

A series of experiments led to quantifying organizational trust and deriving a strategy to improve trust among employees.



THE science

BEHIND BUILDING A culture of trust



BY PAUL J. ZAK

Walking through an empty building on OTR Corp.'s campus drove home how much distress it was in. OTR was once the premier place to work in its city, but after two recessions and two rounds of layoffs, the company had lost the magic it once had. As I passed the cube farm on the way to the conference room in which I would speak, the low energy radiated from employees. What had happened to OTR's great culture?

Culture is the way human beings communicate social norms. Culture coordinates our efforts to accomplish goals together, including goals at work. Management thinkers from Peter Drucker to Google's Lazlo Bock have identified company culture as a highly valuable strategic asset.

OK, great, culture matters. I think we all agree on this. But one cannot manage what cannot be measured. So, what is it about culture that translates into superior performance?

Trust building

In research I started in the 1990s, I discovered that high-performance cultures have one thing in common: trust. This is true in cities, in countries, and in companies. In 2001 I derived a mathematical function that shows how trust is built and why it improves economic performance, which my colleague and I wrote about in “Trust and Growth” for the *Economic Journal*. This formula shows that trust reduces the frictions—what economists call transaction costs—when people interact. As the frictions to social interactions fall, the opportunity to create economic value increases.

This research described the social, legal, and economic environments that create high-trust cultures, but it did not answer the most fundamental question: Why do two people ever trust each other at all? The most extreme case is when we choose to trust a stranger—something we do quite naturally. One solution is to write a contract that fully specifies what each party will do in every

conceivable contingency. There is a host of problems with this approach: It is costly, it’s slow, and every possible situation cannot be foreseen. Such a contract is the opposite of trust; it is restrictive rather than expansive.

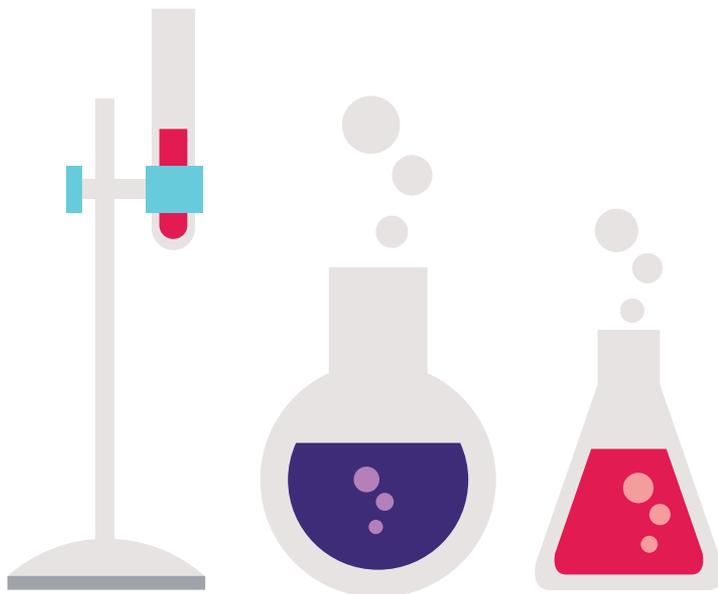
Experiments run around the world show that humans are naturally inclined to trust others. But not always. I hypothesized that there must be some neurologic signal that essentially says, “trust this person but not that one” and I initiated a research program to see if such a signal existed. If it did, then maybe I could harness the knowledge to build high-trust organizations. So my colleagues and I started running neuroscience experiments.

Measuring trust and trustworthiness

Trust is surprisingly easy to produce in laboratory experiments. But no one had a clue why. I looked for candidate neurologic signals in studies of social animals. I’m not sure animals trust each other, but social rodents recognize and tolerate each other in burrows. A brain chemical called oxytocin had been shown to signal that another animal was safe to approach in rodents. Could oxytocin be a trust signal in humans? No one had ever thought to look.

Humans are not keen on having holes drilled in their heads—this was how oxytocin was studied in animals. But, through a quirk of evolution, when the brain is stimulated to produce oxytocin, it is released both in the brain and in the blood. So, I needed to draw blood to measure oxytocin in humans, and to do it very quickly. Oxytocin has a short half-life, about three minutes, and is a fragile molecule. I developed a protocol to rapidly measure oxytocin in human blood and chill the sample so the oxytocin would not degrade. I thought that, just like when a friendly rodent approaches a member of its clan in a burrow, people might get a surge of oxytocin when one intentionally chooses to trust a stranger.

To measure trust and trustworthiness we used a sequential interaction, developed by researchers in economics Nobel laureate Vernon Smith’s lab, in which money is sent to another person. In this protocol, money sent



to unknown others grows but then the other person controls the money and can either keep it all or be trustworthy and share the largess with the person who initiated trust.

Bringing needles, blood tubes, a centrifuge, and dry ice to a laboratory at UCLA, my team took blood while people made decisions to trust others or be trustworthy. We found that the more money denoting trust that people received, the more oxytocin their brains produced. Most importantly, the amount of oxytocin predicted how trustworthy they would be when it came to returning cash to the person who has shown trust. This was the first evidence that humans have a neurologic signal for trust.

Except, maybe we were wrong.

The brain synthesizes neurochemicals all the time, so maybe we found noise rather than signal. To prove that oxytocin causes people to trust strangers, we developed a safe way to inject synthetic oxytocin into human brains (through their noses). Running more experiments, we found that those who received oxytocin rather than a placebo were substantially more trusting. They also knew fully well what they were doing. Oxytocin had done one thing: diminished the fear of trusting a stranger.

When the brain signals trust, we follow. Usually. My group spent a decade figuring out what promoted and inhibited oxytocin release to understand why we see differences in trust across individuals and across different situations. For example, high levels of stress as measured by levels of the hormone epinephrine, inhibit the brain's synthesis of oxytocin. Our research shows that the oxytocin response is a graded signal that is modulated by several other neurochemicals. By documenting the factors that interact with oxytocin, we developed a robust set of findings: When the brain makes more oxytocin, cooperative behaviors surge.

I tested how culture affects the brain's trust circuit by running experiments everywhere I could, from the rainforest of Papua New Guinea to employees at work. With this knowledge I developed a survey instrument I

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Changes Made at OTR Corp. to Increase Trust

Building trust among employees was made a priority for OTR Corp., which implemented management strategies based on OXYTOCIN.

- Ovation: A peer recognition program was instituted to recognize colleagues who have helped others.
- eXpectation: Teams agree on clear and observable weekly and quarterly goals, and supervisors make daily check-ins with teams to assess progress and offer help if goals are not being met.
- Yield: A telecommuting program was started and teams were reconstituted quarterly.
- Transfer: Backward-looking annual reviews were replaced with quarterly work development plans in which colleagues rank projects on which they prefer to work.
- Openness: Senior staff hold quarterly town hall meetings to discuss challenges and to elicit advice before changes are made.
- Caring: The cube farm was eliminated in stages and an open office plan was installed with couches, wireless access, and healthy snacks.
- Invest: Internal leadership training programs were restarted and employees are allocated \$2,500 to attend skills-enhancing conferences.
- Natural: The president spends two days a month working on customer-facing projects with colleagues.

call Ofactor that quantifies organizational trust and its constituent factors. All without a drop of blood being spilled.

Increasing organizational trust

Our studies show that there are eight classes of management policies that can be used to increase organizational trust. They have a catchy mnemonic, OXYTOCIN:

- Ovation is recognizing those who meet or exceed goals.
- eXpectation is designing difficult but achievable challenges and holding colleagues accountable to reach them.
- Yield enables employees to complete their work as they see fit.
- Transfer enables self-management in which colleagues choose the work they want to do.
- Openness shares information broadly.
- Caring intentionally builds relationships with colleagues.
- Invest enables personal and professional growth.
- Natural enables one's vulnerabilities to show.

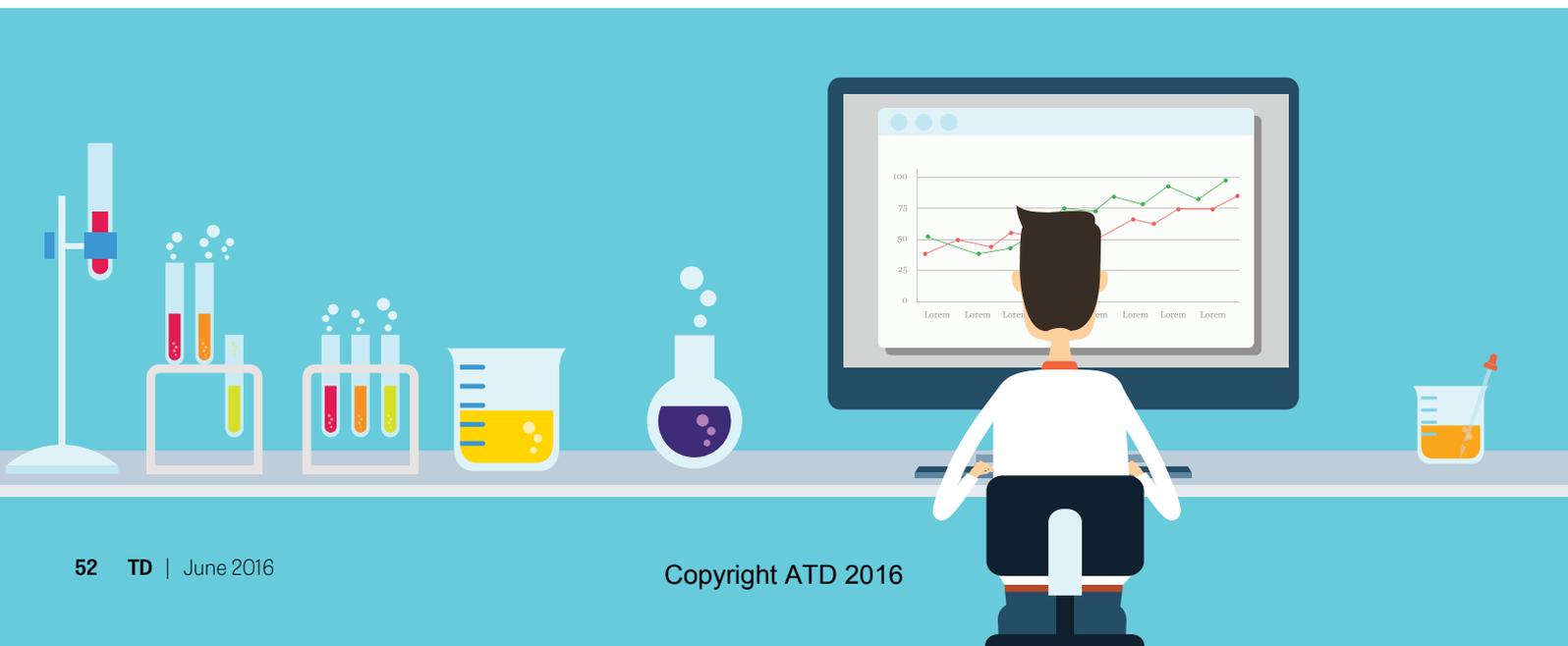
Each of these factors explains between 45 percent and 72 percent of the variation in organizational trust. The research we have done now guides professionals on the creation of high-trust, high-performance cultures. The

value-added from the neuroscience comes in two ways. The first is that it provides a framework to measure the factors that motivate colleagues to work together to further the organization's goals. Our social brains make us want to be good company-men and company-women and organizational culture can promote or inhibit this predilection.

The second benefit of neuroscience is that it identifies specific initiatives that can improve culture for maximal impact on brain and behavior. Each of the OXYTOCIN trust-building factors can be modified to improve social interactions at work and build trust. For example, ovation that is unexpected, tangible, personal, public, and close in time to when one reaches a goal will have a bigger impact on oxytocin release (and related neurochemicals) than recognition that does not have these attributes.

The other OXYTOCIN factors can similarly be optimized by understanding how they affect the brain. After a decade of research, my group has found precise and actionable ways to build a culture of trust.

The neuroscience makes another interesting prediction. Those working in high-trust cultures—because they are being challenged and recognized, because they care about their colleagues and are themselves treated with care—will enjoy being at work. The science



here is informative: Oxytocin facilitates the release of another neurochemical called dopamine, which increases motivation and makes it feel good to work as a team.

This causal relationship is counter to the superficial application of positive psychology to organizations. Leaders should not try to make their colleagues happy at work. Full stop. Instead, they should create a culture in which the process of doing important work as a team results in a feeling of satisfaction. Each of the OXYTOCIN components increases the desire and opportunity to obtain the fulfillment one gets from controlling one's work life (a key aspect of trust) while working as part of a team on difficult but achievable goals. This is what produces joy at work.

Using data from thousands of employees who have taken the Ofactor survey, we have directly linked a culture of trust to business-relevant outcomes. Comparing employees in the top quartile of organizational trust with those who work in the lowest quartile, we find that those who are privileged to work in high-trust organizations have 70 percent less chronic stress, have 28 percent more energy, experience 26 percent more joy during the workday, are 69 percent more likely to stay with their current employer, and report 70 percent greater job satisfaction.

In experiments we have run in businesses in which we have had employees perform work tasks while we measure brain activity, those in high-trust organizations are 19 percent more productive, 22 percent more creative when solving problems, and miss work due to sickness one-third less than their colleagues. People working in high-trust organizations also have better personal lives; they are 17 percent more satisfied with their lives outside of work. A culture of trust creates the conditions for productivity, innovation, health, and happiness.

OTR Corp. case study

When more than 1,000 employees at OTR Corp. took the Ofactor survey, the results confirmed what everyone already knew: Trust was low, challenges were absent, the opportunity

to advance and grow was nonexistent, and most everyone was looking for a new job.

OTR hired a transformational leader who cared deeply about culture. I worked with him to develop a strategic plan to empower OTR's colleagues by creating a culture of trust. The new president communicated the plan to his colleagues during a town hall meeting and expectations were high that these changes would make work more interesting and save the company.

A year later, we surveyed employees again and found that every one of the OXYTOCIN factors had increased between 3 percent and 9 percent. The largest increases were in expectation (9 percent) and invest (7 percent). These effects aggregated into an increase in organizational trust of six percentage points, a solid change in a year.

Employees clearly embraced these changes. Joy at work rose 7 percentage points, energy at work increased more than 11 percentage points, and self-reported productivity shot up 4.3 percentage points. All these changes were statistically significant and operationally meaningful.

Trust and be trusted

Culture matters. It matters at work as much as in your city or country. Because culture matters, it should be measured, managed, and optimized to create an inclusive culture of trust. The science shows that employees want to be trusted and to be held accountable to one another because it makes work challenging and enjoyable, and has a salubrious effect on the bottom line.

Everyone at work is a volunteer—and they can choose to volunteer their time and energy elsewhere. A culture of trust engages volunteer-employees in the organization's goals and transcendent purpose: how the organization makes the world a better place. Leaders who understand this will realize the high return on a culture of trust.

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