Trusted to Innovate

The Strategy & the Science

By Robert Porter Lynch, Paul R. Lawrence, & Paul J. Zak[1] - © 2011

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Part ONE: Trust is the Missing Component of Innovation

Innovation's Disillusioning Results

Rapid innovation is an absolutely essential element in business strategy. Business success or failure hangs in the balance. Innovation is essential to create competitive advantage.

Ask virtually any CEO in the last decade about priorities and invariably growth and innovation are top of their mind. For many it is also a path of disillusionment, as leaders have found that simply making innovation a priority does not create results.

Over the last five years, half of senior executives have been disappointed with their efforts to gain traction on their innovation efforts.[2] Lean manufacturing, a more specialized focus of process innovation has even worse results, with 75% reporting inadequate performance.[3]

All Innovation is Collaborative

All innovation is a collaborative effort; and there's no collaboration without trust.

From our work implementing innovation projects it's evident that a large number fail to gain traction because they miss a fundamental point: all innovation is, by its very nature, a collaborative effort, and therefore interpersonal *trust* is a "must have" ingredient; innovation requires the interaction of many -- from idea development to commercial realization of value.

Economic Value of Trust can be realized Quickly

Based on input from over 1000 senior executives, and numerous case studies, we often find high-trust organizations creating a 25% competitive advantage over low trust companies. What's more, leaders who made trust the focal point of their organizational turnaround were able to achieve increases in morale and profitability in just 12-18 months. Why didn't it take years, like the experts predicted? Don't most experts tell us it takes years to change a corporation's culture? What would explain this anomaly?

The answer is: you actually don't have to "change" anything, because the neurochemistry of trust, using the molecule oxytocin, is active in 95% of people

[2] Business Week with Boston Consulting Group has conducted studies of hundreds of senior executives world-wide regarding their satisfaction with the returns on their innovation efforts, ranging on average from 43% to 55% satisfaction levels over the period of 2005-2010. Of nearly 1600 respondents in 2010, seventy two percent of senior executive cited innovation to be one of their company's top three priorities.

[3] Industry Week reported that 72% of the 884 U.S. companies responding to their survey were in various stages of implementing an improvement strategy such as Lean or World Class manufacturing, Agile manufacturing, Six Sigma, TPS, Theory of Constraints, or others. Of these companies, 75% reported that they had made no or just some progress toward their World Class manufacturing goals. Only 2% of the companies reported achieving World Class manufacturing status.

studied around the world.[4] All you have to do is understand what causes the brain to release three key neurotransmitters and you can harness this powerful innovation productivity lever. Using trust as the centerpiece of an organizational change effort enables all the other complexities of culture to come into alignment much more easily.

This article will show how trust enables people to co-create with others, and what a leader must do to trigger high levels of collaborative innovation. We will provide a "structure" for jump-starting collaborative innovation based on new scientific revelations about trust, innovation, and the functioning of the brain.

Innovation is about People

Innovation is much more than technology: it is about people; what motivates them to collaborate and create. Trust is the essential binding ingredient to enable innovation to happen; without trust, relationships necessary to support collaboration on innovation slow to a snail's pace or collapse. However, the trust factor is overlooked in virtually all innovation literature, because trust, like the world of "culture" in which it resides, seems too fuzzy – soft and amorphous, lacking a strong basis in concrete thinking and scientific evidence; thus trust has no "structure." And when one consults the list of factors that prevent innovation, *distrust* never seems to make it to the top five anti-innovation culprits list.[5]

Many authorities point to the paramount impact of "culture" on innovation, as well as its effect on acquisitions, alliances, and turnarounds. As IBM's Lou Gerstner said of his highly successful turnaround effort:

> *"I came to see, in my time at IBM, that culture isn't just one aspect of the game – it is the game. In the end, an organization is nothing more than the collective capacity of its people to create value."*

And the centerpiece of Gerstner's "cultural game" is trust. We have found that if trust is made the #1 focal point for an innovative culture, all other aspects will then easily align on this pivot point.

Trust is the Central Organizing Principle of Culture

Why Trust is Elusive

Why is trust so seductively elusive, an amorphous, yet alluring orphan? Because she's an interdisciplinary target caught between academia's cracks, zigzagging the boundaries of leadership, political science, sociology, anthropology, psychology, organizational behavior, and neuroscience. No one discipline claims her, thus

[4] This is true for all but psychopaths, whose brains lack the trust code. They represent about 2% of the population. It may also be very difficult for another small percentage of those who are mentally or criminally ill to be part of those who can ever be considered "trustworthy." There are situations where people put under high stress will behave like psychopaths.

[5] If one consults the top five causes of *team* breakdowns, trust (or its counterpart: distrust) is high on the team breakdown list. It is obvious that most analysts of innovation don't consider it a "team sport."

paying her little attention. This has left us lost in a multitude of platitudes and aphorisms, such as "trust but be sure to bring your lawyer," or "trust but verify."

For something so vital to all of civilization and the future of business, her Gemini-like qualities deserve finer treatment -- a clearer understanding of the nature of trust is essential.

We believe that by putting solid science, a sound structure, and clear practices around the issue of trust, it can move from the "soft" world to one of "firm" understandings and discipline.

Key Reasons why Trust is Essential

1. Provides the Safety & Security to Experiment and Fail and Rebound
2. Trust enables Sharing of Ideas
3. Trust builds camaraderie necessary for collaboration
4. Trust ensures fairness of credit and rewards for innovation
5. Trust honors differences in thinking from idea generation to development to commercialization (Trust plays an "integrator" role across differentials)
6. Trust catalyzes Synergy

Impact of Creative Destruction

We live in a world where *creative destruction* is the natural result of one company creating some new innovative way to build competitive advantage:

Creation of more complex and efficient systems;

Destruction of outmoded methods.

Horse drawn carriages were replaced by autos, trains by planes, telegraph by telephone, mail by email, typewriters by computers, and so forth. The old is always being replaced by the new. And this is happening faster and faster now that the world is more connected and technology is accelerating. Thus trust becomes more and more important.

The rapidity of capitalism's creative destruction …causes distrust to increase

The rapidity of creative destruction also has a severe downside. Stability is turned topsy-turvy. Not only do technologies change, but so do power structures that support the new and the old. The numerous secondary stress effects of creative destruction actually cause distrust to increase, including more insecurity, doubt, confusion, instability, and vulnerability. These all make it more difficult to build trust and put collaborative innovation into high gear.

The Evidence – Critical Cases

How trust generated Innovation Flow and Competitive Advantage at P&G

One example where we were able to test the impact of trust on innovation was in Procter & Gamble's supply chain. In 2002, P&G received less than 3% of its innovation flow from its supply chain, even though about two-thirds of its corporate spend went to suppliers. In early 2003, CEO A.G. Lafley set a corporate-wide goal to increase diversity of ideas and inputs from 3% to 50% within five years without any

increase in internal R&D staff, effectively doubly the innovation flow.[6] The supply chain was slated to play a major role in that improved innovation flow.

Great emphasis was placed on building trust as a foundation for the supply chain innovation efforts. For example, rather than extensive, inflexible legal contracts that would negatively impact trust, the emphasis was on honor, empathy, and integrity in relationships.

Empathy sustains strategic relationships through hard times

"Innovation is the lifeblood of sustainable competitive advantage." observed Steve Rogers, who headed up the supply chain innovation efforts. "An important element of trust is empathy, which can provide intangible value to sustain strategic relationships through hard times. Call it an old-fashioned sense of honor,"[7] which comes from people's inner drive to bond.

P&G was able to realize its innovation objectives, resulting in a massive competitive advantage against its rivals in every market segment, including new products, improved process flows, faster development times, and improved cost efficiencies by joint process innovation, alignment of mutual interests, trust building, and the elimination of non-value added work along with and unnecessary complexities due to distrust.

Distrust and the Destructive Role of Fear

One of the principle reasons trust has been elusive as a discipline is because so little close examination has been done on the root cause of trust's polar opposite: *distrust*.

Ask most people what causes distrust, and their response will typically refer to a behavioral *symptom*, such as "He threatened me;" or "She betrayed me;" or "They tried to shake me down;" or "He never does what he says he's going to do;" or "She's always trying to play a guilt trip on me."

In each case, the underlying root cause was the triggering of one core emotion: fear -- the sense we must defend ourselves, especially when someone else's needs for power, control, resources, status, territory, or revenge, leaves us feeling unprotected and vulnerable.

Our team did an extensive historic review of innovation, starting with the Greek Golden Age of Innovation[8] through to our current times. One theme that stood out in case after case was the negative impact of fear on innovation. Rule by fear stymied Roman innovation, just as it killed innovation in the Dark Ages, and

[6] See A.G. Lafley, & Charan, Ram; *Game Changer*, Crown Publishing, 2008, and Rogers, Stephen C.; *Supply Based Advantage*, Amacom, 2009,

[7] Rogers, Stephen C.; Ibid, p 11, 171. Rogers was in charge of supply chain innovation on this project co-designed with R.P. Lynch

[8] In his book *Civilization*, Kenneth Clark commented about the Greek world stating it "was without doubt the most extraordinary creation of the whole of history, so complete, so convincing, so satisfying to the mind and eye: Clark, Kenneth; *Civilization*, Harper Row, 1974, p 2-3;

sidetracked Soviet innovation in the last century. The impacts of fear have been quite well studied. People respond to fear in one of three ways: *Fight*, *Freeze*, or *Flight*. Just as importantly, they don't innovate (except to find innovative ways to resist change).

Fear floods the brain with chemicals that counteract both collaboration and innovation

Fear has a powerful effect by flooding the brain with chemicals that counteract other key neurotransmitters that enable both collaboration and innovation.

Part TWO: The Science of Collaborative Innovation Starts in the Brain

The preceding examples show the *impact* of trust and fear on innovation, but do not address *how* this actually happens. Here we intend to take trust out of the realm of the "mysterious soft arts" and plant it firmly into the realm of science and the physiology of the brain.

Four Drives – The Nature of Human Nature

In the last decade a number of breakthrough studies give us a better understanding of what's happening inside our skulls. Knowing more about what's happening in the brain gives a leader clear guidance on how to "turn on the switches" that light up collaborative innovation. (Don't panic; we're going to make brain science easy to understand.)

While our brains are the most complex mechanisms on the planet, there are some basic circuits that control our behavior in a normally functioning brain, and different parts of the brain are assigned responsibilities for performing these functions. Most things in the brain happen automatically, without conscious thinking, like breathing, heartbeats, and digestion, to name just a few. "Drives" are the ultimate, irreducible motives of human behavior, and there are four basic drives in all healthy human beings:

1) Drive to ***Acquire*** – seeking food, shelter, reproduction, and even pleasure. Attached to this drive are certain very *basic emotions* such as *desire, greed*, and *lust*. When other species are on the receiving end of this drive, they perceive it as aggression or domination, and typically respond with the next drive:
2) Drive to ***Defend*** – protecting ourselves from threats and aggressors that will prolong individual survival and even prevent our extinction as a species. Attached to this basic drive is the basic emotion of *fear*, and its derivatives such as *anger* and *vindictiveness*.

These basic brain functions together are often termed "self-interest" or "self-preservation." These two drives mostly use evolutionarily-old brain regions that humans share with fish and reptiles. When a leader triggers these two drives

excessively, however, collaborative innovation circuitry in the brain is inhibited, as we will explain later.

Important Characteristics of All Mammals

Because humans are mammals, our brains share certain functions that are common among all mammals. The most important one for our immediate purpose is:

3) Yearning to ***Bond*** **––**the drive to live and work in groups, such as teams or herds.[9] This "communal instinct" starts with our nurturing of our young. Associated with this drive are some of emotions exhibited by humans and a few higher mammals –*love, empathy, happiness, playfulness, loyalty,* and *gratitude*, to name a few. The bonding impulse is especially strong in humans. It started with the pair-bonding that gave us the nuclear family and later tribal cohesion. It is extremely important because it provides the natural desire for humans to *collaborate,* coordinating their actions for their mutual benefit, and the desire to work for the "greater good."

In any group or organization, a leader must consciously work to meet the needs of every human to balance or align the drives to *Acquire* resources and *Defend* one's turf (self-interest) with the needs of humans to *Bond* with others to achieve something they could not accomplish alone (mutual-interest). If these drives are in conflict then the leader mustS resolve this or innovation will be diminished. (in Part Five – Trust in Action we provide this guidance.)

Unique Human Brain Circuitry

Human beings have high-order cognitive capacities that allow us to create, comprehend, find meaning, and learn. Located primarily in the comparatively over-sized prefrontal cortex, this capacity gives humans the ability to weigh, balance, and align the drives to *Acquire*, *Bond*, and *Defend*. We term this capacity:

4) Drive to ***Create*** **–** the unceasing impulse of humans to comprehend the world around them, to find meaning, to imagine a better future, to solve problems and puzzles, and to build new and better things. Attached to this drive are emotions we often call *spiritual* such as *inspiration*, *wonder*, and *awe*. We see the drive to *Create* manifesting in children at a very early age; people are just naturally innovative.

It is this very human drive to *Create* that every leader seeking *innovation* needs to support and catalyze along with the *collaborative* drive to *Bond*. In tandem, these two drives give people a deeper sense of meaning and purpose, as well as what we often

[9] Scientists have studied this quality going back all the way to the ancient Greeks and have concluded time and again that these characteristics all have served very important evolutionary functions to give mammals a competitive advantage over reptiles. A very small percentage of any species of mammal seems to be born without this quality. In humans we call these psycho- or socio-paths.

refer to as *conscience*.[10] Further, the drive to *Bond* activates the pleasure circuitry of the drive to *Acquire*. This gives leaders a "win-win" way to stimulate innovation: it benefits both the individual and the group.

We've arrayed the four drives in the form of a "leadership compass." (see Figure 1) The four drives are easy to remember: A, B, C, & D)

All drives operate independently and each must be satisfied in some reasonable proportion, otherwise people will feel unfulfilled. And if people feel unfulfilled, they will seek fulfillment of the drive that's lacking in some other way. A leader's every action reinforces or suppresses these drives with rewards and punishments.

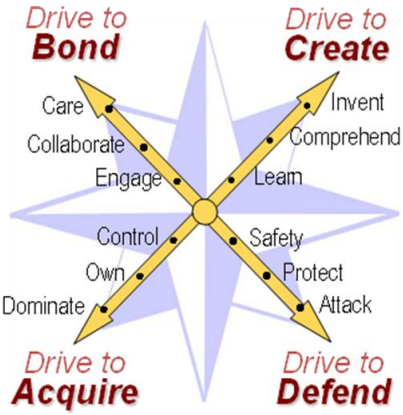


Figure 1: Four Drive Leadership Compass

By reinforcing the drive to *Bond*, a leader emphasizes *collaboration*, and by simultaneously reinforcing the drive to *Create* the leader stimulates *innovation*. The good news is that it doesn't require hiring new people, just tapping the massive capacity for innovation already within its organizational boundaries, as Robinson and Stern, in their book *Corporate Creativity*, explain:

> *Given the creative potential already present in most companies, the environment is the determining factor for promoting overall corporate creativity... Alignment is the first essential element*.[11]

But exactly how does a leader know just what proportions of these drives are needed? How does one steer the organizational ship with the compass? How do we stay on the collaborative innovation course?

To illustrate, think of your car's front-end when you are driving: if the one of the wheels is unbalanced, you get feedback from the pounding the tire creates when it's bouncing and not running smoothly. And when the front end is out of alignment, the car is always pulling to one side or another, constantly needing correction.

Our brains give us similar feedback if we tune into its signals. When everything is tuned right, we trust, when out of balance and alignment, we distrust. Our brains produce specific chemicals called

It's important for a leader to know how the brain's chemistry responds directly to what is being sensed in one's immediate environment.

[10] Psychopaths are defined as people without conscience; they lack empathy because their brains have an impaired capacity to process oxytocin. Darwin maintained that a conscience was the primary feature that distinguished humans from other animals.

[11] Robinson, Alan G; & Stern, Sam; *Corporate Creativity, How Innovation and Improvement Actually Happen*, Berrett–Koehler, 1997, p 29, 89

"neurotransmitters" that signal whether we have too much of one thing and not another, whether we are "unbalanced" or "out of alignment." Because the brain's chemistry responds directly to what is being sensed in one's immediate environment, it's important for a leader to know the basics about how this system operates.

The Science of Trust -- How Brain Chemistry Responds to Leadership Actions

One way to understand the four human drives better is to associate each drive with a primary neurochemical that it uses. While all these drives use a combination of neurotransmitters, focusing on the primary neurochemistry of the four drives provides additional insights into how to harness them.[12]

Four brain chemicals can be mapped into the four drives (see Figure 2). The drive to *Acquire* primarily uses dopamine, the drive to *Defend* causes the release of norepinepherine (the brain-version of adrenaline), the drive to *Bond* uses oxytocin as discussed above, and the drive to *Create* is driven by the brain's opioids. Here's how they work:

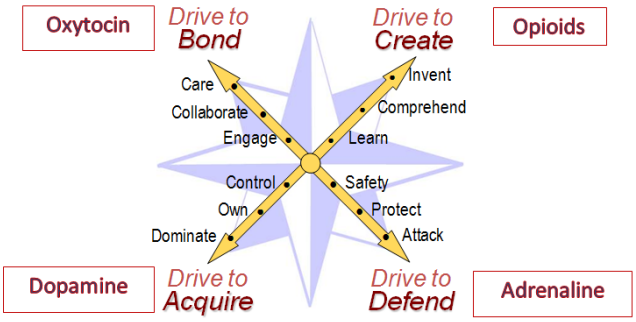


Figure 2: Four Neurotransmitters & the Four Drives

Dopamine & the Drive to Acquire

Dopamine is part of the brain's "wanting system." It orients us to find resources such as food, fluids, shelter and a mate. It focuses the brain on a limited objective and motivates us to take risks to obtain this objective. Having a "goal" enables the brain to sort through the clutter of life and stay honed in on something it discerns as valuable. The "wanting system" is rapid and automatic, for example, it activates quickly when a person smells aromatic food, or when someone smiles at us. It's saying, "this is good, do more of it."

Dopamine focuses the brain on a clear objective and motivates us to take risks to achieve it.

People whose brains produce too little dopamine are lethargic, risk-averse and unfocused, while those with too much dopamine become obsessive, possessive, risk-loving, and overly selfish.

To keep dopamine in the "balanced" range – not too much, not too little -- a leader needs to help people align on a clear goal, but one that is not exclusively

[12] There are many neurotransmitters in the brain that operate in a complex array acting to "fine tune" the brain activity. We have focused on the "primary" neurotransmitters and refrained from delving into the "secondary" ones for two reasons: First, by keeping the focus on primary chemicals, we emphasize the key principles a leader needs to know. Second, if a leader tries to make decisions based upon trying to manage a large array of secondary chemicals, s/he runs the risk of sinking rapidly into analysis paralysis, or unnecessary micromanagement (the brain has the capacity to self-manage the micro fine-tuning process without intercession).

measured and rewarded around individual behavior; otherwise people will tend to inhibit oxytocin associated with the drive to *Bond*. The goal should have a clear resolution when it is met or not met. Dopamine makes us "want" the goal by making us anticipate how it will feel when we achieve it.

Goals with greater meaning and broader values help this balance. Keeping goals in "balance" is one of the key reasons why companies use "balanced scorecards" so they can ensure that metrics are set up to reward all four drives, not just one over another.

Oxytocin & the Drive to Bond

Oxytocin is the "collaboration" molecule. When it is present, people link together in close relationships; they trust; they care for each other; they support each other in tough times.

Oxytocin is the collaboration chemical that enables trust and caring in tough times.

Leaders need to understand several key cause-effect relationships.

- Oxytocin is typically released in positive human interactions and motivates us to approach and engage with others, including strangers.
- Oxytocin is the foundation for enabling trust between friends and strangers, but its release is inhibited when one's immediate environment, either team or physical surroundings, are threatening. Fear has a profound negative effect on the release of oxytocin.

One of the great qualities of oxytocin is that apparently the brain cannot become overdosed on it, thus large amounts are fully tolerated, and there is no dulling effect, meaning that prolonged exposure to it does not require more of it to produce the same effect. In fact, oxytocin-driven bonding is more likely the more the trust-connection brain circuit is engaged.

Every leader who wants collaboration – teamwork, trust, alliances, or cooperation -- must pay attention to creating environments that are reasonably *secure*. It is not a coincidence that the most innovative companies are also the most likely to have reasonable levels of job security. For example, highly rated innovators like Southwest Airlines, Procter & Gamble, Toyota, or Nucor Steel are known for their deep reluctance to lay off employees. Security, trust, and collaborative innovation are highly interdependent. As mentioned above, *high* stress inhibits oxytocin release in the brain and the desire to collaborate with others. But, in an evolutionary adaption that makes cooperation more likely, *moderate* stress, including the anticipation of a rewarding goal identified by the drive to *Acquire*, tends to increase the release of oxytocin. Having a goal to achieve makes us reach out and trust others in order to reach it.

Adrenaline & the Drive to Defend

Adrenaline is the "fear" chemical. When the leader plays with fear, they play with fire; it can be a weapon or a tool, and must be used with great delicacy.

Whenever a person experiences a threatening situation, within a quarter-second adrenaline begins coursing through the body sending the "high alert" signal. Depending upon the person's makeup and the situation, the response will be *fight, flight,* or *freeze.* While it is possible for people to override this response, it is a very powerful human response and has a strong tendency to override every other human desire, including sex, food, and money.

It's noteworthy that fear also has the capacity to "sear" the event onto the brain's long-term memory. That's why we remember bad events so clearly, even if they happened dozens of years ago. This is nature's way of helping us recognize danger and take rapid evasive action. When the brain's circuitry becomes overloaded with too much fear, people can become paralyzed because it keeps reoccurring in our memory; we call it Post Traumatic Stress Disorder -- one of the terrible after-effects of war, but it doesn't take a war to produce it. Too much stress at work will cause the same pattern of behavior.

Adrenaline is the "fear" chemical that has a strong tendency to override every other human desire.

On the other hand, studies have shown that not enough adrenaline makes people lethargic, overly satisfied, and complacent. A small amount of adrenaline keeps people alert, on their toes. But too much adrenaline shuts down the *Bonding* neurochemical[13], as well as the *Create* and *Acquire* hormones.

The "executive center" of the brain, the prefrontal cortex, can discern an *internal* threat from an *external* one. Thus, if one's *inner* team, within the firm, is trusted, and the threat is from an *outside* competitor, then the collaborative circuitry will stay functionally intact. However, as soon as the threat is seen as *internal* – within the *family* – all hell breaks loose; people experience *betrayal* – the worst form of distrust; they get very angry and are loathe to forget. The drive to *Defend* is one of the foundations of healthy competition and therefore should not be avoided, just channeled in a productive manner.

Opioids & the Drive to Create

The brain has an innovation circuit located in the "newer" part of the brain, the neocortex, which has played an essential role of our evolutionary history as inventive beings. This is where the fourth drive starts its action.

[13] In laboratory experiments, distrust produces a spike in another stress-reactive chemical testosterone, which is a potent anti-oxytocin (Zak, P.J. et al,. 2005. The Neuroeconomics of Distrust: Sex Differences in Behavior and Physiology, American Economic Review Papers and Proceedings, 95(2): 360-3).

The brain's opioids[14], among these are endorphins, modulate pleasure and pain while releasing dopamine, the *Acquisition* neurotransmitter. The release of opioids causes us to enjoy experiencing the attainment of a goal we were seeking.

In addition, when we exercise opioids are released and dull pain. Opioid action in the frontal cortex is associated with flashes of insight and creativity which generates a brief "learning high."

Flooding the brain with chemicals that "mimic" opioids, such as morphine or heroin, does not improve creativity. Morphine binds to mu receptors, giving an artificial high, without the benefit of productive outcomes. (An early version of morphine was called "laudanum" meaning "to praise.")

Brain imaging studies of the frontal cortex show that while the presence of opioids varies greatly among individuals (depending upon their number of "mu" opioid receptors), all humans have them. Some studies explain that it is the presence of this receptor that makes a creative leap so pleasurable. We praise those with creative insights as this is the "spark" of innovation. Artists, musicians, writers, and inventors have known this for at least a thousand years. What's more, the drives to *Acquire* and *Bond* can work synergistically to release the opioids for the drive to *Create*.

The drives to Acquire and Bond can work synergistically to release the opioids for the drive to Create.

What is Trust Worth?

A recent study of nearly 30,000 U.S. and Canadian citizens by John Helliwell of the Economics Department of the University of British Columbia indicates that just a 10% increase in perceived trust creates the same sense of well-being in individuals as a $40,000 pay raise.

And it's not unusual for people to find, for the first time, a sense of real meaning and purpose to their work when trust is present.

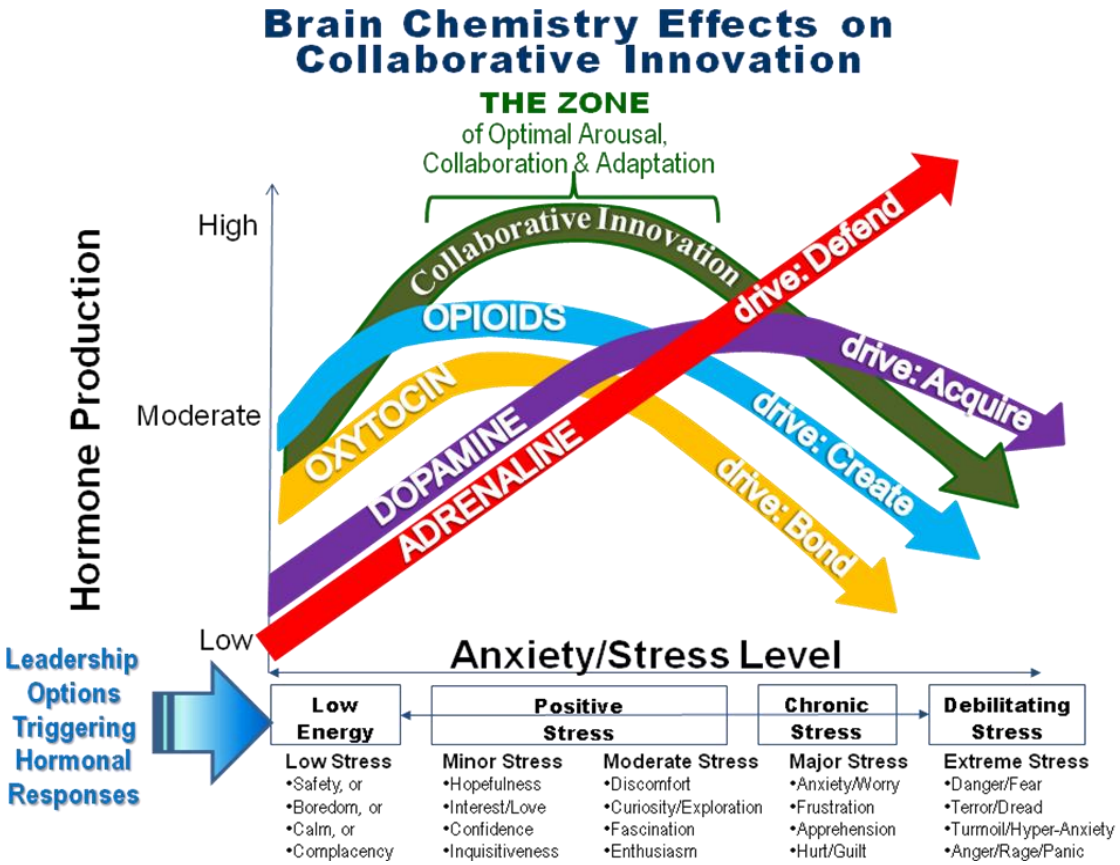
Economic Value of Trust

How Great Leaders Maximize Collaborative Innovation

From the foregoing one can chart out the hormonal interactions to understand how much stress a group can handle and maximize collaborative innovation, as

[14] Opioids are natural occurring "opiates" which give us natural pleasure and dull pain. Endorphin is a contraction of the term "endo-morphine" meaning internally generated morphines.

indicated in



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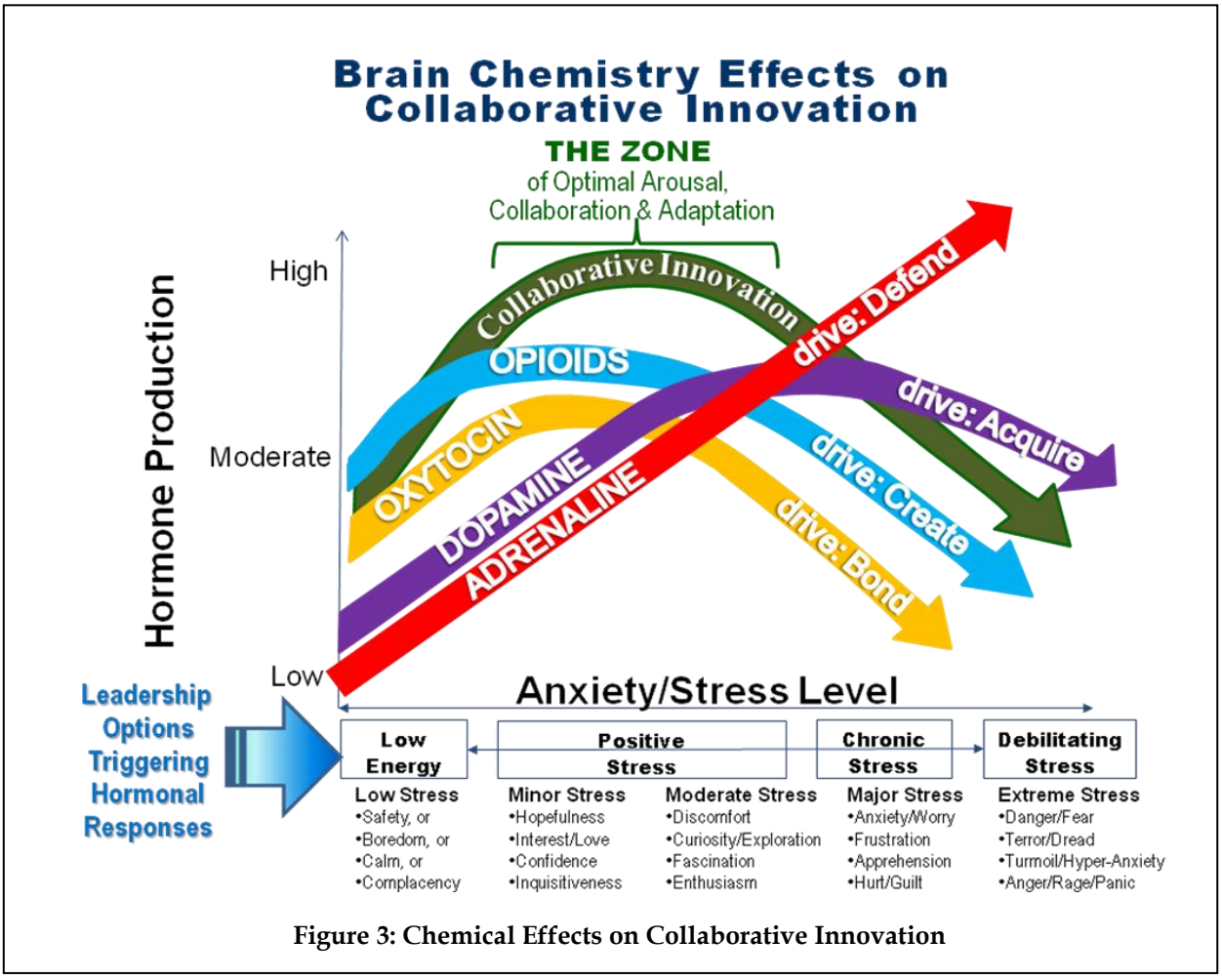

Figure 3: Chemical Effects on Collaborative Innovation

Part THREE: Defining Trust in an Innovative World

Recently one group leader at Microsoft decided to test the assumption that trust and collaborative innovation are highly linked. It's a "research-in-action" example that perfectly illustrates how the brain responds to the right combination of reinforcements.

Trust Produces Results at Microsoft

Ross Smith is a senior director of software testing at Microsoft who has been with the company for 20 years, developing and testing software on everything from mainframe systems to handheld devices and PCs.

Smith became intrigued with the possible value of trust. He decided to select the members of the debugging teams based on their willingness to act in a highly trustworthy manner. His group brainstormed a list of 139 different *actions* that they believed would reflect high levels of trust. By focusing on those *actions* a group could give feedback and make corrections in behaviour, rather than debating over philosophy and values.

The possible "trust actions" were then put on a website and tech engineers got a chance to vote on the most important factors in a pairing of one factor against another. Over 2500 people have weighed in, with over 100,000 paired comparisons (see Figure 4). It became clear what actions would be the most meaningful in creating trust. It is essentially what the Greeks said about trust 2300 years ago. Technology may have changed, but people haven't.

Go to www.defectprevention.org/trust to participate

People don't have to be bribed to build trust

This survey also substantiated many other studies and our experience that monetary rewards are simply not trust builders. People don't have to be bribed to build trust nor to engage in collaborative innovation. Why? Because collaborative innovation is a natural *intrinsic* yearning of the human brain; collaboration satisfies our innate drive to *Bond* and innovation satisfies our innate drive to *Create*. The drives to *Create* and *Bond* don't need external (extrinsic) rewards to bring them forth.

Bottom Line: Ross' teams have a remarkable track record. His high trust teams have outperformed regular teams by factors ranging from 20% to 200%.

Microsoft's high-trust teams outperformed others by 20-200%

Classical Trust

based on Seven Key Principles
(from the Microsoft Survey of Technicians)

(over 2500 respondents and over 100,000 paired comparisons of 139 possible actions associated with trust -- %= people choosing this answer)

1. **T**ransparency & Openness
   - **Transparency in decision making processes and actions (71.1%)**
   - **Communicate concerns, risks, and achievements transparently (68.5%)**
   - **Encourage open discussion (70.7%)**
2. **R**espect & Reasonableness (Fairness)
   - **Respect the dignity of every person and every role (74.3%)**
   - **Listen before you speak. Understand, diagnose. (73.3%)**
3. **I**ntegrity & Predictability
   - **Be a role model – have integrity (77.4%)**
   - **Demonstrate integrity (74.6%)**
4. **S**afety & Security
   - **Praise publicly, correct privately (65.7%)**
   - **Don't disclose others' private information (61.2%)**
5. **H**onesty & Humbleness
   - **Be honest (76.8%)**
   - **Don't presume you have all the answers - or all the questions (69.8%)**
6. **A**ccountability & Autonomy
   - **Model accountability by acknowledging mistakes and the lessons to be learned from it (71.0%)**
   - **Hold yourself accountable (67.2%)**
     Give freedom to explore and experiment (66.9%)
7. **E**mpathy & Caring
   - **Genuinely care for others – be sincere (and show it) (68.0%)**
   - **Show you care; Listen with your ears, eyes, and heart (67.7%)**
   - **Show sincere appreciation for work done (66.7%)**

Go to www.defectprevention.org/trust to participate

Figure 4: Classical Trust

Part FOUR: Trust Ladder

While the classical definition of trust is obviously still valid, as the Microsoft case illustrates, we can build on it by respecting the dynamic interplay of drives that represent a more malleable structure where the leader, by emphasizing different combinations of the four drives, can completely change the results produced.

To address this we have developed a "Trust Ladder" that symbolizes how emphasizing different combinations of the Four Drives can alter the collaborative innovation dynamics (see Figure 5). We symbolize the neutral trust level by a "belt." People using this graphic constantly refer to specific actions as "above" or "below" the belt.

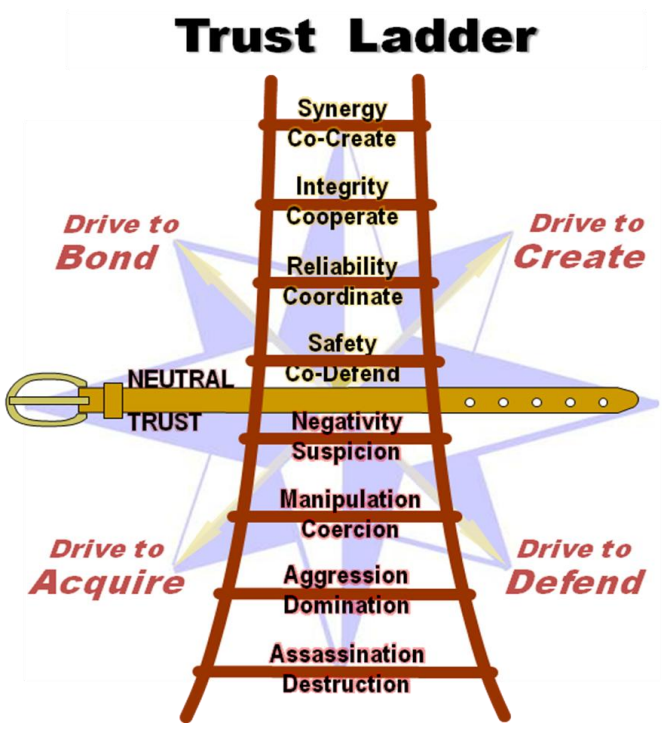

Figure 5: Trust Ladder

By placing increased emphasis on the *Bond* and *Create* aspects of an organization's culture, the higher the trust. And conversely, by embodying and over-emphasis on the *Acquire* and *Defend* traits, distrust will manifest. One of the finest examples of how the Four Drive Trust Ladder operates is the NUMMI Case from the 1980s:

A Remarkable Transformation

After twenty frustrating years, in 1982, General Motors threw in the towel on its plant in Fremont, California. After GM, Ford, Chrysler lost $5.5 billion to overseas competitors in 1980-81, a new sense of reality hit senior executives. The Japanese, led by Toyota and Honda, were making better cars at lower prices. GM was convinced that the plant that loomed like a big battleship of three million square feet had become simply a battleground for labor and management to tussle and squabble daily.

GM saw the union as the problem, after all it was the union that was instigating all the turmoil, and protecting the jobs of "hippies, drug-addicts, and scoundrels." The absenteeism was so high that often the production line couldn't even be started. It was, by far, the worst of GM's plants in terms of quality and productivity: double-digit defects in every car, and far higher than average hours to assemble any vehicle. Distrust ran so high that the labor contract was crammed with over 400 pages of legal doublespeak and 5000 union grievances were backlogged. Thousands of Fremont workers received pink slips.

Toyota approached GM in 1984 with an offer to establish a Joint Venture in the United States (New United Motor Manufacturing Inc. – NUMMI) to reopen and manage the Freemont plant. Toyota offered to up-grade the manufacturing line, and take back most of Fremont former employees along with their labor union, but only a handful of the GM management. GM saw this as an opportunity to learn the Toyota Lean Management System and accepted the offer.

Toyota hired back 85% of the Fremont hourly union workforce, giving them a strong voice in plant operations. A no layoff policy was instituted. Toyota spent $3 million to send 450 new group and team leaders to Toyota City for training in Toyota's production system.

Collaborative innovation was the focal point, as employees began participating in decisions regarding their work. Team members were trained in joint problem solving and quality practices to become experts in their respective operations. Employee roles expanded, the additional responsibility was for continuous improvement. Team members quickly implemented ideas for improvement, with successful solutions becoming standardized. All employees were empowered to stop the line at any time to fix a problem by pulling a cord running around the entire facility. Cooperation and confidence replaced coercion and conflict.

By the time the facility was fully operational, quality defects dropped to only one per vehicle. Cars were assembled in just half the time. Absenteeism dropped to 3%. Worker satisfaction and engagement soared. Operational innovation was on the rise, with over 90% of employees participating in the innovation program with nearly 10,000 ideas implemented. These were the same people, the same union, and the same equipment. But the outcome was radically different. All in under two years."[15]

After two years in operation, the once antagonistic NUMMI workers had built more than 200,000 cars and were winning national recognition. The U.S. Department of Labor highlighted NUMMI as a model of positive labor management relations. Newsweek magazine spotlighted it as "a model of industrial tranquility." Fortune pronounced it "the most important labor relations experiment in the US today." Industry Week ranked the plant among America's 12 best manufacturing plants.

However, even though the GM managers trained at NUMMI learned Toyota's Management System, GM was still unable to implement it successfully in the rest of their U.S. operations. Why? Because the "invisible" part of the Toyota system was about trust and collaboration, which GM management was unable to replicate because its management culture was unsupportive.[16]

The NUMMI example shows how great teamwork is based on all human energy from the four drives flowing in a single, unified, aligned, and integrated direction. This is the leader's most important task --- building trust, generating innovation, and achieving high performance.

[15] May, Matthew; Elegant Solution , *Toyota's Formula for Mastering Innovation*; Free Press, 2007, p 61-65

[16] When GM declared bankruptcy in 2009, it forced the end of the Joint Venture. The plant was temporarily closed, and Toyota, in conjunction with Tesla Motors, a manufacturer of new generation electric cars, now occupy the facility.

Part FIVE: Trust in Action

The structure we've outlined about the function of trust in generating collaborative innovation can only be realized when it is converted from knowledge to action, which starts with how one perceives opportunity and how one thinks:

Ten Foundational Mindsets about Collaborative Innovation

1. Human Nature: People have evolved four drives, ultimate survival motives that need to be satisfied. Their drives to *Bond & Create* must come first if one wants to be collaborative innovators. The drives to *Acquire & Defend* must *support* the first two drives, *not predominate*.
2. Trust: Trust is essential to innovative collaboration. The basic elements of trust are fairness, honesty, respect, integrity, and empathy. When leaders start with command and control as the first principle of alignment, they quickly trigger the *Acquire* and *Defend* drives, suppressing trust. Leaders who fail to create trust limit their range of motivational options to fear and force.
3. Teamwork: Most people want to work together; only five percent are anti-social. Be careful about putting even highly creative lone rangers in charge of innovation teams; they knock out the collaborative side of the innovation equation.
4. Fear: Fear can be a tool or a weapon; it's a tool when the fear is focused *externally* to the organization, but an innovation killer when used *internally*. Don't use fear as a spur, don't create artificial internal crises, and don't punish people who are well intentioned. Weed out those who believe that command by fear is the best way to get results.
5. Creativity: People are born creative; it's natural to want to bring new ideas into the work world. Let creativity be demonstrated by small as well as big hits.
6. Alignment: Aligning people on a common goal and purpose requires they can trust each other while they walk the same path. Start first by aligning around the four drives of the customer, and then the four drives of the key stakeholders, employees, stockholders, and suppliers.
7. Synergy: The attainment of synergy is possible only when built on a foundation of trust that honors differentials in thinking and the creative passion of people. If synergy is absent, look for distrust as the first culprit.
8. Eliminate Bad Apples: Remove senior and middle management leaders who rule by manipulation, fear, hording, or sheer power. In failing organizations, it is not unusual to find a large proportion of senior management attached to these beliefs. If these leaders are firm in their attachment to this belief, they need to find work elsewhere.
9. Reconfigure Metrics & Rewards: One common cause for failure is putting in place a new innovation initiative, but leaving the old metrics and rewards in place. This leads to dysfunction and frustration, for the reward system doesn't match what is truly valued. Be sure to measure and reward collaborative innovation.

10. Create a Four Drive Honor Code: Many organizations have created "Values Statements." While there is nothing wrong with this, the values often are weighty and abstracted from everyday life. Instead, ask people/teams to create day-to-day Operating Principles (typically less than 1 page) that will govern their interactions. We suggest using the Four Drive Honor Code (see Figure 6) or the Principles in Figure 4 as a starting place, adapting it to their unique needs and circumstances.

Create a Four Drive Honor Code

In honor of another's drive to ***Acquire*:**

- Enhance People's Capacity to Acquire necessary Resources to Succeed.
- Give People the Autonomy and Authority to Solve Problems
- Reward People for their Contribution and Commitment to Overall Goals

In honor of another's drive to ***Bond*:**

- Keep Promises and Commitments,
- Seek Fair exchanges rather than cheating.
- Don't forsake the "Greater Good" in favor of one's "Self-Interest"

In honor of another's drive to ***Create:***

- Tell truths rather than falsehoods
- Share Useful Information and insights rather than withholding it.
- Respect Other's Beliefs, even in disagreement, rather than ridiculing them.
- Honor Diversity of Opinions and Points of View that stimulate new ideas

In honor of another's drive to ***Defend*:**

- Help Protect Others, their loved ones and their property.
- Detect and Punish cheaters.
- Insist on a Reasonable Level of Safety and Security

Figure 6: Four Drive Honor Code

Conclusions

- All innovation today is collaborative, and without trust, the collaborative component is unattainable.
- Trust is also the key that unlocks the synergy source code.
- To understand trust, one should understand the Four Human Drives and the neurochemistry that underpins the drives.
- Trust unleashes latent human energy and enables it to be aligned on a common purpose, a search for four-drive solutions for all the stakeholders.
- Using trust as the pivot point, it's not unusual to see culture turn around in 12-14 months.