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APPLYING ADVANCED ANALYTICS TO HR MANAGEMENT DECISIONS

METHODS FOR SELECTION, DEVELOPING INCENTIVES, AND IMPROVING COLLABORATION

Applying Advanced Analytics to HR Management Decisions

Again, all you have to do is look around. Humans clearly do not always make decisions rationally, and humans are also empathetic, altruistic, concerned about being treated fairly, and also want to see others treated fairly. Need further proof? Look no further than April 15, 2013, the day of the Boston Marathon bombings. One of the first things you will notice if you look at photographs or videos of the attack is that many, many people are running *toward* the site of the bomb detonations. This included many first responders; however, it also included many normal citizens. There is nothing rational or self-interested about running toward the site of bomb blasts. The rational response by a rational self-interested agent would be to turn and run like hell in the opposite direction. Two bombs had just detonated, dramatically increasing the probability of there being more. Nonetheless, a few moments after the explosions, so many people were assisting it was difficult to even see the victims.

2.1.4 Fierce Cooperation

When people hear the word *cooperation,* they sometimes envision people sitting around in a circle sharing, actively listening, and generally affirming what others are saying. While all of these conditions may well be a part of the cooperative process, cooperation and cooperative behaviors are not always affirming. Take, for example, the notion of reciprocity: I will look out for you, but you also need to look out for me; if you don't, I may call you on it.

As with many of the topics that really engage me, I came to the notion of reciprocity and mutual monitoring largely through the back door. Maya Kroumova and I were interested in the impact firm size would have on the effectiveness of broadly distributed stock options.[8] Agency theory would strongly predict that the smaller the firm the more likely they would be to have an impact on firm performance. The idea being that in a small firm—say 30, 100, 500 employees—it

is much more reasonable to expect that employees would think that their actions would ultimately impact the share price, consequently providing more motivation for them to work longer and harder. What we found was that firm size did not matter at all. Small, medium, even large firms all benefited from the use of broadly distributed stock options. We were surprised by this finding and tested and retested the data only to find the same thing. At the time, the finding did not make a tremendous amount of sense to us, so we suggested more research be conducted to evaluate what actual mechanisms were at work. We promptly sent the paper out to a number of journals, and it was promptly rejected by all of them (though you can find it at SSRN.com).

We continued to work and rework the paper trying to figure out what was going on, and then one day noticed that a number of behavioral economics were referencing the paper in their work and using it to support the notion of mutual monitoring.[9] It started to make sense; at the organizational level, one of the reasons that reciprocity works is because, mixed with the right incentives, employees have an incentive to keep an eye on one another. If your rewards depend on the contribution of others (as they do for everyone holding shares in the same company), you are more likely to call someone on it if he or she is not being productive. What we found was that both small and large firms did better. If this was the mechanism at work, size would not matter; as a matter of fact, the bigger the firm would be more likely to benefit from shared rewards like broad-based stock options, because having everyone keeping an eye on everyone else was much more efficient than other forms of monitoring.

The evidence is becoming more clear on this; mutual monitoring and reciprocity is more efficient than hiring many managers to monitor the workforce, or putting in place expensive surveillance equipment. This is not to suggest that developing a culture of collaboration is cost free, just that the alternative is often more costly.

2.1.5 Collaboration

Those of you who saw the movie *A Beautiful Mind*[10] may remember the scene where Russell Crowe (who played John Nash, the 1994 recipient of the Nobel Prize in Economics) imagines a scene meant to depict an aspect of game theory. In the scene, five young men in a bar spot five women, one of whom is exceptionally attractive; the other four are merely very attractive. The five make a beeline for the exceptionally attractive woman and all vie for her affections. The attractive woman is perturbed by this and annoyed that her friends are being ignored, so she ignores the men. Her friends are equally angry at being slighted, so when the young men turn their attention to the friends, they rebuke their advances. The five men decide their best strategy is to work together. Instead of going after the exceptionally attractive woman, they head directly to the friends. Everyone hits it off, and so by working together, they are each individually able to improve their utility.

The scene is meant to depict a core notion of game theory, which states that sometimes our individual utility is enhanced when we collude or work together. This is contrary to the standard neoclassical view that essentially states we should all pursue our own self-interest and from this the most efficient outcomes will result. Clearly, the notion of collusion here is used in a good sense: working together, sharing information that facilities better decision making. An increasing body of work outside of economics also supports this notion of cooperation over individual utility maximization. There are examples of this in the natural sciences, as well. The biologist E. O. Wilson found that when it comes to cooperative behaviors, groups that learned to cooperate among themselves were much more likely to survive and prosper.[11] There is substantial and growing evidence again, across many different disciplines and functions, that the more we can work together, the better the performance outcomes. Academia is one place that has benefited greatly from the free collaboration and the free flow of ideas and information. The open source software movement, Wikipedia,

and all the other wikis are all excellent examples of collective collaboration. Many of us benefit from this kind of collaboration, and many of us also contribute to these efforts.

In addition, substantial and interesting work is being done on the wisdom of crowds and collective intelligence; we are simply smarter together than alone. Thomas Malone, the founding director of MIT Center for Collective Intelligence, believes that organizations need to fundamentally change because all the new technologies have resulted in a change not in the production technology, but rather in the coordination technology.[12] These coordination technologies include the technologies that we will be discussing that promote better decision making.

2.1.6 Hard Wired to Share What We Know

It's official now: It is highly unlikely that a *Planet of the Apes* scenario will ever exist here on Earth. Turns out that an undervalued aspect of what sets humans apart from all other species is our tendency to share our knowledge. Our willingness, even desire, to share what we know is referred to by anthropologists as *ratcheting*.[13] And this is no small thing; it might be one of the most important qualities that allowed humans to advance and thrive. Our tendency to share what we know may have provided us with an insurmountable advantage when it comes to competing with all other species. Universities excel as places where information is shared broadly, but many organizations are not good at sharing information (although there are notable exceptions).

Knowledge management has been around for some time and has a mixed record of success.[14] Much of this mixed success relates to actually getting people to utilize the systems in place, and it appears that incentives are the problem (and organizations being locked into these systems). A sophisticated enterprise content or knowledge management system will go to waste if the right incentives and organization

does not support it. The organization consists of a number of elements, including content management software systems and a culture of collaboration and information sharing.[15] There has to be an incentive to share information and an incentive to collaborate. The system itself is just one small piece of the puzzle.

This notion of reciprocity or reciprocal altruism is also well understood within cultural anthropology literature. We are much more likely to be generous with those who are generous with us, and the same applies on the organizational level. The topic of knowledge management is a broad one, and our focus here is on how collaborative decision making and how you can use new and developing technologies to assist in decision making. One of the fastest-growing segments of knowledge management is the use of collaborative software systems to assist with decision making. An ever-growing body of literature across many different disciplines provides support for the efficiencies of collaboration.[16]

2.1.7 Collective Intelligence

Some of the better known examples of the utilization of collective intelligence include Wikipedia and InnoCentive. InnoCentive is a web-based service that outsources companies' research problems, inviting solutions from the web community. Good ideas are rewarded with cash prizes. Of course, this is one of the reasons democracy works as well as it does. It is impossible for any one person to see the whole picture, but collectively we often get it right (maybe not right away, but eventually).

Individually, we are prone to make decisions that are susceptible to all sorts of individual biases and environmental factors. However, when we gather information from a variety of information sources, we are much more likely to make good decisions. Unfortunately, a number of historical and environmental factors paint democracy in the workplace as somehow being subversive.[17] Many strongly support

democracy at a national level but not at the organizational level. This is an unfortunate fact, because like our desire to share what we know, getting involved in our organizations should be encouraged (as should expressing what we think).

2.1.8 Asymmetric or Private Information

The core reason that employee involvement and cooperation and collaboration are so critical relates to the notion of asymmetric or private information. There was a time in my own career when many organizations put in place employee participation programs, but primarily as window dressing. As you can guess, they were not especially effective. However, if done right, employee participation programs can serve two equally critical functions. They can serve to better engage employees, and they can serve to get the best possible information to those who are making decisions.

The term used in the economic literature to describe this type of information is *asymmetric information* or *private information,* and the fact of its existence is why organizations should go to tremendous lengths to ensure that their employees are engaged, motivated, have a strong incentive to share information, and (probably most important) that they *do not leave.* Once you have found someone who is an especially good fit with your organization, you want to go to great lengths to ensure that he or she stays. The information they have at their disposal, and whether they decide to share and act on this information, has the potential to tremendously increase the probability of organizational success.

Asymmetric information simply means that only I know what I know. Only the individual knows how hard he or she can work, for example, or whether he or she has any good ideas about how to improve the production process. If they are in direct contact with the customer, they also have significant information about how customers like to be treated and about customer preferences. If the employees