

The Wisdom of Crowds

- Why the many are smarter than the few

By James Surowiecki
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In this best seller, James Surowiecki tells us how we can leverage the collective intelligence of a group of people as opposed to depending heavily on the individual brilliance of one or a few people. Surowiecki also examines situations when the judgment of a crowd can go awry. Many of the principles covered in the book can be used by companies profitably to improve decision making and managerial effectiveness.

Introduction

Under the right circumstances, groups of people can be remarkably intelligent and often smarter than the smartest people in them. Even if most of the people in a group are not exceptionally well informed, they can still reach a collectively wise decision. The author's key message is that instead of searching for one or a few experts to solve a problem, it might be better to tap the wisdom of the crowd.

The author deals with three kinds of problems in this book. Cognition problems are those which have definitive solutions. In case of coordination problems people in a group have to coordinate their behavior with each other. Cooperation problems involve getting self interested, distrustful people to work together. The author examines how the wisdom of crowds can be leveraged to deal with each of those problems.

Some real life examples

We all know how effective the audience poll is in Kaun Banega Crorepati (KBC), whereas "phone a friend" often produces the wrong answer. We know this intuitively but more systematic studies have been done in the West. In the popular TV show, "Who wants to be a millionaire?" on which KBC is based, the experts gave the right answer 65% of the time but the audience did so 91% of the time.

The way, the popular search engine, Google works is also on the basis of the wisdom of crowds. Google is based on an algorithm that attempts to let all the web pages on the Internet decide which pages are relevant to a particular search. Google interprets a link from one page to another as a vote. Votes cast by pages, that are themselves more important, receive more weight.

We can view the stock market as a crowd. When the Space Shuttle, Challenger blew up on January 28, 1986, the stock markets hammered down the price of one of the four contractors involved in the project, Morton Thiokol. No public information was available to indicate that it was indeed this vendor who was the main culprit and not the other three. Yet, six months later, the presidential commission endorsed the view of the market by concluding that it was indeed the O-ring seals supplied by Thiokol that was responsible for the damage. There was no evidence of insider trading, i.e., the crowd did not have access to any privileged information. Yet the crowd had established its wisdom beyond doubt.

Why crowds are wise

A mathematical truism forms the basis for the wisdom of crowds. When a large group of diverse, independent people estimate something, each estimate has two components, the expected value and the error. When the estimates are added, the errors cancel out. That is why when crowds figure out the expected value, the accuracy levels are often high.

A group works effectively because of diversity of opinion, independence (people thought independently), decentralization (people drew on locally available knowledge) and aggregation (mechanism for turning private judgments into a collective decision).

At the same time, we must remember that groups work well only under certain circumstances but not under others. They need rules to maintain order and coherence. Communication within the group is important though excessive communication is not desirable. This means that people within the groups must not be able to influence each other too much.

Diversity & independence

Diversity not only adds new perspectives but also weakens some of the destructive characteristics of group decision making. The simple fact of making a group diverse can make it better at problem solving. Homogeneous groups may be good at doing what they do well, but they become progressively less able to investigate alternatives. Individual judgment is often not accurate or consistent enough. Diversity expands the range of alternatives and allows the group to conceptualize problems in novel ways. Diversity also makes it easier for a group to make decisions based on facts, rather than on influence, authority or group allegiance. Homogeneous groups become more easily insulated from outside opinions. They often think they are vulnerable and are willing to rationalize away possible counter arguments to the group's position. Homogeneous groups also encourage conformity. When there is pressure to conform, people find it easier to change their opinion than challenge the group. Ultimately diversity contributes not just by adding different perspectives to the group but also by making it easier for individuals to express freely their opinion. Independence of opinion holds the key to making wise decisions.

Independence is a key factor in intelligent decision making. It ensures that the mistakes people make are not correlated. Independent individuals are also more likely to have new information rather than that which everyone else has. People should process information and analyse it with some degree of independence. The more influence a group's members exert on each other and the more personal contact they have with each other, the less likely the group will make wise decisions. Diversity can help minimize such tendencies.

Information cascades

Problems crop up when decisions by different people are not made all at once but rather in sequence. Then people start imitating those in front. The fundamental problem with an information cascade is that after a certain point, people stop paying attention to their own knowledge and start looking instead at the actions of others and imitating

them. Instead of making decisions based on what they know, people start making decisions based on what they think the people who came before them knew. Instead of aggregating information, the cascade becomes a series of uninformed choices. Collective decisions are most likely to be wise when they are made by people, with diverse opinions, reaching independent conclusions, relying primarily on their private information. But in cascades, a few people, either because they happen to go first or because they have particular skills or fill particular roles, influence the decisions of others.

Imitation is a rational response to our own cognitive limits. We cannot know everything. Imitation helps us to specialize where we can and copy others where we do not have expertise. Imitation seems to be an effective mechanism for the transmission of valuable practices in society. If used well, imitation is a powerful tool for spreading good ideas fast. Everyone benefits when a sizable percentage of the population imitates. At the same time, people should to some extent be willing to stop imitating and learn for themselves when the benefits of doing so become high enough. In other words if there is widespread blind imitation, the well being of the group suffers. So, while intelligent imitation helps, slavish imitation can be counterproductive.

For intelligent imitation to be possible, there must initially be a wide array of options and information. Moreover, some people must be willing to put their own judgment ahead of the group's.

The problems of information cascades arise because some people make their decisions before others. To improve decision making, we must ensure that decisions are made simultaneously, rather than one after the other. The author exaggerates the importance of independence by mentioning: "One key to successful group decisions is getting people to pay much less attention to what everyone else is saying."

Decentralization encourages independence and specialization on one hand while still allowing people to coordinate their activities and solve difficult problems on the other. The problem with decentralization is that valuable information in one part of the system may not find its way through the rest of the system. What we need is a system where people specialize and acquire local knowledge and also aggregate that local knowledge and private information into a collective whole.

Coordination problems

Coordination problems are different from cognitive problems. Here, people have to think not only about what they believe is the right answer but also what about what other people think the right answer is. What each person does, affects and depends on what everyone else will do and vice versa. Coordination problems are less amenable to clear, definitive solutions than other problems.

Culture enables coordination by establishing norms and conventions that regulate behavior. Some of these norms are explicit and bear the force of law. Conventions allow us to deal with certain situations without thinking much about them. Conventions allow groups of disparate, unconnected people to organize themselves with relative ease and an absence of conflict.

The most successful norms are not just externally established and maintained. They are also internalized. In liberal societies, authority has only limited reach over the way citizens deal with each other. Voluntarily enforced conventions can play an important role in facilitating coordination without the need for too much thought/labour/coercion. Convention also has a profound influence on business and on the way companies are run. For example, companies do not slash wages. They lay off people.

The free market is a mechanism designed to solve a complicated coordination problem: getting resources to the right people at the right cost. In a well functioning market, products and services move from the people who can produce them most cheaply to the people who want them the most fervently. And this happens without any one person seeing the whole picture of what the market is doing and without anyone knowing in advance what will be the most effective solution.

Cooperation problems

Cooperation problems resemble coordination problems in that both need to take into account what everyone else is doing. However, there are subtle differences. A coordination problem can be solved if each individual is single-mindedly pursuing his self interest. But to solve cooperation problems, members of a society need to adopt a much broader definition of self interest. And they need to be able to trust the people around.

People want a reasonable relationship between accomplishment and reward. People also seem to be guided by strong reciprocity, the willingness to punish bad behavior even when we get no personal benefits from doing so. Strong reciprocity pushes people to go beyond their self interest and do things that end up serving the common good.

Over time, as it has evolved, capitalism has helped foster more trust and transparency. This has not happened because capitalists are naturally good people. It has happened because the benefits of trust are potentially immense and a successful market system teaches people to recognize these benefits. Flourishing trade and commerce require a healthy level of trust in the reliability and fairness of everyday transactions. In the absence of trust, costs can be prohibitive as transactions would have to be monitored carefully and in some cases legal action may have to be used to enforce rights.

Modern capitalism has made the idea of trusting people with whom we had no prior personal ties seem reasonable if only by demonstrating that strangers do not as a matter of course, betray us. This has helped trust become part of everyday business. Buying and selling no longer require a personal connection. The driver is the benefits of mutual exchange.

One of the fundamental problems with trust is that it usually flourishes only when there are relationships of family, clan or neighborhood. But banking on such relationships is impractical as population increases and the range of transactions increases. Indeed, the key to a nation's economic performance lies in the trust levels that exist between strangers or two randomly selected individuals. For this to happen, we need an institutional and legal frame work.

Trust begins because of the “shadow of the future”. All we really trust is that the other person will recognize his self interest. But over time, that reliance on people’s own attention to their self interest becomes a general sense of reliability, a willingness to cooperate because cooperation is the best way to get things done.

Take the example of taxes. When it comes to getting people to pay taxes, there are three things that seem to matter. People have to trust their neighbours and believe that they will generally do the right thing and live up to reasonable obligations. People must trust that the government spends the collected money wisely. Lastly, people must trust that the state will find and punish the guilty.

Corporate decision making

No decision making system can guarantee corporate success. But in general the more power we give a single individual in the face of complexity and uncertainty, the more likely will it lead to bad decisions. Companies would do well to use methods of aggregating collective wisdom when trying to come up with future scenarios/evaluating possible strategies. Such an approach circumvents the problems that obstruct the flow of information- political infighting, sycophancy and a confusion of status with knowledge. The best CEOs recognize the limits of their own knowledge and of individual decision making. In the face of uncertainty, the collective judgment of a group of executives will be clearly superior to that of even the smartest executive. Indeed, problems crop up when leaders start thinking they are infallible. This is a point which Jeffrey and Robert Sutton emphasise in their book, “Hard Facts, Dangerous Half-Truths and Total Nonsense -Profiting from Evidence-Based Management”.

Financial markets and bubbles

Crowds may not be wise in some circumstances. The author explains this point by referring to financial markets. Stock prices jump around a lot more, than justified by changes in the true values of companies. The volatility is far more compared to other situations where some uncertainty is involved. One reason is that predicting 20 years of a company’s future is significantly harder compared to predicting who will win a game next week or an election next month. Moreover in the case of a game or an election there is a definite outcome and we will be proved right or wrong. But in the stock market there is never a point when we can say, that we have been definitively proved right or wrong. A company’s stock price can be grossly over valued, because people can always rationalise that something in the future will happen to justify the valuation. We can make money in the stock market even when we are wrong. Even if the market does eventually get the price right, it can be wrong for a long time because there is no objective means to demonstrate it is wrong. Keynes once remarked that we can stay wrong longer than we can stay solvent.

In contrast, we don’t see bubbles in the real economy. For example in the television market, prices change but they do not swing widely. Moreover because of rising prices, people do not rush to buy television sets. In fact, the more expensive a television set gets, the less interested people are in buying it.

Bubbles are more characteristic of financial markets. When we are buying a share of stock, we are buying a fraction of the company’s future earnings. But we are also buying

the right to resell that share of stock to someone else, who has a more optimistic view of the company's future than us. In the case of physical products, we have the right to resell but reselling is not the main purpose. In fact, physical products lose value over time. If we resell them, we actually get less than what we paid for initially.

But in financial markets, things can become more valuable over time. Prices can keep rising. And the ability to resell is a key option which we can exercise. And it is not just our opinion of the price that is important but also the market's opinion of the value of the share. We are not just worried about the company's future earnings but also about what the market thinks the company is going to earn.

In contrast, the decision to buy apples is relatively independent. Buyers estimate what apples are worth to them and sellers determine how much it costs to grow and ship apples. The prices of apples reflect all the millions of independent decisions that buyers and sellers are making. In contrast, the price of a stock reflects a series of dependent decisions. When people calculate what a stock is worth, their evaluation depends at least partly on what everyone else believes the stock is worth. Indeed, what makes the stock market strange is that investors are concerned not just with what the average investor thinks but what the average investor thinks the average investor thinks!

Bubbles and crashes occur when the dependence of people on each other, crosses a limit. Information is usually considered a good thing. As a rule, the more the information, the better. Investors need to be informed about the companies they are putting their money in. But in some circumstances, certain kinds of information actually seem to make things worse. Not all information is created equal. And the way information is delivered, can have a profound effect on the way it is received.

The problem of putting too much weight on a single piece of information is compounded when everyone in the market is getting that information. Groups are only smart when there is a balance between the information that everyone in the group shares and the private information of each of the members of the group. It is the combination of different pieces of independent information, some of them right, some wrong that keeps the group wise.

During a bubble, expectations converge. What people do during a bubble is nothing really irrational. They are simply taking their cues from the crowd. The more investors who refuse to buy stocks just because the other people are buying them, the less likely it is that a bubble will become inflated.

Conclusion

Too often, we depend on gurus or experts to solve complex problems that are beyond us. We tend to get swayed by individual brilliance. What this book tells us is that the collective intelligence of a group usually surpasses the knowledge of even the most brilliant individuals. By applying the best practices of group dynamics and decision making, James Surowiecki tells us how companies and institutions can benefit.