Incentive Research Foundation

Using Behavioral Economics Insights in Incentives, Rewards, and Recognition: The Neuroscience

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How to Use this Guide

This paper offers a concise guide to applied behavioral economics in the incentives, rewards, and recognition field. Behavioral economics is difficult to define. It combines much from several disciplines, including the fields of traditional economics, social psychology, and neuroscience. Behavioral economics (BE) attempts to identify and comprehend the reasons and motivations behind people's actions and behaviors.

Incentives, Rewards, and Recognition (IRR) is a field dedicated to motivating and influencing people's actions and behaviors. Many volumes might be written about how BE can be applied to IRR. This guide contains only enough examples to scratch the surface, and spark ideas in the IRR professionals who read and use it.

The guide is divided into two papers:

Using Behavioral Economics Insights in Incentives, Rewards, and Recognition: A Nudge Guide provides a general understanding of behavioral economics, including its origins and evolution, definitions, uses in a variety of fields, and how it impacts incentives, rewards, and recognition.

This paper, *Using Behavioral Economics Insights in Incentives, Rewards, and Recognition: The Neuroscience,* examines the use of behavioral economics by governments and organizations. Included are many examples of its practical uses at work, in marketing, and in governing. Go straight to the green-shaded boxes if you're looking specifically for applications in the Incentive, Rewards, and, Recognition (IRR) field.

Highlights

Green text boxes offer practical tips and advice in applying BE to IRR. Read these to find or spark ideas you can put into action and start testing right now.

Gray-shaded text boxes make points that summarize the passages around them. Read the gray boxes if you don't have time to read a whole section of the report and just want the gist of it.

Using Behavioral Economics Insights in Incentives, Rewards, and Recognition: The Neuroscience

[PAUL HERR]

Introduction

The first paper, *Using Behavioral Economics Insights in Incentives, Rewards, and Recognition: A Nudge Guide,* was dedicated to explaining the peculiar idiosyncrasies and subconscious biases of human decision-making and how governments and corporations have learned to take advantage of these biases to nudge our behavior, mostly in ways beneficial to the individual(s) being nudged, and to the organization or society.

The behavioral economics (BE) research community has been dissecting human decision-making under a microscope and the many biases it has discovered can be overwhelming. We will step back now and take a bigger picture perspective, and describe some of the general, unifying principles that the BE community has uncovered.

Many of the crucial discoveries in behavioral economics have been conveniently summarized in Daniel Kahneman's excellent book, *Thinking, Fast and Slow*, referred to in Part One. In his book—a surprising bestseller given the subject matter—Kahneman covers not only his own research findings, but also the work of other leading behavioral economists. *Thinking, Fast and Slow* is the source of most of the general principles discussed over the next several pages. As a side note, these general principles dovetail nicely with the latest neuroscience and neuroeconomics discoveries discussed later in the paper.

"One of my favorite brand stories is about Dove. For almost 50 years their message was their product truth: moisturization, and the high lotion content of their soaps. In 2004 they launched the Real Beauty campaign, based on a psychological insight that only 4% of women feel beautiful. In Real Beauty, Dove shifted to a purpose-driven platform designed to reach us emotionally, launching a self-esteem movement while growing the value of their global brand from $200 million in the early '90s to almost $5 billion today. They also created the most viral ad of all time, with almost 70 million YouTube views of the "Police Artist Sketch" video—a moving example of emotional contagion and social proof."

—Industry expert and practitioner (interviewed March 2016)

Our goal here is to bring together the latest scientific thinking about motivation and incentives and provide a glimpse into the future. It typically takes 10 years, or more, for scientific breakthroughs to wind their way into real-world applications. Despite this delay, research findings eventually influence the science of management, and the science of incentives and rewards. Our goal is to expedite this process.

Keep in mind that we are projecting how we *think* the science will play out. Please treat this section as a brainstorming session on the future of IRR. You are welcome to look into your "crystal ball" and have some fun predicting the future as well.

Someday IRR professionals may become known as "chief energy officers" who are responsible for tapping into the passion and creativity of the workforce and bringing out the best in people. They may work closely with HR, training and development, organizational design, marketing, and the executive team to tune the human engine to peak performance.

Our brains cause us to think either fast or slow. Given the enormous amount of information we must process each day and the hundreds of decisions we must make, the fast part of our brain does almost all of our thinking. This is when we make decisions on auto-pilot, like taking the same route to work each day.

Thinking Fast Versus Thinking Slow

Since Kahneman's book is titled *Thinking, Fast and Slow*, let's first try to understand this high-level, unifying concept. The "fast," system is the most difficult to understand because it is, well, *fast*. It is also *very* stealthy because it is automatic, involuntary, and effortless and thereby resides on the edge of our conscious awareness. It creates fleeting positive and negative impressions and feelings that pop into our minds when we enter a room, meet a new person, or read a sentence in a book.

These automatic impressions provide a gut feeling of what we should do, and we—the slow-thinking system—mostly do as we are told. Kahneman calls the quick impressions from the fast-thinking system, "intuitive judgments." Dr. Kahneman summarizes the stealthy nature of the fast system as *"… the secret author of many of the choices and judgments you make."*

The slow system is not the focus of *Thinking, Fast and Slow* because it is already better understood. It is this—the conscious mind—that thinks, imagines, and struggles to understand the world. Unfortunately, the slow system is also lazy because it takes *effort* to think and solve problems. So it often chooses or quickly endorses the easy, automatic solutions provided by the fast system, and runs with them.

Dr. Kahneman suggests that in the context of the modern world, which is exceedingly complex, we ought to slow down, do our research, and carefully weigh our options. Even when we do our homework, however, we still select the easy, automatic solutions in many cases because they just feel right. We all know decisive people who run with their fast, intuitive, gut ideas all the time. The instant they get an idea, they are convinced they are right and proclaim so—loudly and confidently. On further inspection, however, these ideas are often flawed or even dead wrong.

The Associative Machine

At the very core of the fast system is what Dr. Kahneman calls the "associative machine." When we read a word, such as "bird," the associative machine instantly retrieves from memory a schematic image of an average, stereotypical bird, general information about birds, and how we feel about birds. This, again, is effortless.

If we come across an unfamiliar situation, the associative machine pulls up whatever facts are available in memory and instantly weaves them into a coherent, plausible explanatory story along with a feeling of confidence that we understand the situation at hand. In other words, the brain automatically does our thinking for us unless the fast story is proven wrong. In this case the slow-thinking system may take over and laboriously reason its way to a solution using logic and data.

The Associative Machine and "What You See Is All There Is"

We will now discuss one of Kahneman's big-picture principles that lie behind many of the decision-making biases discussed so far in Parts One and Two. He calls it "what you see is all there is," or WYSIATI, which means that our intuitive decisions are based solely upon the *activated* subset of information contained in our memories and not all of the information in the "library."

The fast system was extremely valuable when the survival of human beings depended on hunting and gathering in an Ice Age wilderness populated with dangerous beasts. The fast system is optimized to make intuitive, spur of the moment, life-and-death decisions when time is of the essence. The outcome of this calculation is often an intuitive gut feeling that guides our decision-making. If the proverbial saber-toothed cat is attacking, for example, there is no time for contemplation or time-consuming statistical analysis. The folks who didn't respond immediately were likely killed at a very young age before reproducing and thereby were removed from the gene pool.

The fast system evolved before writing, books, mathematics, and statistics. It does not do any research before reaching a decision; it makes decisions based upon what we already know, what we have experienced, and what information is currently activated in memory. In many decision-making situations WYSIATI is a good thing, especially for an expert who has studied a topic rigorously for many years, but it is less helpful for novices because it provides an undeserved sense of confidence based upon a small set of activated facts.

The Associative Machine and Emotions

Every experience is accompanied by emotional, gut feelings. All of our memories are essentially marked with an *emotional stamp* that controls their storage and retrieval. Memories with stronger emotional stamps are seared into memory, can be retrieved easily, and have an outsized impact on our decisions. An extreme example of this is post-traumatic stress disorder in which soldiers are haunted by vivid recollections of harrowing battlefield experiences. Memories with smaller emotional stamps are deemed less important and are sent to the "shredder." As Kahneman puts it, *"An important advance is that emotion now looms much larger in our understanding of intuitive judgments and choices than it did in the past … [and] judgment and decisions are guided directly by feelings of liking and disliking, with little deliberation or reasoning."*

This finding has major implications for IRR professionals who design reward packages because emotionally compelling rewards hit the mind harder, are remembered longer, and influence the internal brand the most. Bland rewards, on the other hand, are labeled for deletion and sent to the brain's "shredder."

Both the scientific community and the business community have been operating under a flawed assumption that we are primarily rational creatures and that emotions are soft and irrelevant. This pervasive misconception leads to untold errors, inefficiencies, lost profits, and pain; however, it is being debunked as clever scientists like Dr. Kahneman document the power and beauty of the fast, emotional system, along with its limitations. Our new motto could be, *"Emotions run the show, so ignore them at your peril."*

The power of emotions has been known to advertising professionals for decades, and is captured by the following saying, "*The buying decision is 70% emotional (fast system) and 30% rational (slow system). Now it's time for the rest of us to catch up and realize that all decisions are primarily emotional, including the decision of employees to stay or leave*."

The Halo Effect

The associative machine has some interesting features that are important to IRR professionals. One of them is called the "halo effect." The halo effect refers to the associative machine's tendency to combine everything we know about a certain person, place, object, or event into one "stew pot." From the standpoint of an IRR practitioner, the halo effect is hugely important because it is the source of the brand impression in the minds of customers and employees. The associative machine keeps track of all of the good and bad experiences we've had with a given company or brand and generates an instant gut feeling that guides our choices when those memories are activated.

Dr. Kahneman offers an example in which an executive meets Joan, a personable woman with an engaging personality, at a party. When he is later asked who might donate to a certain charity, Joan comes to mind even though he has absolutely no information about her generosity. This is because the fast system does not make fine distinctions. It combines all of the information about the woman into an overall gut feeling. From this feeling he *assumes* that the woman is the generous type. Advertisers call this feeling the "brand impression," and corporations are increasingly calling the feelings that people experience in the workplace the "internal brand impression." The internal brand impression falls squarely into the IRR wheelhouse. Companies with the best internal brand impression will be talked-up on social media and thereby attract the most talented employees.

Applying the Halo Effect in Incentives, Rewards, and Recognition Programs

The halo effect explains why advertisers use cute animals (Energizer bunny), animated fruit (dancing grapes in the California Raisins commercial), sport celebrities (Michael Jordan selling Hanes underwear), humor, or other appealing imagery in their ads. The fast system automatically takes the feel-good fluff and combines it with the dry, factual information about a product. When we stroll through the battery aisle, we are emotionally drawn to the brand with the most pleasing associations in the associative machine, even if the fluff has nothing whatsoever to do with the performance of the product. The good feelings from the fluff cast an emotional halo around the boring reality concerning the product, so we buy it.

If we were purely rational decision-makers, we would ignore the fluff in advertisements, focus on customer reviews and statistics regarding battery performance, and make a dispassionate, rational choice.

IRR professionals can think of the workplace as a product, like a battery, and use emotions to boost the brand impression employees feel toward their employer. Jobs some consider bland or boring can become enticing when connected with a bigger purpose and associated with fun, exciting experiences. Whatever you do, however, it is vital that it be part of a sincere and authentic effort to make the workplace a better, human-friendly, and rewarding place to be.

The Frequency Bias

Another important feature of the associative machine is called the "frequency bias," which is fairly straightforward. The associative machine tracks how many times (frequency) we have experienced a certain stimulus (situation, person, object, event, word, or person) and provides an instant sense of whether the stimulus is familiar (faint pleasant feeling) or unfamiliar (faint unpleasant feeling), depending upon how often it has been activated historically. Not only do we feel good when we encounter a familiar object or situation, but the muscles in our faces that we use to smile contract imperceptibly at the same time.

Kahneman describes the power of the frequency bias as follows, *"Frequently mentioned topics populate the mind even as others slip away from awareness."* In other words, we are slowly brainwashed by the culture we are immersed in. The culture, by virtue of our many interactions with it, infiltrates our minds, colors our thoughts, and influences our decisions. It is the "box" that we struggle to think outside of.

Advertising and marketing professionals are acutely aware of the frequency bias, even if they don't call it that. It is reflected in the old marketing adage regarding the "Rule of 7": *"Customers are not even aware of a company or product until they have been exposed to it seven times (seven ads, seven billboards, seven commercials, seven direct mail pieces, or some combination thereof)."* Credit card companies and satellite TV providers pester us for a good reason; they are

Applying the Frequency Bias in IRR Programs

IRR decisions should take into account the frequency bias to determine which rewards will be intuitively desirable. If we are designing a travel incentive, for example, we might choose the options that employees encounter the most in the popular media. These frequently mentioned destinations will have an automatic emotional edge over the less well-known alternatives.

How do we determine the media exposure of each potential destination? The World Wide Web and its tireless search engines provide a convenient proxy. One search tool called Google Trends tracks how often people use specific search terms. For example, which of the following terms do you think are searched for most often by English speakers: Asian vacation, Australian vacation, Caribbean vacation, Alaskan vacation or Hawaiian vacation? The runaway winner, in case you are interested, was "Caribbean Vacation (47 points)" followed by "Hawaiian Vacation (23 points)." The lowest scoring vacations were Australian, Asian, and Alaskan (all in the 2–3-point range).

A plain old Internet search using the Google search engine mimics the Google Trends report and may provide a better indication of the true frequency with which these destinations appear in the media, especially if we select the tab, "News," to filter the results. Popular newspapers and magazines that appeal to the demographic groups we are interested in, like upper-middle class senior professionals, for example, might also be searched to refine the frequency statistics, and create a menu of the most culturally desirable destination options. This procedure could be repeated for any type of incentive or reward.

Keep in mind that other emotions may complicate matters. If a salesperson is a risk taker who enjoys extreme sports, a more adventurous option would likely be more rewarding than the frequently mentioned option. In this case, the appetite for adventure trumps the frequency bias. Another emotion, self-esteem, might also trump the frequency bias. In other words, some people will choose travel destinations that are unique or exotic—not where everyone goes—because they provide "bragging rights" for the participants within their own unique social network.
By sticking with culturally prominent rewards that appear frequently in the media however, an IRR professional can almost ensure that the reward will be perceived as pretty attractive, thanks to the frequency bias wired into our brains.

Remember also that if an employee has achieved a major success, the impact of this success will naturally recede over time due to the frequency bias. However, if an employee receives a tangible and durable token of the success, such as a plaque, trophy, or commemorative watch that can be prominently displayed, then the pleasure of the success can be re-activated and relived daily, thereby multiplying the emotional impact of the success. These repeated pleasures will factor into the internal brand impression and encourage employees to brag about their employers, treat customers better, and become brand ambassadors.

Temporal (Time) Bias in the Associative Machine

The associative machine recalls the pleasure or pain associated with past experiences in a very biased fashion relevant to travel incentive professionals—particularly regarding a quirk of long-term memory that impacts how rewards, especially vacations, are remembered. The next green box provides an example of this bias in action and how it can be designed into travel incentives.

Applying the Temporal (Time) Bias in IRR Programs

Which of the hypothetical vacations listed below do you think an employee would recall as being most rewarding one year after the event?

1. A ten-day vacation that scores a daily "fun rating" of 8 out of 10 points each day.
2. A three-day vacation that scores a daily "fun rating" of 5 out of 10 points on the first two days but a 9 out of 10 on the final day.

If you are like most people, you would simply add up the points for each day and compute the sum. In this case, the first vacation would rate 80 total reward points (10 days times 8 fun points per day), the second would rate 19 reward points (2 days times 5 fun points, plus 9 points for the final day). Logically, therefore, we would choose the first option because it offers the greatest overall reward. Right?

Wrong. Memory is very biased regarding rewards. The duration of the vacation does not matter; it's the peak reward that is memorable. If so, it makes sense to offer shorter but more intense vacations as opposed to longer, predictable ones.

Here is another pair of vacations to compare:

1. A three-day vacation that scores 9 on the first day, but 5s on the next two days.
2. A three-day vacation that scores 5s on the first two days, but a 9 on the last day.

Logically, these two vacations are identical, except for the fact that the peak fun occurs on the first day in example 1 and on the last day in example 2. If you agree that these two vacations are equivalent, you are wrong again.

Option 2 is the winner because the final day of the vacation is the most memorable one, and will inordinately color our recollection of the event. This finding suggests that the last day of a trip should be the grand finale and the focus of the planning process. If the trip includes wreck diving, for example, schedule it for the final day.

If at this point you are thinking, *"This BE stuff is nonsense,"* keep in mind that the behavioral effects of the fast system and the associative machine are largely subconscious, beyond our control, and hence hard to think about. In the remainder of the paper we will explore neuroscientific evidence which indicates that not only are the BE findings true, they also have a biological explanation.

The Fast System's "Accountant"

Besides the associative machine, the fast system also includes an accounting system that tracks our achievements and tallies our assets. Later in Part Three we will refer to this natural accounting system as the "drive to acquire," and explore where it resides in the brain and the neurochemicals that regulate it.

The fast system's accounting process is the source of the most desirable incentive for human beings: self-esteem—the feeling that makes us walk tall and feel proud. And since we are discussing behavioral *economics*, let's call it, self-*worth*, to emphasize that it makes us feel valuable. This feeling is so powerful that people will spend large shares of their income and effort on health clubs, karate lessons, clothes, luxury cars, large homes, cosmetics, professional development, education, and skills of all kinds to obtain self-worth.

In Chapter 32 of *Thinking, Fast and Slow*, Kahneman agrees that the ultimate reward is *not* economic, but,

> *"… points on a scale of self-regard and achievement. These rewards and punishments, promises and threats, are all in our heads. We carefully keep score of them. They shape our preferences and motivate our actions, like the incentives provided in the social environment."*

This quote implies that the fast system contains an accounting system that automatically keeps track of our achievements and boosts our "self-regard" as we climb up the achievement ladder. BE researchers even have a way to measure self-worth; it is called the *Cantril Self Anchoring Striving Scale* and is measured with the following scenario and related question:

> *"Please imagine a ladder with steps numbered from zero at the bottom to 10 at the top. The top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel you stand at this time?"*

Whenever we have a success and take a step up the "ladder," we experience both a short- term reward (brief euphoria) and a permanent one (permanent improvement in self-worth).

We are all familiar with the short-term reward—that immediate rush, or high, we experience when we achieve a win. It explains the fist-pumping euphoria we get from hitting an ace in tennis or by smashing a long drive down the middle of the fairway of the golf course.

How Google Uses Peer-Pressure

Googlers occasionally revolt when something is changed or a benefit is taken away. Just altering the menus in two of its cafés to observe "Meatless Mondays," for example, caused some Googlers to throw their food at chefs and yell at them, post threatening chats, and participate in other unseemly behaviors.

Rather than fire employees like these, Google shares anonymous details of the worst of the tantrums with other Googlers via its intranet and social networking platforms. The vast majority of employees recognize that such rogue behavior violates Google's values. Collectively, they act to remind violators that their actions are socially unacceptable, bringing them into line very quickly.*

**see Laszlo Bock, Work Rules! (2015)*

The second reward from taking a step up the ladder is more durable and adds to our long-term sense of self-worth. Using financial terminology, the self-worth reward provides an annuity of good feelings, as opposed to a one-time payment. If this scenario is correct, it should be possible to make employees feel more rewarded—maybe even doubly rewarded—simply by boosting their sense of self-worth.

The brain mechanism that tracks our self-worth must logically have at least two, fundamental "moving" parts:

The Target: A portfolio of socially valuable assets (both tangible and intangible) that one *can acquire*.

The Ledger: A balance sheet documenting which of these assets we *have acquired* and which we haven't.

Since the self-esteem reward is so powerful and strongly impacts the internal brand, we need to understand both of these parts.

The Target

The target depends on who we hang out with—our social group. This is, in the broadest sense, why Generation X may value different rewards than Generation Y or Baby Boomers. The people we associate with most are the ones who program into the accounting system what is valuable and what is not. We can't program our own targets because doing so would allow us to set the achievement bar on the ground and thereby steal undeserved rewards.

There is one drawback to putting the group in charge of programming what is valuable and what is not. What if our group is dysfunctional or has warped priorities? In this case we would feel compelled to behave badly. Imagine, for example, that we belong to a notorious gang in which carjacking a luxury SUV is considered a laudable achievement. In this case, doing so would generate both an immediate euphoria and a long-term increase in self-esteem. Another form of dysfunctional programming occurs when the popular media programs unachievable standards of strength, beauty, and wealth into our targets.

The targeted assets that can boost self-worth include everything under the sun: a material asset like a car, boat, house, piece of jewelry, property, or money; a personal asset like strength, beauty, humor, or intelligence; a knowledge asset like education at a top school, mastery of a difficult skill, special expertise, or professional status; a relationship asset like a spouse, child, friend, or coworker; or, finally, a moral asset like bravery, honor, character, truthfulness, trustworthiness, citizenship, and compassion.

Basically, anything that our social group applauds or gives a thumbs-up to is experienced as valuable. The book *The Wisdom of Crowds* provides another reason why our social group—rather than us as individuals—is uniquely qualified to establish what is valuable and what is not. Documenting the superiority of decisions made by groups, over decisions made by individual experts, in nearly every case, a group can outthink an expert on complex problems because groups possess more cumulative knowledge than the expert and can look at a problem from more directions. It makes sense, therefore, for nature to put the tribe in charge of setting the target. Once the group has spoken, we are compelled by feelings of self-worth to acquire whatever our social group has deemed valuable. For practical examples of decision-making nudges related to social norms, refer to "Social: The Power of Social Norms," in *Using Behavioral Economics Insights in Incentives, Rewards, and Recognition: A Nudge Guide*.

While we often notice this phenomenon in our children and call it "peer pressure," we fail to also recognize it as the exact same system which controls adults' desires and endeavors. From an evolutionary perspective, there is a very good reason for nature to wire an accounting process into the fast system. Human beings are skill-based creatures, as opposed to instinctual ones. We must master the survival skills and survival knowledge of our tribe in order to survive. As we acquire these skills and knowledge we feel better and if we lack them we feel bad. If we completely ignore the wisdom of the tribe we may even feel ostracized or like an outcast. For practical examples of decision-making nudges (biases) related to peer pressure, refer to the section titled "Social Forces: Peer Pressure" in the IRF's *Using Behavioral Economics Insights in Incentives, Rewards, and Recognition: A Nudge Guide*.

Nature, in other words, expects us to be skilled, masterful experts who contribute to the tribe's success. Without this accounting system supported by powerful feelings of pleasure and pain, we would not perpetuate the tribe's wisdom and our species would eventually die out.

The programmable target we've been discussing may help explain why top-performer awards like incentive group travel are so powerful. The trip is rewarding in itself, but more importantly, it provides a badge of distinction—membership in the tribe's elite club of skilled high performers. Once someone experiences the self-esteem boost from invitation into this "club," they want to work very hard to stay there.

Applying the Target in IRR Programs

If the discussion above is correct, how do IRR professionals figure out which targets (desirable assets) are programmed into our employees' mental accounting systems? Do we interview everybody an employee knows—including friends and family members—to determine which products and services their social group applauds?

Fortunately, technology provides a convenient solution. Social sites like Facebook can help designers figure out, for example, what sort of rewards an employee might value and those that provide both immediate enjoyment and a long-lasting boost in self-esteem. Using social media and internal e-mail analysis, designers might see what products and services employees' friends are bragging about and note the ones that are most frequently mentioned. Armed with this intelligence, their reward and recognition programs will have maximum impact and will be optimally rewarding.

The marketing community is already aware of the programmable target and the power of social groups to influence our behavior. For example, maybe you've wondered why companies are so eager for us to hit the "like" buttons next to their online products. Depending on our Facebook settings, these "likes" are often automatically shared with everyone in our social tribe and thereby help program their targets. This type of marketing is powerful because it taps directly into our ancient, programmable accounting system.

We don't mean to imply that all desirable products and services are programmed by our social groups—just the assets that contribute to self-esteem. We each have our own idiosyncratic preferences based upon our individual motivational makeups. If someone is inherently curious, for example, a desirable reward might be a microscope or telescope to examine the natural world. This sort of reward is desirable, but will not boost self-esteem unless the person's social group also values these products. Products or services that make our lives easier or less painful also fall into this category; they help us enjoy life but they do not unleash the power of self-esteem. It is important to appreciate this subtle distinction.

The Ledger

Logically, an accounting system must contain a "ledger" of some sort that tallies which assets we have acquired and which are still lacking. If an important asset is missing—e.g., the ability to do math, speak a foreign language, play a musical instrument, or speak in public—we will experience a persistent drag on self-esteem until the missing asset is acquired.

As we master skills and acquire tangible assets, the summary on our mental balance sheets becomes more favorable, we feel more valued, and our self-worth goes up. The accounting system's ledger explains why human beings will spend months or years developing difficult-to-acquire skills. For a doctor to become skilled, for example, she must endure four years of undergraduate education, four years of medical school, and two years as an intern, but for what? The answers include money, the satisfaction of helping others, and a huge, self-esteem-building asset that will increase the balance in her achievement ledger *permanently*.

Applying the Ledger in IRR Programs

If the BE community is to be believed, incentive travel professionals should pay special attention to the self-esteem ledger. This may seem counterintuitive, but the most prized rewards might be the ones that require the most effort from the rewards' recipients—a special training workshop with a world-renowned expert or a course or certification from Harvard, Stanford, or other prestigious university. The best reward might even be a "stretch assignment" at work that challenges employees and proves to them that they are better than they thought they were. Of course, the self-esteem that comes with earning a place in the annual top performers' group travel experience makes those programs especially effective.

Another trend is "working vacations" that allow people to toil, for a fee, at a family farm, bakery, vineyard, brewery, or other profession or trade they have fantasized about. These "vacations" often include training and mentoring by experts. Don't assume, therefore, that everyone will find a lazy beach vacation rewarding. Humans are built to work, create, master skills, achieve, and collaborate as a team, and being deprived of these productive pleasures can be experienced as a punishment rather than a reward.

Neuroeconomics

We're going to switch gears for a moment and discuss another thriving branch of economics called "neuroeconomics" (NE).

Whereas BE emerged to account for decision-making biases by integrating social, cognitive, and emotional factors, NE provides another powerful layer of proof by exploring the biological underpinning of decision-making.

Brain science has come a long way in recent years. It is now able to monitor how the brain controls emotion and what happens when various parts of the brain you shut down. In essence, the science shows that we operate almost entirely on emotion.

Like BE, NE is challenging many of the principles and assumptions of neoclassical economics. In many ways BE and NE are like a tag team trying to wrestle neoclassical economics out of the ring for its failure to accurately capture how real human beings think and make decisions.

Although NE research supports many of the BE nudges, especially the importance of emotions in decision-making, NE researchers have also come up with their own separate findings, insights, and breakthroughs regarding how the human brain makes decisions.

The explosion in NE research is being powered by technological advances that allow researchers to probe the brain in unprecedented detail. For instance, brain-imaging technologies that allow us to see which brain areas are active during economic decision-making and which are not.

The most powerful NE finding, as far as IRR professionals are concerned, is that all forms of reward—monetary or otherwise—are processed in the brain's master reward center, the striatum, and are experienced as rewarding feelings. For example, when patients are offered various forms of reward—ranging from their favorite food to a compliment to a monetary gift—neurons in this structure fire. In the case of monetary rewards, doubling a gift doubles the firing rate.

"The point in the spectrum from transactional to engaged. If your motive is to simply to drive a sale—a transaction—you can use a transactional reward. This is the bulk of the industry, and it comes from behavioralism. You design a specific consequence (good or bad) for a specific behavior and you are reinforcing or discouraging that behavior, that's fine. From there, you can go up the spectrum—from trying to drive a behavior to developing a long lasting relationship. To do so, you have to connect with people's core values, and in doing so, you are activating emotions, so you have to be authentic, committed and really want it."

—IRR industry expert

The implications of this simple finding are immense; all forms of reward are made of the same stuff—rewarding feelings emanating from the striatum and the dopamine reward system. This means that rewarding employees intrinsically by treating them better or rewarding them extrinsically with money are equivalent in the brain. Both forms of reward create positive feelings.

For instance, consider two employees, A and B. They both make the same monetary salary and benefits—let's say $50,000. We will assume that this amount of pay creates positive feelings in the striatum equivalent to 10 emotional reward units, or ERUs. Employee A unfortunately works for a toxic

manager who makes his life a nightmare. Employee A receives constant criticism, is threatened and disrespected, and never gets a kind word. The pain experienced by employee A creates a reward deduction of let's say 5 ERUs. The emotional take home "pay" for employee A is therefore only 5 ERUs (10 ERUs–5 ERUs).

Employee B is luckier. She works for an emotionally intelligent manager who understands human nature, takes a personal mentoring approach, believes in coaching employees and recognizing their achievements, and tries to encourage their development and success. Employee B loves coming to work and therefore gets a 5 ERU bonus on top of her monetary pay, which results in an emotional take home "pay" of 15 ERUs.

Who do you think will want to work harder toward the organization's goals, the employee earning 5 ERUs or the one making 15 ERUs? The answer is obvious—the more rewarded employee will be more engaged and more productive. It follows that unless employee A gets ten ERUs worth of tangible rewards—an expensive proposition equal to his entire salary—he is likely to disengage and/or leave.

Applying Neuroeconomics in IRR Programs

This finding, that all rewards are based on feelings, is vitally important for IRR professionals as well as to society in general. We can pay people more ERUs (emotional reward units) and get better performance by increasing the intangible, intrinsic rewards that employees find just as motivating as money. Imagine that you are the director of finance for a large corporation, and you are given the following two options for improving organizational performance:

1. Pay employees twice as much money, or
2. Pay them intrinsically by treating them better, aligning their work to their strengths, and allowing them some autonomy.

Of course, from a financial perspective, the intrinsic rewards are more enticing. The tricky part of using the intrinsic option is that you actually have to care about your people. Simply going through the motions and then checking them off your to-do list won't work. People are smarter than that. Implementing the intrinsic option may require a cultural and mindset change on the part of the board, executives, managers, and supervisors. And, as HR guru Dave Ulrich argues in his latest book, The Leadership Capital Index, Wall Street analysts should get in on the act because their recommendations drive CEO behavior. As Ulrich put it to us: *"It is hard to lose weight without weighing; it is hard to dress well without public scrutiny for attire; and it is hard for leaders to perform well without accountability."* Analysts must be convinced that profits can increase simply by treating people better and NE research will help convince them of that.

This finding that intrinsic rewards are just as motivating as money is extremely important. It means that intrinsic rewards are vastly undervalued as a reward vehicle. Companies are starting to catch on, which may explain why employee engagement is such a hot topic these days. Employee engagement best practices are designed to trigger these and other intrinsic rewards: creative highs; the warm friendly feelings experienced in tightly bonded groups; feelings of confidence, competence, and self-esteem; the euphoria of a win; and feelings of security.

According to Deloitte, culture and employee engagement are currently the number one business challenges worldwide. Here is an excerpt from Deloitte's *2015 Global Human Capital Trends Report*:

> *"This year, employee engagement and culture issues exploded onto the scene, rising to become the No. 1 challenge around the world in our study. An overwhelming 87% of respondents believe the issue is 'important,' with 50% citing the problem as 'very important'—double the proportion in last year's survey … Organizations that create a culture defined by meaningful work, deep employee engagement, job and organizational fit, and strong leadership are outperforming their peers and will likely beat their competition in attracting top talent."*

This amazing finding may mark the start of a new era. If Deloitte is correct, the business community has gone from referring to cultural and motivational issues as the "soft stuff" to recognizing them as a business priority worldwide.

We'd venture a step further: the intrinsic rewards that employee engagement programs are designed to activate lie at the core of economic utility, the core of the brand impression, the core of customer and employee satisfaction, and the core of every single financial transaction. The true economy, in other words, operates upon the back-and-forth exchange of rewarding feelings. For example, if you provide me with a product or service that makes my life better, easier, more rewarding, more successful, or less painful, I will pay you for it.

Antonio Damasio and the Biological "Thermostats"

NE researchers have proven that intrinsic rewards are important and equivalent to monetary compensation, but what exactly are intrinsic rewards made of and how do we provide them in the workplace? Fortunately, two Harvard professors, Nitin Nohria, the current dean of the Harvard Business School, and Paul Lawrence, an organizational behavior pioneer, came up with a possible answer in their 2002 book, *Driven: How Human Nature Shapes our Choices*, and a follow-up book in 2010 by Paul Lawrence titled *Driven to Lead*. Nohria et al. tested the four drives at three hundred Fortune 500 companies and reported the results in a 2008 article in *Harvard Business Review* titled "Employee Motivation: A Powerful New Model."

Before we look at Nohria and Lawrence's Four Drive Model of Employee Motivation, it is helpful to set the stage by discussing how the brain motivates us to care for our crucial biological needs for things such as food and rest with thermostat-like devices. We will then extend this thermostat analogy into the realm of social motivation and the Four Drive Model proposed by Nohria and Lawrence. There can be no better place to start this exploration than the work of Antonio Damasio. Damasio is one of the world's leading scientists and a pre-eminent expert on the neuroscience of emotions. He is also a clinical neurologist who helps people recover from various forms of brain damage, and his patients are often featured in his books. According to Dr. Damasio, incentives and rewards (positive feelings) are much simpler than we thought. In fact, they are often as simple as a thermostat. Consider that when the temperature in your house rises above the desired setting, aka the "set point," the air conditioner turns on and brings the temperature back down to the set point. If the temperature falls below the set point, the furnace kicks on and brings the temperature up to the set point. With this simple mechanism we enjoy ideal temperatures for optimal functioning.

The human brain has many thermostat-like devices, each with its own set point. The easiest biological "thermostat" to think about is the one that regulates nutrition. If we eat too much, it hurts (we feel bloated), which motivates us to stop eating. If we eat too little, it also hurts (hunger pangs), which motivates us to eat. And when we eat the ideal amount and hit the set point, we feel good, satiated. Feeling good, in other words, means that we are doing the right things to survive, or, as Damasio puts it, *"… nature seduces us into good behavior (with rewarding feelings)."* Similarly, if we are doing well in the workplace, we should experience a rewarding sense of well-being, and IRR professionals are partly responsible for creating this feeling.

Extrinsic and intrinsic rewards trigger the same chemical reactions in the brain. The former is expensive and the latter, free, but intrinsic rewards require genuine commitment, time and sustained effort—a cost of a different sort.

No doubt the conscious mind can resist the "gravitational" pull of hunger to finish an important project. But at some point, the pain ramps up and we must expend more mental effort to resist the pull. Eventually, we are going to lose this battle and eat. All of the thermostats work the same way; we are subject to their motivating feelings and we generally do as we are "told."

If we could somehow turn off the nutritional thermostat, we would be in serious trouble. We'd have to set a timer to know when to eat, for example. If we simultaneously turned off the senses that support nutrition, such as smell and taste, the restaurant industry would disappear overnight. We'd probably invent nutritionally

balanced bars that we would consume whenever the timer went off. Our artificial nutrition technology would never be as good as the natural one.

Other thermostats regulate crucial biological needs like the need to sleep (recharge our brains), the need to protect our bodies from physical harm (keep us from looking into the sun or overexerting ourselves), and the need to reproduce. In the modern, stress-filled workplace, the sleep thermostat sometimes gets out of whack. In this case, employees would find it rewarding to have a quiet spot to relax, take a catnap, and unwind between sprints of intense concentration; think massage chair, or sound-insulated room with relaxing music. This would be an excellent reward to make sure the human beings under your care are in a state of rewarding balance and well-being that produces optimal functioning. Notice that this isn't too different from a technician doing maintenance on a valuable machine in a manufacturing plant. Human beings malfunction at an alarming rate, so maintenance is certainly called for. If you make this recommendation, point out that you have one of the world's top scientists on your side.

Are you noticing a theme developing here? How about this, "For every vital human need there *will* be a system in the brain, *based upon motivating feelings of pleasure and pain*, to regulate it." This statement is so self-evident, that we might even call it an axiom, like the axioms mathematicians use to build their proofs. It is a design theme in nature that is far more powerful and wide-ranging than we realize.

Under this new scientific framework, IRR professionals are in the thermostat-balancing, and well-being-creating business. You might reframe their purpose as being, "To help people feel good about their work because doing so helps them function at their best."

Applying the Thermostat Concept in IRR Programs

Let's pause for a moment and contemplate how IRR professionals might interact with the biological thermostats we have discussed thus far to improve productivity and the employer brand. Damasio tells us that both the physical environment and employees' biological needs matter. If we want to keep everybody functioning at their best, we can design features in the workplace that help people balance their biological thermostats. This isn't something we are accustomed to thinking about, but something as simple as making sure the heating and air conditioning system is working properly helps employees function better and contributes subtly to the employer brand. When an employee makes a decision to stay with their employer, or leave, the positive and negative experiences emanating from the biological thermostats will be factored into the employee's intuitive cost-benefit analysis, including something as simple as the temperature inside the building.

This is Damasio's primary lesson: "Every employee experience matters." Our emotional feelings of the moment are incorporated into our memory (Damasio's somatic marker hypothesis) and color all of our decisions. This arrangement is eminently logical because feelings are proxies for our vital survival needs and if we ignore them we are dead.

Envisioning a World in Which IRR Professionals are in Charge of Balancing The Motivational Thermostats

What would the IRR professional look like under this new, holistic approach to rewards? The profession will have a higher profile because it will take charge of improving productivity, reducing employee turnover, attracting top talent, and increasing customer satisfaction. IRR professionals will therefore become human performance experts who are emotionally intelligent and well versed in intricacies of human behavior. IRR professionals will also be in charge of improving the internal brand so their employers become known as great places to work.

Every company will someday monitor the motivational thermostats with an intrinsic-reward survey. If your intrinsic-reward survey detects a malfunction in any of the motivational thermostats, an alarm will go off and you will dispatch a team of experts armed with employee engagement best practices to perform repair and maintenance on the workplace environment so the motivational thermostats return to their zones of optimal functioning. Notice that this is an entirely different mindset than, *"If you do what the strategic plan requires, we will give you a perk, trip, or reward."* Your job is now to keep everyone from the CEO to the janitor operating at their best. Which future world seems the most attractive and rewarding to you?

Under this new format, IRR professionals may become "chief energy officers" responsible for bringing out the best in people by tapping into their emotional/motivational "engines." They will accomplish this by making sure that companies pay attention to satisfying the core biologic and social needs of their employees.

Employees, in turn, focus on taking care of the core needs of their customers by providing better goods and services delivered with a smile. This improved customer service results in improved customer loyalty, customer retention, brand advocacy, and sustained financial success. The beauty of this approach is that everybody wins, which is precisely why it will work.

The Social Thermostats and the Four Drive Model

Paul Lawrence and Nitin Nohria built upon Damasio's concept of homeostasis in their book *Driven* and extended it into the social arena. They propose four social thermostats, or drives, that complement the biological drives and regulate virtually everything happening in the workplace.

All forms of reward likely originate from the biological and social thermostats. The better we understand these life-regulating thermostats, the better we can design powerful reward systems that tap into them.

The social drives create pleasant and painful feelings that push and pull on us during the course of a typical workday, and subtly motivate us to strive, learn, invent, achieve goals, and play nice with our coworkers and supervisors. They also point us in the direction of survival, just like the biological thermostats. We can think of these social thermostats as motivational hot buttons in the brain that help to improve the employer brand, boost productivity, and make the workplace more enjoyable for employees.

Driven is hugely important to IRR professionals because it simplifies human motivation down to just four fundamental drives—acquire, bond, innovate, and defend. Moreover, the four drives explain the origins of both extrinsic and intrinsic incentives. If we learn how to turn on these productive pleasures, our companies will enjoy maximum productivity and our employees will experience maximum engagement in their work.

- **Drive to Acquire:** Employees want to acquire things—money, property, cars, etc. They also want to acquire skills and status, become experts, and feel proud. Fortuitously, companies also want their employees to be competent, confident experts.
- **Drive to Bond:** Employees want to have authentic caring relationships not only with their family and friends, but with their workmates and supervisors (their tribe) and experience the warm, friendly feelings that come with them. Companies also want employees to collaborate and cooperate as a team in order to solve difficult problems. Companies that provide rewards for group achievements are working harmoniously with the drive to bond.
- **Drive to Invent:** Employees want to learn, create, and invent because it feels good to do so (curiosity and the pleasure of getting an idea, solving a problem, or comprehending a difficult concept). Of course, companies also want their employees to learn and innovate.
- **Drive to Defend:** Employees want to feel safe and secure and to defend the people and ideas they hold dear. Organizations should also want this, because when employees are overstressed, productivity plummets and healthcare costs rise. Moreover, organizations that manage to harness the power to defend will be rewarded with loyal employees who are vocal about their affection for the organization.

Credibility of the Theory

The pedigree of an idea and its underlying evidence are important considerations in establishing credibility. Lawrence and Nohria's first claim to credibility is that they are open minded and interdisciplinary scientists who are not constrained to a single intellectual silo, specialty, or mindset. They spent their entire careers, *"… studying the way people behave in the most fascinating setting of human behavior, the workplace."* In other words, they are practically minded and have witnessed human nature firsthand in hundreds of organizations.

Nohria and Lawrence describe their multidisciplinary approach as follows, "*We have spent a great deal of time learning about evolutionary biology, neuroscience, genetics, primatology, and archeology.*" In the course of these explorations they compiled a great deal of evidence. Overall, Lawrence and Nohria take a broad archeological perspective that seeks to understand the historical roots of human nature.

The "drives" that Lawrence and Nohria describe are probably key components of Daniel Kahneman's fast-thinking system, and like the fast system, the drives operate quickly, automatically, effortlessly, and involuntarily. Hence they are extremely stealthy and hard to think about. Kahneman's fast and slow thinking system, along with Damasio's homeostatic thermostats and the Four Drive Model offer a new language and conceptual framework for pulling human motivation out of the shadows and into the light of day so we can think about it clearly and intelligently.

Applying the Four Drive Theory in IRR Programs

Once armed with the "architecture" of human motivation, IRR designers possess the tools to create simpler and more impactful reward and recognition programs that align harmoniously with our deep nature.

Incentive design firms have already begun to use the Four Drive Model of Employee Motivation as a conceptual framework for designing reward and recognition programs. For example, an IRR expert we interviewed, who worked closely with Paul Lawrence before his death in 2011, has instilled the four drive framework across research and interventions affecting thousands of people in dozens of organizations. According to her, *"We chose the Four Drive Model as the foundation for the incentives research and interventions we did. It represents a balance between intrinsic and extrinsic motivations. But it is best understood and applied as an integrated theory. What happens inside a human being is at any moment, situational. The four drives are pulling at you and the human is influenced to decide by the way the drives are pulling at them."*

Indeed, we can think of the four drives as producing the "primary colors" of rewards that IRR "artists" can "paint" with. We can think of them as sources of the extrinsic and intrinsic paychecks that employees find motivating. The four drives create four independent "denominations" of emotional "currency" that you can build into your reward and recognition projects like integrated building blocks. As one of our experts advised, *"Ideally, IRR programs should be built around all four of the drives to be maximally effective."*

Finally, the findings in *Driven* are supported by brain-imaging technologies, genetic technologies, and pharmaceutical technologies to which previous generations of scientists did not have access.

The Four Drive Model provides an opportunity for a motivational reboot of the IRR industry because it describes a powerful system of rewards that are internally derived, many of which are free, require very little infrastructure, and tap into the passion, energy, and creativity of the workforce more efficiently. In the authors' opinion, this model describes the future of the IRR industry because it provides a more accurate description of human nature. It also demonstrates that the two forms of reward (intrinsic and extrinsic) can work together synergistically to enhance the effectiveness of both.

The Drive to Acquire

The drive to acquire was reviewed briefly at the start of this paper in describing Kahneman's "mental accounting system." As you may recall, whenever we acquire a socially valued asset or achieve a socially respected goal, we experience an immediate euphoria along with a small but permanent increase in self-worth. Lawrence and Nohria independently developed a very similar idea and called it the "drive to acquire." As with Kahenman's accounting system, the "drive to acquire" covers a lot of territory. Rather than repeat how this drive works, we will point out some of the biological underpinnings of this spectacularly important drive.

Just as with Kahneman's accounting system, the drive to acquire is *programmed* by our social group and motivates us to achieve certain goals and acquire certain assets. If we ignore the survival wisdom of our tribe and go our own way, we pay an enormous emotional price.

Let's start with the short-term reward. This exhilarating "achievement high" doesn't last long because nature's message is, "OK, nice job, now do it again—achieve another goal." We might call this pleasure the "euphoria of a win" because it causes us to pump our fist when we score a 3-pointer in basketball, hit a home run in baseball, sink a long put in golf, or buy the sports car we've fantasized about. This short-term reward is regulated by the neurotransmitter, dopamine, and dopamine 1 and 2 receptors in the master reward center, the striatum.

Dopamine has been thoroughly studied; it is released whenever we anticipate achieving a goal or when we actually achieve it. In essence, it makes us crave achieving. When someone is a workaholic, shopaholic, or addicted to gambling, dopamine and the drive to acquire are likely to blame.

IRR professionals will know when the workforce is achieving their goals and getting their dopamine-induced achievement highs, because the workplace will be filled with hoots, hollers, and high fives—which are indications of good shots being made. Oftentimes, well-chosen and appropriately delivered extrinsic rewards, such a spot prizes, points, badges, and the like work very well to amplify feelings of achievement and exhilaration along the way.

Now let's explore Lawrence and Nohria's perspective on self-worth—the permanent improvement in confidence that occurs when we acquire a socially desirable asset or achieve a socially desirable goal.

> ***"Though the research on humans is much more limited, there is some evidence consistent with the possibility that serotonin levels are related to status rankings. For instance, McGuire and his colleagues have found elevated serotonin levels in the leaders of college fraternities and athletic teams. As tentative as the evidence is, it is a finding that is consistent with research from other traditions that suggests that people are driven to acquire and achieve more than their fellow human beings."***
>
> —Paul Lawrence and Nitin Nohria, *Driven: How Human Nature Shapes Our Choices* (San Francisco: Jossey-Bass, A Wiley Imprint, 2002), p. 155

This system is likely ancient and probably evolved from the dominance hierarchies we see in other mammals, and especially in primates. Whereas the dominant adult in a troop of vervet monkeys might be judged by just a few characteristics, like size and strength, the most successful humans are judged by a much larger set of characteristics besides size and strength, although those assets are still important. The higher ranking primates exhibit the highest concentrations of the neurotransmitter,

serotonin, and presumably experience higher self-esteem as a result. Lawrence and Nohria believe that the same serotonin-based system operates in human beings as well.

If we did not receive these short-term and long-term emotional rewards and punishments, we would not care about our culture or what it values. We also would not expend decades of effort mastering the tribe's survival skills (think graduate degree in accounting or a law degree), because there would be no intrinsic compensation for all of our hard work and pain.

Applying the Drive to Acquire in IRR Programs

Below are two recommendations with tremendous potential for IRR professionals. The first recommendation pertains to the short-term dopamine reward, and the second recommendation pertains to the long-term serotonin reward.

Recognize Achievements to Create the Euphoria of a Win

Neuroeconomist Paul Zak has described a variety of ways to encourage the short-term reward—the euphoria of a win—in the workplace.

This form of pleasure should be very familiar to IRR professionals because it provides the joy people experience when their achievements are recognized. If we think of business as a game, this pleasure is designed to reward good shots.

The recommendations below may seem familiar, because IRR professionals are already experts at pressing this, particular motivational "button." These recommendations come from Driven; the 2011 unpublished paper by Lawrence, Porter, and Zak; interviews with Paul Zak in 2016; from the book, *Primal Management* (2009), and from Paul Zak's 2015 article in the *Ivy Business Journal:*

- Make goals clear with defined implications for meeting or not meeting them (Zak 2015).
- Train managers and supervisors to be alert to good behavior, because they are generally prefer to criticize instead of compliment. (Herr 2009).
- Train employees to recognize one another (Zak 2015).
- Set the bar high, but not so high that only a few people can reach it (Herr 2009).
- Take a difficult-to-achieve goal and break it into several easier-to-achieve subgoals (Herr 2009).
- Make recognition public. This may backfire, however, if the recognition is perceived as unfair, undeserved, or unendorsed by one's peers (Zak 2015).
- Rewards should be given immediately after the desirable behavior or achievement being celebrated occurs (Zak 2016).
- Recognition should be unexpected, and not just given at annual review time (Zak 2016).
- Recognition should be personal and heartfelt, like a well-thought-out gift from one's supervisor or a handwritten note (Zak 2016).
- After recognizing exceptional effort, provide a break so employees' brains can recover and recharge between sprints (Zak 2016).
- Tangible rewards can be relatively small tokens that supplement recognition from peers or trusted mentors (Zak 2016).
- Create group goals and group rewards so team members pull in the same direction instead of competing against one another (Zak 2011).

IRR professionals should play a supporting role, for example, by helping to train managers to better understand human motivation and encourage them to meet with employees often, develop meaningful and mentoring relationships with their direct reports, and keep an eye out for laudable work that can be recognized and rewarded. IRR professionals can then provide or advise on a range of appropriate rewards: from travel and volunteer opportunities, to choice work-assignments and "dabble time," to tangible mementos like plaques and durable gifts that remind people of their achievements so they can be relived and re-celebrated—thereby multiplying the impact of the recognition.

Boost Self-Esteem by Flipping the Hierarchy Upside-Down

As already mentioned, self-esteem is the ultimate intrinsic reward because it makes us feel good all the time. It's not a one-time payment but an annuity of payments. Anything IRR professionals can do to improve employee self-esteem will motivate greater effort and productivity. Some basic recommendations for boosting self-esteem and tapping into the drive to acquire are included above under Kahneman's accounting system.

Recall that self-esteem is related to hierarchy and status. In a typical hierarchical organization, this means that there are a few high-self-esteem jobs at the top, like the CEO position, and many more jobs at the broad base of the pyramid. The technique, therefore, is to flip the hierarchy pyramid upside-down.

We can accomplish this by coaching the leadership team to be humble and to emphasize the dignity and importance of every single employee in both their words and deeds. This selfless style of behavior is often called transformational leadership. Transformational leaders take a personal interest in their employees, are passionate about the business, and inspire exceptional performance.

Transformational leaders try to resist taking all of the glory and recognition for themselves. After all, executives already make more money (extrinsic rewards), so are they entitled to all of the glory (intrinsic rewards) as well? According to Jim Collins, in his blockbuster book, *Good to Great*, the most successful organizations are run not by egotists, but by humble servant-leaders who he described as being quiet, modest, reserved, shy, gracious, mild-mannered, self-effacing, and understated. Now we know why this approach works so well; it makes everybody else in the organization feel better about himself or herself, which is reflected in their enthusiasm and performance at work.

Ken Iverson, the former CEO of Nucor Steel, summed up the importance of being humble is his marvelous book, *Plain Talk: Lessons from a Business Maverick*.

> "What of employees' right to be treated fairly? Well, it's pretty hard to treat someone fairly when you view him or her as inherently unequal. Across corporate America, managers look down on the people they manage and distance themselves from employees with layer after layer of hierarchy and management privileges.
>
> Managers are supposed to do what's best for the business. And what's best is to remember we're all just people. Managers don't need or deserve special treatment. We're not more important than other employees. And we aren't better than anyone else. We just have a different job to do.
>
> Mainly, that job is to help the people you manage to accomplish extraordinary things. That begins with remembering who does the real work of the business (something managers, with their outsized egos, often forget). It means relying on employees to make important decisions and take significant risks. And it means shaping a work environment that stimulates people to explore their own potential."

As you can see, Iverson sincerely cared about his workforce, but he also realized the practical benefits from treating people respectfully.

> "The best case for promoting equality rests on practical considerations like productivity, efficiency, profitability and growth. A business needs motivated employees to compete over the long term, and an egalitarian business culture is an extraordinarily practical way to sustain employee motivation."

We might add, "Always build your employees up, and never cut them down in your conversations inside or outside the company." As discussed in the IRF's *Using Behavioral Economics Insights in Incentives, Rewards, and Recognition: A Nudge Guide*, if we describe our employees as hard working, committed, smart, creative and trustworthy, we just might get what we expect (the Pygmalion effect).

How might IRR professionals encourage managers to be more like Ken Iverson? Perhaps a "servant-leadership award," that is given to the managers who best embody Ken Iverson's wise words in their day-to-day behavior? Maybe a "humble pie"—a real, tasty pie—delivered to leaders who are singled out by their employees for servant-leadership behaviors?

The Drive to Bond

Lawrence and Nohria's next drive is the "drive to bond." This drive is the source of the warm, friendly feelings we experience when we hug our spouses and kids, pet our dogs, or go out with trusted friends. The drive to bond holds societies together like glue, and without it we would scatter like cats.

Human beings would not exist without the drive to bond. For example, a lone human on the savannah would be lion food, but a group of human beings working cooperatively as a team and deploying a shared technology are a force to be reckoned with. In Lawrence and Nohria's words,

> *"Groups of individuals who were bonded to one another had a better chance of surviving environmental threats than groups that were not."*

The same holds true today. Companies that consist of bonded individuals have a better chance of surviving in the turbulent, rough-and-tumble business environment because people collaborate, come to each other's aid, and are more productive. Knowledge and energy flow through the social network to where they are most urgently needed, just like information coursing through a computer network. Relationships can be thought of as the "wires" that connect human "workstations" in the workplace. We contend that companies cannot operate efficiently if these wires are missing, because people don't cooperate.

The drive to bond is hugely important in the workplace, because without it teamwork is half-hearted. IRR professionals can act as a catalyst to encourage bonding and the many business benefits that accompany it.

Paul Lawrence teamed up with Dr. Paul Zak, to write an unpublished paper in 2011 titled "Trusted to Innovate." In this paper Zak implicated the neuropeptide, oxytocin, as a key player in regulating the drive to bond. When this chemical is released in the brain, it creates warm feelings of trust. Zak's experiments often involve economic game-theory games. Participants in these games are much more trusting, and will offer better monetary deals to their partners, if they have received a nasal spray of oxytocin beforehand (as opposed to a saline spray).Even small kindnesses trigger the release of oxytocin. According to recent research, so does petting our dog. When humans make eye contact with their pet dogs, both the human's brain and the dog's brain release oxytocin, which presumably results in mutual "warm feelings" that create the bond. Larger kindnesses, like helping someone in an emergency, presumably create even greater oxytocin releases.

These positive feelings motivate us to reciprocate the kindnesses of others. These oxytocin-related feelings probably provide the starting point upon which all relationships are built. Whenever we use terms like love, caring, trust, empathy, compassion, belonging, friendship, fairness, loyalty, respect, partnership, and alliance, oxytocin and the drive to bond are probably at work.

A true and durable wire that causes two people to come to each other's aid in times of need probably requires something beyond the good feelings created by oxytocin, and Lawrence and Nohria appear to agree. The missing ingredient is "mutual investment." As we already know, the brain tracks our investments and adds the things we acquire to our ledgers.

What happens if we invest in another person? That person goes straight into the ledger as well and it actually feels like they are part of us—part of our identity that we nurture and protect. Their experiences now feel like our experiences, and their victories feel like our victories. This type of identity-merging process has a psychiatric name, "cathexis," and we think it lies at the core of relationships and the core of employee engagement.

Here is a workplace example of mutual investment to illustrate what we mean. Imagine two employees, A and B. If employee A invests in employee B, and employee B returns the favor, then,

over time, we end up with a merger of A and B into AB. This, we suggest, qualifies as a relationship wire—a true and durable connection between allies that can last a lifetime. In our opinion, the many acquaintances we may have in the workplace, though pleasant, do not possess the same level mutual commitment as the cathected relationships we are discussing here.

We know that this connection is complete when A's successes feel like B's successes, and vice versa. Unfortunately, such connections are quite rare in the workplace. In fact, according to Gallup, only 20% of employees report dedicating time to developing friendships on the job. In other words, only 20% of employees have workplace allies who would instinctively run to their rescue in a pinch.

Applying the Drive to Bond in IRR Programs

IRR professionals can help create the relationship bonds that bring out the best in people and foster teamwork, collaboration, and creativity. The drive to bond is hugely important in the workplace, because without it teamwork is half-hearted. IRR professionals can act as a catalyst to encourage bonding and the many business benefits that accompany it.

Nohria and Lawrence describe how a declining church was turned around using a process we call "mutual mentoring."

> "In the heart of Dorchester, a lower-income neighborhood in Boston, a Catholic priest has initiated a simple way to build a close-knit community from a highly fragmented one. After church every Sunday, he began passing a hat and urging people, whether Catholic or not, to put their name in and later draw out another person's name. He asked the "partners" randomly selected in this way to find a time to sit down and talk with each other for thirty or forty-five minutes over a cup of coffee or tea, and suggested that they tell one another something about their life story and about the things that weighed most heavily on their shoulders. That was all there was to it.
>
> This one-on-one community-building campaign has generated hundreds of conversations. It has made friends of strangers and allies of people who thought they had nothing in common. The priest comments, 'We were sitting on a gold mine all the time and now we have struck gold …"
>
> A sixty-year-old Panamanian has started to feel at home, saying, 'I've started to realize we want the same things, we have the same values.' A teacher from Boston Latin School reports, 'Initially I was very skeptical, because it seemed like kid's stuff—putting names in a hat and all. But it's an amazing thing that's happened. I've met individuals who quietly live heroic lives.' An Italian lifelong resident said she finally feels vindicated for staying through so many changes. 'The wonderful thing is that it feels like the old neighborhood. It was pretty lonesome for awhile.'
>
> Now several committees have formed that are taking the initiative to do something about the problems they have in the area and they found they share.
>
> If this story brings a warm glow to your heart, you are experiencing emotions stemming from your own bonding drive. And so are the citizens of Dorchester."

Mutual mentoring is both simple and powerful. Notice that the bond-creation process consists of just two steps:

1. Each partner tells his/her personal story by giving a short autobiography.
2. Each person explains the problems and challenges they are facing, and their partners help them solve these problems. This step creates the mutual investments that are the heart and soul of relationships.

If you are hesitant to embark on the relationship-building process, consider this. The Gallup Organization has administered tens of millions of its "Q-12" employee engagement surveys across the globe and has found that one question, in particular, is consistently a top predictor of profitability and business success—"Do you have a best friend at work?" This finding makes perfect sense if we look at relationships as the wires that connect the human "workstations" into a powerful, problem-solving supercomputer. The Gallup Organization has done excellent work on the drive to bond. Gallup's former research director Tom Rath wrote a book titled Vital Friends that offers many useful bonding suggestions.

IRR professionals can get creative and invent ways to help kick-start both steps in the relationship-building process. Here are some starting ideas.

Kick-Starting the Getting-to-Know-You Step (Step 1)

Step 1 is important because we are unlikely to invest in someone we don't admire and have things in common with. This step provides an opportunity to discover value, find connections, and get past prejudices.

Every company should have a personal biography on file for each and every employee, manager, and executive. Employees can either write their own autobiographies, or perhaps a reporter or writer could be hired to dig below the surface. The stories should contain both factual historical and family details, as well as a narrative of amazing experiences, greatest victories, most difficult challenges, favorite hobbies, and prized possessions. It's okay to brag in these bios, just like we do in our holiday newsletters. These bios should be made available online and prominently displayed in the workplace. It might even be possible to rotate the bios onto everybody's screen savers, so employees get a daily dose of relationship-building.

When teams or committees are formed, each member should know the personal bios of the other members, and even be tested to make sure. This is especially important for the executive team, where petty rivalries and disputes are common, and where mutual understanding and empathy are often sorely needed. Department members should know the personal bios of coworkers, and supervisors should know the life stories of their direct reports and vice versa. This should be mandatory. If people are reluctant to share their stories, IRR professions might add some extrinsic enticements.

Harry Quadracci, the founder of North America's largest printing company, Quad Graphics, was known to "explore the lives of his employees like Jacques Cousteau explored a coral reef." Besides satisfying his genuine curiosity, Harry's approach yielded some powerful business benefits. By deeply understanding the lives, personal backgrounds, strengths and interests of his people, he knew what assignments his employees would find motivating and would match their strengths and skill sets.

So how can we become more like Harry? IRR professionals might organize a "Getting to Know You" trivia game where prizes are awarded based on the number of correctly answered questions. Or perhaps a speed-dating format where each person in a department has two minutes to share a personal anecdote, or describe the things they are most proud of.

Of course any type of social activity like group incentive travel, offsite meetings, sports teams, company picnics, etc., provide opportunities for people to socialize, tell their stories, look for things they have in common, and find things they admire in each other.

Though useful, these programs leave step 1 of the relationship-building largely to chance. Normally we end up spending time at events with the people we already know. Long-time coworkers often know little about one another, so this random approach is very inefficient. Coworkers may occupy the same building, but they often are not truly connected to one another and therefore don't qualify as a bonded tribe or a team. People often need a nudge to get past the initial embarrassment or insecurities they might feel when getting to know someone.

There is another important reason for providing a nudge. The human brain can only keep track of 100 to 200 relationships. We have an amazing brain, but invested relationships, as opposed to acquaintance-level relationships, are energy- and processing-intensive to build, so we instinctively dread the effort that goes into creating them. Once we hit our quota of 100 to 200 relationships, it's probably even more difficult. However, since we spend half of our waking lives at work, we ought to allocate part of our relationship quota to the workplace. This way we have rich, meaningful relationships at home and at work, which helps to make life interesting and worth living.

If this mutual mentoring process seems daunting or unlikely to receive board or executive approval, don't fret. Not many organizations are prepared to implement the full, six-step process described above. In the future, however, we expect this to change because we have seen firsthand how performance soars when the human "supercomputers" are "wired" into a collaborative social network. Fortunately, we have seen excellent results after just a two-hour mutual mentoring workshop, because employees are naturally interested in forming relationships once they have been given the green light to do so.

What many companies call corporate culture is actually a set of rules and regulations dictated from above (i.e., "You will behave this way, or else"). In these companies the employees are less likely to be connected to or care about one another. Since they don't qualify as a social group, they cannot

have an authentic culture, because culture consists of the consensus priorities of the tribe—the things they truly believe in. The first step to building a true culture, therefore, is connecting the individuals into a network as described in the mutual mentoring process discussed above.

Kick-Starting the Investment Step (Step 2)

Step 2 gets partners investing in one another. Again, this is unlikely to happen spontaneously in a busy workplace unless we clearly state that we want employees to have workplace friendships, and we want people to help coworkers solve problems, work-related or not. Enlightened companies, like Best Buy and Google build socialization spaces—like coffee shops—into their facilities because they realize that this is where knowledge is shared, relationships are created, and ideas are born.

IRR professionals can help design, and incentivize the investment process by scheduling and arranging the meeting places, providing gift cards for popular restaurants and coffee shops, and by facilitating the initial mutual mentoring session. To create a formal mutual mentoring process like the one used by the Boston priest. Follow these steps:

1. Randomly pair up everyone in a department, team, committee, or, perhaps, the company as a whole. Call these pairings, dyads.
2. Dyads meet weekly, perhaps over lunch or a cup of coffee at the company's expense. The initial two to four meetings should be devoted to sharing personal stories and historical facts and details. Partners should take notes to help them remember the details. The first meeting might be conducted under the supervision of a relationship facilitator (maybe you) to get the ball rolling. We might call this the triad phase because three people are involved.
3. Following the "getting to know you sessions," the focus switches to the mutual mentoring or mutual investment phase. Dyad members listen carefully to their partner's problems, issues, and challenges and suggest possible solutions. This investment stage creates the merger of identities (cathexis) that lies at the heart of relationships.
4. We will know that the relationship-building process is complete, when our partner's successes start feeling like our successes. These connections should be lifelong. After the four-month formal relationship-building process is over, most of the dyads will continue meeting and building their relationship on their own, because they enjoy it. If one of the dyad members moves to another city or another job, the relationship is not lost. Rather, we simply have an ally in a new location. This ally may send business, knowledge, or talent in our direction.
5. Now re-randomize everyone and start again. Create another network of relationship wires.
6. Three cycles of relationship-building should be enough to create a rich social network that connects everyone directly, or through a mutual friend who can make an introduction for us—as often occurs on LinkedIn. If everybody inside a company has a profile on LinkedIn, it becomes easy to find someone who can introduce us and help kick-start a new dyad in our social network.

Additional mutual mentoring ideas can be found in Chapter 10 of Dave Logan's book *Tribal Leadership*.

For additional practical examples of the drive to bond in action, refer to "Happiness: Giving and Volunteering," in the IRF's *Using Behavioral Economics Insights in Incentives, Rewards, and Recognition: A Nudge Guide*.

The Drive to Innovate

We should not be surprised that Lawrence and Nohria include a "drive to innovate" in their Four Drive Model. Recall the axiom we discussed earlier, "For every vital need there *will* be a system (thermostat) in the brain, *based upon motivating feelings of pleasure and pain*, to regulate it." Innovation certainly qualifies as a vital need, because human beings are skills-based creatures, as opposed to an instinctual creature like a baby bird. It takes human beings decades to absorb the survival knowledge of the tribe, whereas baby birds fly from the nest after a month or two, and with minimal training.

The "drive to innovate" is a bit of a misnomer. It should be called the "drive to innovate, learn, solve problems, and create" because all of these subjects are all discussed under the drive to innovate banner. Here is how Lawrence and Nohria describe the drive to innovate:

"The drive to innovate is expressed in consciousness by an emotion (feeling) variously labeled inquisitiveness, wonder, and curiosity. It pushes humans to collect information, examine their environment, make observations, and sustain an ongoing internal dialogue about explanatory ideas, and theories. People puzzle over causes and effects. They want to know how things work. This drive is satisfied by a feeling of understanding, a feeling that things make sense. It is energized by mankind's insatiable curiosity."

The Curiosity Incentive

As stated in the quote above, the core feeling that drives human beings to innovate is curiosity—the irresistible attraction (pleasure) of novelty and experimentation. Neuroscience research indicates that curiosity is linked to the reward neurotransmitter, dopamine, and a particular type of dopamine receptor (dopamine-4 receptor). When the dopamine-4 receptor is genetically removed from rats, for example, they huddle in the corner in fear and don't explore their environment.

Human beings have several different versions of the gene that codes for this receptor. The "7-repeat" version is thought to makes us hyper-exploratory and novelty-seeking. Studies of curiosity in children indicate that 30 to 35% of children are born curious and exhibit a predisposition to approach that which is novel or unfamiliar. They presumably have the hyper-exploratory version of the dopamine-4 receptor. Around 15 to 20% are born with the opposite predisposition. They actively avoid novel situations and are happiest in familiar surroundings.

This arrangement makes sense from a survival standpoint. A human society benefits from adventurous members who explore new territories, discover valuable resources, and pursue new opportunities while the rest stay close to home and hold down the fort. In the modern environment the hyper-exploratory types are probably our scientists and entrepreneurs.

If we could somehow turn off curiosity, our world would be radically different. For example, humans might no longer: 1) go on exotic vacations, 2) read *National Geographic* magazine, 3) watch the Discovery Channel on TV, 4) visit zoos, 5) become scientists, or 6) explore the solar system or oceanic trenches. In the corporate world, scientific progress and innovation might cease because research would no longer feel exciting.

"Consider the intensity with which contemporary humans pursue mysteries, scientific discoveries, puzzles, and humor and the elation that a solution provides. The apocryphal story of Archimedes running naked through the streets yelling "Eureka" captures this experience well. The positive emotions associated with such insights implicate more than just a cognitive act."

—Deacon, T. W., *The Symbolic Species: The Coevolution of Language and the Brain*, (New York: Norton, 1997), p. 421

The Eureka Pleasure

Curiosity is not the only pleasure that nature allocated to encourage learning, problem solving, and innovation. There is another important form of reward that announces the arrival of a creative idea, solution, or insight. We often call it the "Eureka pleasure" or "aha pleasure." If this pleasure did not exist, we would not even realize that we had had an idea. This pleasure is exhilarating and encourages us to share our insights with our tribemates. The best ideas get incorporated into the culture and are passed down from generation to generation.

Lawrence and Nohria describe the Eureka pleasure by quoting the writings of Terrence Deacon (see gray box on previous page).

It is often difficult to get ideas and solve problems. We often get stuck and experience "writer's block." We then need to struggle mightily before the solution comes to us, sometimes in a dream from our subconscious mind. The actual solution likely arises from what Kahneman calls "the associative machine," the fast subconscious mechanism that tirelessly, automatically, and effortlessly helps us make connections between what we are experiencing or thinking about and long-term memory. The more research we do, the more facts we feed into the associative machine, the better the ultimate idea is likely to be. This may seem strange, but *we* don't get ideas, our subconscious mind does. Ideas seem to pop into the conscious mind, fully formed, from nowhere, along with an exhilarating pop of pleasure and a sense that our solution is correct.

We now understand roughly where ideas come from and which neurotransmitters are involved in creating the Eureka pleasure. Irving Biederman at the University of Southern California specializes in the neurobiology of the Eureka pleasure. His research indicates that mu opioid receptors located in the associative cortices of the brain are intimately involved in creating this pleasure.

Imagine that we are examining a problem from various perspectives while juggling various facts or observations, in an attempt to solve a difficult problem. We can picture the problem in our imagination and run through various scenarios using what psychologists call "working memory." When the images we are manipulating in working memory combine with information stored in long-term memory, an association occurs, natural opiates are released, and mu opioid receptors are stimulated. This results in the activation of the dopamine reward system and what we ultimately experience as pleasure.

The magnitude of the association process might vary. For example, if we trigger one association, we might not even notice the Eureka pleasure. If five associations occur between what we are thinking about and information in long-term memory, we might experience a modest jolt. If many associations occur at once, say 100, the euphoria experienced might be intense enough for Archimedes to run naked through the streets yelling "Eureka!" A simple idea might even set off a chain reaction of associations, like a string of firecrackers going off. Imagine how Einstein felt when he looked at the famous clock tower in Bern while riding in a streetcar and discovered special relativity in a flash of insight!

Applying the Drive to Invent in IRR Programs

Let's shift gears and discuss some practical ideas for tapping into the *drive to innovate* by activating the pleasure of curiosity and the Eureka pleasure. This drive is particularly important considering that technological change is accelerating and all companies need to keep up. Below is a starter kit of ideas to boost innovation-related incentives in the workplace.

Put Everybody on the Research and Development Team

One way for executives to enhance innovation is to simply give employees permission to explore, experiment, and innovate as is done with wild success in organizations ranging from Google to W. L. Gore & Associates. For example, tell the workforce that ideas are wanted and appreciated and that everyone is part of the research and development department. Here is how Lawrence and Nohria describe the innovation-enabled workplace:

> *"Jobs are clearly more satisfying if they provide an opportunity to fulfill the drive to innovate. This insight is at the heart of the success of the Quality Movement, which encourages problem solving by workers to improve quality and productivity. As Jack Welch, the much admired CEO of General Electric, put it, 'When workers were given a real opportunity to contribute their ideas about how to improve productivity, what we found was they didn't have just a small number of ideas. Almost 100% of the ideas that we have implemented that have led to enormous productivity gains we have seen have come from our workers.'"*

Implement an Open-Door Policy for Ideas

Innovation will happen naturally if employees have a sense of purpose beyond just making profits for shareholders and are bonded to their supervisors, coworkers, and the company's executives. This natural drive can be encouraged or stifled depending on how employees are handled when they excitedly barge into their boss's office with a "big idea." If the boss or supervisor is too busy to be bothered, employees are unlikely to volunteer their next idea. Companies also need a formal system to process, track, and carefully consider each idea and reward the innovator. Promising ideas can be funded and further developed, preferably with the involvement of the originator. If an idea turns out to be highly profitable, the person who came up with it should receive a share, as well as recognition and/or other tangible rewards.

Encourage People to Take Shots

If we think of business as a complex but interesting game, most employees don't even get a chance to play. Decisions and improvements come from experts in the head office, and employees are expected to do as they are told. This attitude is a recipe for disaster. Human beings love to think, solve problems, and get ideas. If we restrict the fun part of the business game to a small cadre of experts, everyone else in the organization is relegated to being the business equivalent of water boys and caddies who are not allowed to take shots. Dennis Bakke tried a different approach at AES corporation—he handed the clubs to his employees and let them take all the shots. The experts at headquarters became advisors instead of decision-makers. For more ideas for handing over the clubs and tapping into the drive to innovate, see Bakke's marvelous book, *Joy at Work*.

Organize a Skunk Works

Innovation is often more effective when companies frame the situation as an emergency and use the Skunk Works approach to get people's attention. Following in the tradition of the original Skunk Works—used by Lockheed Martin to produce the Allied power's first jet aircraft in WWII—a Skunk Works is when a small team of specialists is given an impossible mission with a tight deadline and minimal resources, and is sequestered at a secluded location that is free from distractions and bureaucratic interference. If the Skunk Works team succeeds, they are lavished with praise and hailed as heroes. All of this attention and drama can help kick-start the daunting creative process and get the juices flowing. IRR professionals could help coordinate the Skunk Works logistics and celebrate the successes.

The Drive to Defend

Welcome to the fourth and final drive, the "drive to defend." This drive is responsible for the familiar, fight-or-flight response, and unlike the others, it is much more familiar because it is the source of dramatic, ballistic emotions like anger, fear, hate, jealousy, revenge, and rage. The drive to defend is therefore the motivational button that companies *do not* want to press.

If we think of the four drives like parts of an iceberg, the drive to defend is the part that sticks high out of the water; the other three are subtle and hidden below the waterline. The destructive emotions associated with the drive to defend ruin the brand image of the word "emotion" in general. When we hear people say that emotions are irrelevant in business, they are probably talking about the ballistic emotions that emanate from the drive to defend. Here is how Lawrence and Nohria make this point:

> *"The point that emotions are essential for survival is important, because it contradicts the conventional wisdom that emotions lead to impulsive and irrational behavior that usually gets humans into trouble. Emotions, according to the later view, are carryovers from early evolutionary history and, although they may have aided survival in the primitive world of the hunter-gatherer, are largely dysfunctional in modern civilized life. We strongly disagree."*

The drive to defend has several components, one of which we have already discussed—the ledger in Kahneman's mental accounting system. As you may recall, this ledger tracks our achievements, our tangible assets, and our relationships and creates feelings of high and low self-worth depending on the balances in our ledgers.

The "ledger" that stores our assets seems to involve the ventromedial prefrontal cortex (VMPC), according to brain imaging studies. The VMPC is a brain area located right behind the eyeballs, and was targeted in lobotomy operations conducted by Dr. Walter Freeman, the most prolific lobotomy practitioner in the United States.

Freeman and his nurse Mary Frances Robinson wrote a book titled *Psychosurgery and the Self* and proposed that our intimate sense of self resides in the ventromedial prefrontal cortex and that this sense of self was obliterated by lobotomy operations. Lobotomy patients did not react angrily when they were insulted, possibly because they had lost access to the ledger of owned social assets that define sense of self. They also did not care about their friends and family anymore, or themselves as growing and developing human beings with a remembered past and anticipated future. They often described themselves in the third person, like a dispassionate observer.

Another component protects the psychic "belongings" in our ledgers; they are called the amygdalae—two almond-shaped structures located deep in the brain. Kahneman implicates the amygdalae as the source of the BE concept of "loss aversion" in Chapter 28 of *Thinking, Fast and Slow*. As Kahneman puts it, *"The brains of humans and other animals contain a mechanism that is designed to give a priority to bad news."* This threat detection system also reacts to purely symbolic threats, like emotionally loaded words like "war" and "crime" in less than a quarter of a second. Examples of loss aversion can be found in the IRF's *Using Behavioral Economics Insights in Incentives, Rewards, and Recognition: A Nudge Guide.*

If someone gets angry for no apparent reason, it is likely that we unwittingly threatened one or more of the assets in their ledger and thereby triggered their amygdalae and the fight-or-flight response.

It is theoretically possible to determine precisely what assets people have in their ledgers by hooking them up to a polygraph machine and then complimenting or criticizing them based on a list of potential physical and psychological assets. If we happen to criticize an invested asset in the ledger, the amygdalae will cause the polygraph readings to react. After 1,000 probes we would have a good map of the precise assets in the person's ledger. A less invasive method to get a rough sense of the assets in the ledger is to simply visit the person's office and see what sorts of knick knacks, photos, awards, diplomas, and mementos they have on display. Once armed with this information, we can easily avoid triggering the ballistic emotions that emanate from the drive to defend. If we help employees nurture and protect their precious assets, we will automatically activate the drive to bond.

The drive to defend also pertains to defending the *groups* we belong to, like defending our employer from threats in the marketplace or our coworkers from unfair treatment. Here is how Lawrence and Nohria make this important point.

> *"In relation to the drive to defend, work groups must be provided with the means to fend off external attacks. They must be able to press their legitimate claims for resources and support from the overall firm. They must be able to defend their identity and reputation from unjust attacks. And the firm as a whole needs a similar defensive capacity for its dealings with hostile competitive firms, community groups, or governmental agencies."*

Applying the Drive to Defend in IRR Programs

Lawrence and Nohria describe the "drive to defend" as follows:

> *"The drive (to defend) manifests itself in modern life in many ways. Indeed, much of human activity is generated by this drive. It is activated by perceived threats to not only one's own body and physical and experiential possessions (drive to acquire) but also by threats to one's bonded relationships (drive to bond)….*
>
> *In response to mild threats humans can be expected to enact the kinds of defenses that are studied by psychologists and psychopathologists. These include such mechanisms as resistance to change, caution, and anxiety. As threats strengthen, humans may engage in denial, rationalization, and withdrawal as well as in counterattack. As a result of long periods of high threat and stress, individuals can slip into a chronic defensive condition expressed by passivity and helplessness, with adverse health and performance consequences."*

These are behaviors we don't want in the workplace. They are the equivalent of friction in the corporate machine that reduces efficiency.

According to the Gallup organization, 17.2% of employees fall into the "actively disengaged" category. This means that they view their employer as an enemy and actively work against the company's interests. Gallup estimates that this group alone accounts for $420 billion in lost productivity annually in the United States and over $1 trillion if indirect costs are factored in. This means that corporations are unwittingly activating the drive to defend in a significant number of employees and it is costing them dearly.

Turning Employees into Allies

It is possible to work with the drive to defend instead of against it. If employees believe in the company and its purpose, freely invest in the company, trust their leaders, and develop caring relationships with the people they work with, then the employer becomes an asset in employees' ledgers that they will instinctively protect. In this situation the employee feels like an owner as opposed to a renter and will act accordingly.

Reducing Envy

When we see coworkers climb the corporate ladder faster than we do, the drive to defend can be triggered and create powerful feelings of envy. Lawrence and Nohria warn, "We react enviously and in the extreme we can even act to undermine or sabotage the other person's success." Lawrence and Nohria therefore recommend directing competition outward toward competitors in the marketplace rather than inwards toward coworkers.

A bonded group of employees is analogous to a sports team. The team wants to beat the competition and defend the honor of their home city, state, or employer. This sort of competition, when combined with rules of fair play, constitutes an acceptable way to tap into the drive to defend without causing negative side effects to society. Sports can be viewed as a benign form of intergroup warfare—complete with mock battles and powered by the drive to defend. When used cautiously, and directed outward into the marketplace, the drive to defend can be very effective in stirring passions and driving performance.

All too often, however, the drive to defend gets triggered inside an organization. For example, when the marketing department locks horns with the manufacturing department for an increased share of the budget. IRR professionals can help direct competition outward and harness it by following the guidelines discussed under the drive to bond.

Eliminating Criticism

Criticism naturally triggers the drive to defend and defensive behaviors like blaming others or coming up with excuses, and it contributes to the number of disengaged and actively disengaged employees. Many supervisors overuse criticism and underuse recognition. According to Gallup, 65% of Americans report getting no praise in the last year.

The solution to this problem is to encourage supervisors to develop authentic, caring relationships with their direct reports. Then, corrections don't feel like corrections. They are seen as helpful and constructive feedback instead of nitpicking. Feedback from a trusted mentor, for example, will be seen as a suggestion for becoming stronger and more competent. The same feedback, in other words, can either set someone off and create feelings of resentment, or build trust and create feelings of gratitude, depending on the presence or absence of a relationship.

Reducing Stress in the Workplace

Many of the precious assets in our ledgers are automatically at risk in the workplace, including investments in our career, our educational achievements, our workplace relationships, our family's well-being, and our reputation in the community. When someone gets laid off from a job, it's like a bomb going off that devastates the person's ledger and self-esteem.

Organizations and their IRR professionals must strive to keep this critical "thermostat" in the safe and secure zone, rather than in the at-risk zone if they want employees to be collaborative and productive. If stress levels get too high, health suffers and productivity plummets. Here is Paul Zak's warning regarding stress in the workplace:

> *"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, and Nucor Steel are known for their deep reluctance to lay off employees."*

A certain level of stress is normal and helpful because it energizes us to meet deadlines and get things done. Subtle anxiety gets us up in the morning and motivates us to take care of our families and other key assets. Productive stress is invigorating and helps us rise to life's challenges. This is quite different from using fear as an intentional management strategy—which, you may agree, is an exceptionally bad idea for sustainable success.

There is no need to threaten employees to work hard. If companies take care of employees' core drives to acquire, bond, and innovate, employees will be productive naturally. Employees will work hard because they care about the company and their coworkers, and they will strive to impress their corporate tribe. If they fall short, their self-esteem will ratchet downward automatically—which hurts. By design we are held accountable to the tribe and pay a big price when we screw up.

Be Honest and Transparent

Due to the drive to defend, we are very sensitive to being taken advantage of or cheated, so corporations should strive to be fair, open, and honest, or they risk triggering the drive to defend and turning allies into enemies. The drive to defend includes a sophisticated lie detector that has been honed to perfection by millions of years of natural selection. This is a strong argument for transparency in the workplace and factoring employee needs into corporate decision-making.

For additional examples of the drive to defend in action, refer to the section titled "Loss Aversion" in the IRF's *Using Behavioral Economics Insights in Incentives, Rewards, and Recognition: A Nudge Guide*.

Principled Leadership and the Golden Rule

It takes a principled, humble leader to turn employees into bonded allies—someone who sincerely cares about the well-being of the workforce and takes a personal interest in employees' lives and their development. If leaders want to develop allies, they need to act as allies. In other words, you get what you give. If we want employees to run through walls for us, we had better be prepared to run through walls for them as well.

The four drives described in *Driven* constitute a natural regulatory system that is powerful and elegant and has helped our species survive to this point. Boards, CEOs, executives, managers, HR departments, and IRR professionals must work *with* this system and not against it. The theory described in *Driven* is a good approximation of the actual architecture of human motivation. It is based on the latest research from a wide swath of scientific disciplines. It provides a straightforward path that is likely to be productive and rewarding for all parties—managers, shareholders, customers, and employees.

Summary

A dramatic paradigm shift is underway in the business world and in the IRR world. This paradigm shift is being driven by a new scientific appreciation of the power of emotions to guide economic decision-making and behavior.

For the past 2,300 years, western societies have viewed emotions as disruptive and negative forces that tempt us to do bad things. Plato believed that we must conquer our animalistic drives with the power of pure, dispassionate reason. He wrote that, "A man who masters his emotions

will live a life of reason and justice, and will be reborn into a celestial heaven of eternal happiness."

In this instance, Plato was right about one thing—we humans *can* exhibit violent, ballistic emotions when we are attacked or feel wronged. What he missed, however, were the productive emotions emanating from the four drives that encourage us to work hard, innovate, master skills, achieve goals, care about our friends, families, and coworkers, and work as a team. These are the good emotions—the productive emotions—and if any of them were turned off our species would eventually go extinct.

Some human beings, such as Damasio's patients with damage to their ventromedial prefrontal lobes, have essentially had their four drives and productive pleasure turned off for real. Without emotions to provide an intuitive sense of the desirability or undesirability of the various options these patients faced in life, there were too many options for Damasio's patients' rational minds to process, so they deliberated endlessly to make even the simplest decision.

One such patient was asked to choose between two dates for a follow-up appointment with Damasio. Here is what transpired:

"For the better part of a half-hour, the patient enumerated reasons for and against each of the two dates: previous engagements, proximity to other engagements, possible meteorological conditions, virtually anything that one could reasonably think about concerning a simple date. Just as calmly as he had driven over the ice (on the way to the appointment), and recounted that episode, he was now walking us through a tiresome cost-benefit analysis, an endless outlining and fruitless comparison of options and possible consequences. It took enormous discipline to listen to all of this without pounding on the table and telling him to stop …."

For most people, emotion-laden scenarios from prior appointment-making experiences would instantly come to mind and provide a framework to perform a quick cost-benefit analysis of the two options. In *this* patient's cost-benefit analysis, however, these valuation aids were missing so a quick decision was impossible. Deprived of an intuitive sense of desirability, both options felt the same to the patient so there was no basis for choosing one over the other.

If you once thought that emotions are the enemy of rational decision-making, think again. Rational decision-making, without the emotional cost and benefit terms, is a muddle and often ends in disaster.

Phineas Gage—Neurology's Most Famous Patient

In 1848, railway worker Phineas Gage was leaning over a hole packed with explosives when they detonated prematurely. The explosion sent a three-and- a-half-foot metal spike through Gage's left eye and out the back of his head.

Miraculously, Gage not only lived, he never even lost consciousness; in fact he spoke to the surgeon coherently throughout his operation. Apparently, aside from blinding him in one eye, the spike missed everything else. But did it?

11 years later, Gage was dead. In part due to seizures likely caused by his accident, but perhaps more due to the fact that after the accident, "Gage was no longer Gage."

The brain injuries Gage suffered didn't alter his intelligence at all, rather, much like what happens in a lobotomy, the spike destroyed his medial prefrontal lobes, the part of the brain responsible for emotions.

Without emotions, Gage drifted, drank, lost his jobs, and never again succeeded in connecting with another person.

Damasio summarizes the situation succinctly in *Descartes' Error: Emotion Reason and the Human Brain, "But while biological drives and emotion may give rise to irrationality in some circumstances, they are indispensable in others."*

Conclusions

Behavioral economics is thoroughly woven throughout the fabric of incentives, rewards, and recognition. Indeed, the main instrument of BE—the nudge—is an incentive. A nudge is just another means of influencing a person's choices, actions, and behaviors.

IRR professionals who understand the scientific and theoretical underpinnings of human motivation will more easily harness the tenets of BE and the power of the nudge. From the standpoint of total motivation and total rewards, the nudge is just one more tool type in the motivational toolkit, albeit an exceptionally broad and effective one.

Behavioral economics—including the psychology, neuroscience, and traditional economics that form it—provides compelling evidence of the potential effectiveness of all types of rewards and incentives programs. BE tools and techniques have been used effectively in combination with intrinsic rewards and in combination with extrinsic rewards.

In regards to the Four Drive Model of Employee Motivation, companies can "press" one of the drive "buttons," or they can press all of them together. Organizations may become marginally better when they press just one of the motivational buttons; however, when they become a little better at pressing *all 4* of the "buttons," motivation grows exponentially!

On a closing note, recognition professionals will have a powerful role to play in our four-drive "future world" because they can reinforce desirable behaviors connected with any of the drives. For example, they can do the following:

- Reinforce the drive to acquire by rewarding employees who acquire needed skills and knowledge,
- Reinforce the drive to bond by recognizing employees who go out of their way to make connections and bond with their teams or managers,
- Reinforce the drive to innovate by recognizing employees who share their Eureka pleasure, and
- Reinforce the drive to defend by recognizing employees who come to the aid of their tribe mates in times of need.

Interviews & Acknowledgments

In addition to conducting a targeted literature review of the topic, we relied on several invaluable conversations with industry leaders, academic thought leaders, and hands-on practitioners to round out our understanding of the impact behavioral economics has and might yet have on the world of incentives, rewards, and recognition. In truth, the information and insights provided by the generous people who agreed to be interviewed (listed below) gave this paper its flavor as well as much of whatever originality it might contain.

Some of our interviewees are not quoted in the paper but were essential in helping us to frame the topic before we started reading and writing. They set us on new paths of research, pointed out papers and resources we'd missed, and made us think much more laterally about the topic than we would have otherwise. We are incredibly grateful to everyone who took the time to speak with us.

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Key Resources

Though more than one hundred books, articles, videos, interviews, blogs, and papers are referenced throughout the footnotes in this guide, a few resources stand out as extraordinarily influential.

Nitin Nohria and Paul Lawrence's classic book *Driven: How Human Nature Shapes Our Choices* is referenced in each section of the paper and extensively in this paper. Lawrence and Nohria's Four Drive Model is perhaps the most directly relevant and applicable BE-based model of motivation in existence.

Daniel Kahneman's book *Thinking, Fast and Slow* has become the standard in BE, but even more, the body of his work with the late Avos Tversky (for which Kahneman received the Nobel Prize) provides much of the foundation on which any report about behavioral economics must rest. Kahneman and Tversky are referenced throughout the paper and Kahneman's *Thinking, Fast and Slow* is extensively summarized in this paper.

Much of our reference to neuroscience and its connections to BE and IRR rely on the astounding work of Antonio Damasio over the past several decades. Paul Zak guided us in our interpretation of Damasio's work and of his own exceptional research in the field. An interview with Uri Gneezy and a careful dissection of his excellent book, *The Why Axis,* provided many case studies and illustrations for the paper, as did interviews with Lindsay McGregor, co-author of this year's bestseller, *Primed to Perform*. In Parts One and Two, multiple references are made to the 2015 book *Inside the Nudge Unit*, which details the first five years of operations in the U.K. government's Behavioral Insights Team (BIT). This is essential reading for anyone interested in the practical application of BE.

About the Author

Paul Herr is the founder and president of Paul Herr Consulting, LLC. Paul is the author of *Primal Management: Unraveling the Secrets of Human Nature to Drive High Performance* (AMACOM, 2007).