellence and Results (CALIBER) instrument. It is a 74-item 360-degree scale that provides an assessment of leadership, organizational performance, and business results. The 10 dimensions on which leadership is evaluated by CALIBER are communication, authenticity, stewardship, creativity, confidence, reinforcement, empowerment, vision, competence, and culture. Organizational performance is assessed as a combination of four dimensions, namely resource optimization, process management, product development, and reinforcement system. The dimensions that constitute the construct of business results include financial performance, employee satisfaction, supplier and partner relationship, customer satisfaction, quality of products and services, and social responsibility. The CALIBER instrument is psychometrically-sound with better than acceptable levels of validity and reliability [38]. The instrument has served as the basis of several research studies, which have further confirmed its properties. For this study, certain items related to knowledge creation and knowledge application within the construct of organizational performance represented organizational innovation.

C. Data Collection

The data were collected over a five year period between 2008 and 2012. The companies identified several leaders to be assessed on the CALIBER instrument using 360-degree feedback. Each leader was rated by self and others, including direct reports, peers, and manager(s). The CALIBER instrument was hosted on a cloud within Constant Contact. Invitations were sent to the participants for their anonymous and honest input. 240 participants took part, including 31 leaders who were being assessed. Of these leaders, 16 were female and 15 male. 209 others, namely the direct reports, peers, and managers of the assessed leaders, comprised the rest of the participant group.

D. Data Treatment

The information obtained from the 360-degree CALIBER database consisted of assessment scores for leadership and organizational innovation. These scores were sorted by self-rating (i.e., ratings provided by the leaders themselves) and other-rating (i.e., ratings provided on behalf of the leaders by their direct reports, peers, and managers.) The data were

sorted by the level of organizational innovation scores from the highest to the lowest and then converted into a frequency distribution to identify the best-performing leaders and the worst-performing leaders. The scores of the best five and the worst five leaders were juxtaposed to analyze the differences in relation to organizational innovation. Further, the self and other ratings were scrutinized to understand the gaps between the self-view and the other-view of leaders and what those gaps may signify.

V. Results

The main findings of this study are presented in the following sections.

1) For the sample of 240 participants in this study, the analysis of the data obtained using the CALIBER scale showed that the correlation of the relationship between leadership and organizational innovation stood at 89 per cent ($r = 0.89$, $p = 0.00$). The coefficient of determination (r^2) indicated that 79.2 per cent of the variation in organizational innovation could be explained by the linear relationship between leadership and innovation.
2) The organizational innovation scores were sorted by values and high-performing leaders and low-performing leaders were identified. The high-performing leaders were those who ranked in the 85th percentile and the low-performing ones were those who ranked in the 15th percentile of all leaders. The purpose of sorting by innovation scores was to analyze the factors that differentiated the top-ranked leaders from the bottom-ranked leaders. The results indicated the organizational innovation score for the 85th percentile leaders was 21 per cent higher than that for the 15th percentile, signifying that the leadership quality has a strong and significant impact on the ability of an organization to innovate.
3) The CALIBER assesses leaders on ten dimensions: communication, competence, stewardship, reinforcement, confidence, creativity, authenticity, vision, culture, and empowerment. The score gaps between 85th percentile leaders and 15th percentile leaders are arranged in Table I. The five leadership dimensions on which the top-performing leaders outscored the bottom-performing leaders by more than 20 per cent were stewardship, communication, empowerment, creativity, and vision.

TABLE I
Innovation Leadership Qualities

Dimension	Percentage Gap [a]
Stewardship	**32**
Communication	**28**
Empowerment	**26**
Creativity	**26**
Vision	**21**
Reinforcement	20
Confidence	19
Authenticity	17
Competence	15
Culture	13

[a]Difference between CALIBER scores of 85th percentile leaders and 15th percentile leaders.

4) Presented in Table II are the differences in self scores (how leaders rated themselves) and other scores (how they were rated by their observers) for the 85th percentile leaders and the 15th percentile leaders. The gaps between the self-view and other-view for the top-performing leaders are much narrower than those for the bottom-performing leaders. On all but one leadership dimension, the top performers gave themselves lower scores than were provided by their observers. Authenticity was the sole dimension on which both the top-performing leaders and their observers concurred. In contrast, the bottom performers rated themselves higher on all the leadership dimensions, without exception. The standard deviation of the top performers' scores was far lower than that for the bottom performers' scores, signifying a far lower degree of variability in ratings across the various constituencies, self and other. While the self-view of top-performing leaders is modest and aligned in relation to their other-view, the self-view of bottom-performing leaders is exaggerated and out of alignment. With self-ratings excluded, the organizational innovation score for the 85th leaders was found to be 29.3 per cent higher than that of the 15th percentile leaders. The bottom performers not only demonstrated an inflated sense of their own leadership attributes, but also of their organization's ability to be innovative.

TABLE II
Self-Other Gaps

Dimension	85th Percentile Leaders		15th Percentile Leaders [a]	
	Avg	Stdev	Avg	Stdev
Communication	-6	3	15	11
Competence	-8	6	11	12
Stewardship	-6	5	11	18
Reinforcement	-7	4	15	13
Confidence	-6	8	11	14
Creativity	-7	5	6	17
Authenticity	0	6	11	13
Vision	-8	7	5	13
Culture	-1	6	12	15
Empowerment	-5	3	8	15

[a]Measured on the CALIBER scale; Avg = Average; Stdev = Standard Deviation.

5) The results of this study indicated that innovation leaders are differentiated on five dimensions: stewardship, communication, empowerment, creativity, and vision. The identification of these five differentiating qualities allowed for the construction of a new scale called iLeadership. An instrument is acknowledged reliable when it is consistent in the way it measures a construct. Internal scale reliability is a form of psychometric verification that provides a statistic called Cronbach's Alpha [49]. It assesses the degree to which the items that make up a scale are consistent and coherent. Since the items for the iLeadership scale were derived from CALIBER, previously verified to be psychometrically sound, the reliability and validity of the constructs were assured [38]. Still, a re-validation of all the psychometric

criteria was performed. Table III shows the internal scale reliabilities for each of the leadership dimensions. Cronbach's Alpha of 0.8 or higher is considered to indicate excellent reliability [50]. As such, iLeadership can be considered highly reliable. The only shortcoming is the higher than a 0.9 value for Cronbach's Alpha for the overall constructs of leadership and innovation. These scores indicate that there might be some redundancy in the items or in the way these items were interpreted by the participants. The test-retest reliability for dimensions was established with the CALIBER scale [38]. Since the items remain unchanged, iLeadership is expected to retain goodness on the test-retest reliability criterion. The results reported above demonstrate that iLeadership is reliable. There was then a need to verify its validity, an indicator of whether the instrument gives a true measure of the construct of leadership. Lakhani reviewed the literature demonstrating the strong relational linkages between leadership and organizational performance, of which organizational innovation was an integral subset [38]. Therefore, the criterion validity of iLeadership is well supported. The iLeadership has been certified for content validity through a review of the underlying items, and through successful replications of its superset scale, CALIBER, in more than six separate research studies. Construct validity checks for whether or not a scale covers the essential components within a theory. The two methods for establishing construct validity are factor analysis and validating the scale in different contexts. The sample requirement to perform factor analysis for iLeadership was met sufficiently by the responses compiled in this study. The results are presented in Table IV.

TABLE III
CRONBACH'S ALPHAS FOR ILEADERSHIP

Dimension	Cronbach's Alpha
Stewardship	0.897
Communication	0.860
Empowerment	0.853
Creativity	0.831
Vision	0.848
Innovation Leadership[a]	0.969
Organizational Innovation[b]	0.959

[a]Innovation Leadership is a function of iLeadership dimensions.
[b]Organizational Innovation as a function of select CALIBER items.

TABLE IV
FACTOR ANALYSIS FOR ILEADERSHIP

Dimension[a]	% of variance	Cumulative %
Stewardship	89.05	89.05
Communication	3.96	93.01
Empowerment	3.29	96.30
Creativity	2.04	98.34
Vision	1.66	100.00

[a]Each iLeadership dimension contributes meaningfully to the overall scale.

VI. IMPLICATIONS FOR PRACTICE

The implications for practice are discussed in the following sections.

A. Leaders are the Locus of Innovation

According to Gallup, there are three disengaged employees for every engaged one in the United States, costing the society over $500 billion in lost productivity, a huge forfeiture compared to the $800 billion in annual earnings of Fortune 500 companies put together. While R&D investments, business strategies, and skilled talent are crucial, more than three-quarters of an organization's ability to innovate comes at a very little cost and is determined by the quality of leaders. The problem of employee disengagement is recognized, but the investment made by companies over years to assess employee engagement has provided very little guidance on how to effect organizational improvements, build passion in employees, and accelerate future success. Moreover, organizations are being increasingly shaped by virtuality, interdependency, and sustainability. As exponential technologies open doors to ever more participants joining hands in collaboration, leaders need the ability to manage people they cannot even see [43]. Relying on formal authority is not a viable option [14]. Knowledge creation necessitates that participants feel interdependent [4]. The role of leader is to bring out the best efforts of talented individuals [51]. As focus shifts to sustainability, inspiring participants to adopt long-term perspectives, even at the expense of short-term gains, and navigate organizational headwinds takes leadership. Influence and emotional connection-- representing employees' feelings of trust in organizational structure, belonging together, freedom of self-expression, and knowledge that they have the ability to influence organizational outcomes-- contribute more than 20 per cent to innovation ability [6]. The results of this study demonstrated that 79.2 per cent of innovation effectiveness of organizations is attributable to the quality of leadership. Leaders make a leading, direct, and measurable contribution to innovation. Innovation leaders will, henceforth, be identified as iLeaders. The results of this study further demonstrated that organizations whose leaders ranked in the 85th percentile achieved a 21 per cent (29.3 per cent, when self-scores were discounted) better innovation performance than organizations whose leaders ranked in the 15th percentile. In fast-changing global markets and fierce competition, an innovation disadvantage of this magnitude can be a devastating blow [39]. Organizations can, therefore, do well by recognizing leadership talent early.

B. The Five Unexpected Qualities of Innovation Leaders

If developing and executing the organization's strategy within the constraints of harsh economic realities is difficult and demanding, creating a working environment that taps into employees' social, emotional, political, and creative potential is even more so. Yet leaders face this dual challenge each day. Most scientific accounts of leadership focus on one or the other responsibility, as if looking at a portrait through a partially-dyed glass, rather than treating them together. The results of this research found that the 85th percentile leaders, who are best able to strike the balance between the responsibilities, share certain specific qualities. They are able to create a stimulating environment in which employees can

be themselves, instill a principle-based order and structure in which leaders and employees influence each other reciprocally, and provide emotional safety from shame and disconnection that can result from failure. In contrast, unsavory leaders in the 15th percentile lead by creating an unequal distribution of power corrode collaboration, throttle creativity, and cause employees to distance themselves from their organizations. The results of this study showed that iLeaders share five unexpected qualities described below:

They have a large radius of trust. The radius of trust signifies one's willingness to cooperate, be inclusive of outsiders, and reach beyond what is familiar. The larger the radius of social trust, the lower the distrust usually felt toward unfamiliar people, cultures, or situations. A great exemplar of this quality is Apple's CEO Tim Cook, whose organization includes designers, artists, fashion experts, medical doctors, health and fitness specialists, and, of course, technologists. He said, "If you're a CEO, the most important thing is to have people around you who aren't like you, who complement you. People that surround me aren't like me, but what we do as a team, collectively, are some incredible things. I believe in diversity with a capital D--that's diversity in thought" [52]. Embedded in radius of trust is stewardship, which presupposes rising above self, an assumption of equality between leaders and followers, a strong team orientation, and decentralized decision making and power. Radius of trust is directly tied to the ability to lead the innovation charge. Trust need not be blind, but rather in service of defending the in-group on a mission. Even small demonstration of trust by leaders can, in the long term, deeply modify the culture of the entire organization and facilitate the conditions for knowledge creation, including dynamic interactions among individuals, the organization, and the environment. Greater trust allows leaders to work with respect for everyone; make people at all levels feel important; encourage everyone's participation and involvement; take genuine interest in employee development and growth; and inspire people to create something they really care about. These leaders have an understanding of global markets, governmental, and economic systems. They have the ability to look at the world through the eyes of others; trust people to get things right the first time; motivate people to participate in decision making; strive to make a positive difference in the lives of the people they work with; and role model continuous self-development. Trusting leaders are also adaptive when managing across national cultures and have a profound understanding of how people's values, thinking, and behaviors are shaped.

They are restlessly curious with a low need for acceptance. In the 17th century, Galileo used the power of the newly-invented telescope to confirm Copernicus's notion that the earth revolved around the sun rather than the other way around. Although he got placed under house arrest for the rest of his life for having conflicted with the prevailing beliefs, his vision could not be suppressed for long. Kepler and Newton followed Galileo work without letting the progress of science falter [53]. Michael Porter's framework of vision includes two components: core ideology and envisioned future. Core ideology defines what the organization stands for and its reason for existence. The envisioned future is what the organization aspires to be through significant change and progress. Leaders have the ability to explore the world, imagine possibilities, and associate disparate ideas and values allows them to articulate an uplifting and renewing vision that attracts others. They have the ability to find signal in the noise by engaging multiple senses, asking compelling questions, and bringing to bear their experiences of the things that work and those that don't. Consider, for example, how Dilip Kumar, the legendary Indian actor, redefined histrionics. He was a shy young man with little knowledge of films when he was offered an acting job. He performed his first role as instructed by the director, but quickly realized that projecting more realism in his characters would require him to learn the art for himself, painstakingly mold his personality for each portrayal, and evolve with the passage of time. For the many groundbreaking performances that followed, he drew heavily from his personal experiences and knowledge of literary works and, in process set a vision and benchmark that attracted a legion of followers and emulators [55]. Curious leaders are visionary in that they continuously scan, read, and absorb knowledge from the environment; take time to contemplate and ask questions; acquire an understanding of a situation by looking at the whole picture; prioritize long-term success over short-term success; and articulate a vision that gets people involved.

They maintain a truthful sense of self and are keenly aware of how others experience them. Leaders maintain the ability to tell reality from fantasy by staying closely tuned to how their followers really experience them. Neither do they use flattery, nor do they solicit or encourage it. Leaders have the ability to view the world from others' perspective and remain empathetic. Empathy promotes understanding and sustains satisfying relationships. By revealing their own soft spots openly, they maintain approachability. Through their keen sense of self and other, leaders narrow the gap between their own perceptions of their leadership abilities and how they are actually experienced by their followers. Nayar reflected on how large windows lead to clean homes: the larger the glass, the more visible the disorder in the house [47]. The more visible the dirt and clutter, the more likely one is to keep things clean and in order. Leaders maintain themselves like the proverbial large glass windows—others are able to look in and are prepared to be seen as plainly. The innovator's dilemma is about choosing between two difficult alternatives: 1. continue to do what is producing results, or 2. adopt new approaches anticipating beyond the immediate horizon. Some companies solve this dilemma by choosing both—that is, maintaining status quo while running skunk works—ending up, as a result, with monumental R&D investments that produce little impact in the big picture: think Microsoft vs. Apple or Volkswagen vs. Tesla, very similar companies with vastly different R&D budgets [54]. While R&D, business strategies, and talent pool are critical, they only account for 75% of innovation success [6]. The rest of the innovation gap—perhaps what separates the disruptors from the disrupted—is dependent how well leaders build a

sense of community, or more specifically, only two factors: influence and emotional connection [6]. Collectively, they determine how well the company harnesses the creative horsepower of the collective versus those of a few, belief in trust and passion versus control and conformity. This study found that honest self-understanding is the beginning of leadership. A lack of self-awareness means these leaders miss the opportunity to gain insight about their soft spots, which not only impacts their own performance, but also has broader consequences on identifying and nurturing the needed talent for the organization. In contrast, the sense of self is overstated in ineffective leaders. Hill noted that self-aggrandizement is a precarious zone that tempts leaders to take liberties [14]. Exploitation leads to distrust, which immediately takes away a leaders' ability to influence, a quality critical in knowledge-creating endeavors.

They regard knowledge as the yin and creativity as the yang—one incomplete without the other. Nietzsche once wrote, "What is not intelligible to me is not necessarily unintelligent." Leaders have a deep sense for two forms of knowledge: one that is measured, balanced, and rational; and the other tacit, visceral, and subconscious. Creativity allows these two forms of knowledge to be synthesized. Leaders unleash the creativity of their workforce to contribute innovation solutions to organizational needs, some of which may not even be apparent. Steve Jobs once said, "It's really hard to design products by focus groups. A lot of times, people don't know what they want until you show it to them" [39] Marc Benioff came up with the idea of Salesforce.com by creatively combining concepts from Oracle's enterprise software, Amazon's e-commerce platform, and Facebook and Twitter's social networking and collaboration models [39]. Creative leaders are focused, but can think in a flexible and imaginative manner. Through role modeling and openness, they tap the knowledge, creativity, and passion of their entire team in identifying problems, brainstorming resolutions, and bringing improved--sometimes unexpected and disruptive--solutions to market. These leaders creatively generate growth opportunities for people; tap into life experiences to gain insights to tackle complex problems; encourage people to take informed risks and learn continuously; work across functions, disciplines, languages, and cultures to solve complex problems; and facilitate exploration through play and experimentation.

They engage with their followers through multiple senses. According to the myth of the Tower of Babel, people once tried to develop a common language that would allow them to work harmoniously together to build a great tower that reached the sky [56]. Wade noted, "The white of the eyes are the mark of a highly social, highly cooperative species whose success depends on the sharing of thoughts and intentions" [53]. Language, even in its diversity, is designed to give people identity and to increase social interplay and cooperation. Human expression is overt and subtle. Leaders understand that genuine communication necessitates the engagement of multiple senses. They are sincere, candid, and inclusive in their interactions. Their two-way communication style allows them to engage their team on what to do and how to do it. We found that leaders of the most innovative organizations scored 28 per cent higher on communication than the leaders of the least innovative organizations. Einstein once remarked, "What a person does on his own, without being stimulated by the thoughts and experiences of others, is even in the best of cases paltry and monotonous." Leaders set an example of how others should interact in the organization, regardless of their positions in the hierarchy, age group, national culture, or orientation. They do so my using a two-way process of listening, informing, persuading, and sharing ideas; communicating mutual intentions and expectations; actively seeking feedback and using it constructively; paying close attention to words, reactions, and feelings when communicating; and articulating complex ideas effectively.

Innovation leaders are, therefore, those who have an honest sense of self, are trusted and trusting, believe in a mission that transcends self, understand of what it takes to accomplish the mission, have the ability to inspire people who share the belief to join their journey, are comfortable fostering creative conflict in search of possibility, and possess good sense to align the strengths of the people and empower them with the support they need. The process of innovation is inherently contradiction-ridden [4], and its management requires a different kind of leadership. Innovation thrives on constructive confrontation among participants. The engagement of the participants' diverse strengths, goals, values, working styles, and stakes, while a rich source of creativity, can be a cause of stress. But, when the balance between "promoting conflict" and "building relationship" is achieved, elemental ideas can help organizations deliver value-added, at times disruptive, products and services. The responsibility for managing conflicts, producing win-win resolutions, and building a sense of community rests on the shoulders of leaders. The five admixed behaviors and characteristics enable leaders to develop higher-order structures in their organizations, foster self-organization of teams, and support the autonomy and participation of the knowledge workers driving innovation.

C. The iLeadership Scale

The combination of the compilation of empirical data on real leaders across five industries over a five-year period and the identification of the five specific qualities of iLeaders allowed for the construction of a leadership scale as part of this study. Derived from the psychometrically-sound CALIBER instrument to focus specifically on innovation, the resulting iLeadership scale can assess leadership and innovation in a 360-degree mode. The scale reports the scores on the five qualities of iLeaders, namely stewardship, communication, empowerment, creativity, and vision. It also measures how innovation is faring in organizations. The results of this study demonstrate that the iLeadership to be valid and reliable scale.

VII. Implications for Research

This study focused on leadership, but it is recognized that strategies, investments, structures, and processes also

influence the growth, sustaining, and efficiency innovations. The 20.8 per cent of the total unexplained variation in innovation, as discovered by this study, needs further investigation. Further, the theories underlying this study adopted a sociological perspective to understand how and which leadership qualities influence an organization's ability to foster effective innovation husbandry through cultivation of new knowledge. Future research may focus on alternate perspectives, such as complexity theory with multi-level approaches.

The cross-sectional nature of this study yielded only snapshots of understanding of leadership and innovation. While the study sample consisted of real leaders from real organizations across five industries, it only covered a small subset of the knowledge worker population in the United States. Future research may attempt to replicate this study to cover more leaders across more industries, national cultures, and domains covering both knowledge and non-knowledge work. The less than perfect reliability (consistency and repeatability) and validity (accuracy and relevance) of the iLeadership scale may also be explored for improvement by future research.

It is not possible to understand phenomena as complex as leadership and innovation through a survey-based quantitative study. Such confounding variables as non-observable traits and range of complexity in both leadership and innovation make it difficult to do complete justice to the topic. Further, macro- and micro-economic conditions, maturity of the organizations, and presence of cultures and subcultures add further obfuscation to understanding. Future research may use multi-level modeling and mixed methods to accretively build understanding in areas this study has explored.

A competitive landscape will continue to drive demand for effective organizational leadership. The iLeadership scale integrates demonstrable characteristics and behaviors leaders need to be successful at leading innovation. Given the nature of leadership and changing contexts of human lives, there will always be more questions than answers. The process of leadership development begins with an understanding of self: one's unique strengths and passions; being aware of how one is experienced by others, not simply how one perceives oneself; and focusing on stewardship, communication, empowerment, creativity, and vision. A mastery of these five qualities is an essential first step for leading globe-spanning, innovation-smart organizations.

VIII. Conclusion

The paradox we sought out to explain was how leaders are similar and yet conspicuous in their ability to lead innovation. We found that leadership is a deeply contexted phenomenon and that leaders who possess the five qualities we described provide their organizations with a 29.3 per cent margin on innovation, a nature of advantage that allows organizations to leapfrog. Our counsel to leaders: Use the five qualities as a map and protocol for everyday practice. In a world far from being fully understood, striving should be one's responsibility and joy.

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