



# Business Book Review™

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## The Wisdom of Crowds

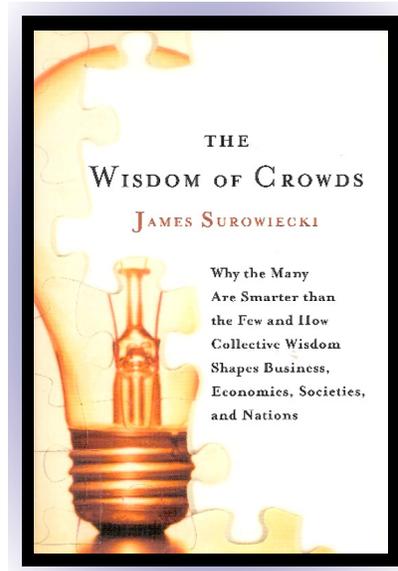
*Why the Many Are Smarter than the Few and How Collective Wisdom Shapes Business, Economies, Societies, and Nations*

**James Surowiecki**

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*Reviewed by Susan Williams*

### Introduction

The idea that large groups of people are smarter than an elite few may be a surprise to many involved in decision making and problem solving, and can be a concept that is difficult to accept. The theory that groups are remarkably intelligent and often smarter than the smartest people in them, demonstrates the significant impact on how businesses operate, how knowledge is increased, how economies are structured, and how people live their daily lives.

**The Wisdom of Crowds** explains the principle of group think, and the concept that the masses are better problem solvers, forecasters, and decision makers than any one individual.

Contrary to having inadequate amounts of information, limited foresight, or irrational ideas that affect judgment, collective intelligence is what author James Surowiecki refers to as the “wisdom of crowds”. This wisdom is essential to society as a whole, and can make a significant difference in the way businesses operate.

There are three kinds of problems that can affect collective intelligence:

- 1) **Cognition problems:** problems that have definitive solutions.
- 2) **Coordination problems:** problems that require members of a group to try to coordinate their behavior, knowing that everyone else has the same goal.
- 3) **Cooperation problems:** problems that involve the challenge of encouraging distrustful people to work together.

In addition to these problems, the necessary conditions for a crowd to be wise include diversity, independence, and a specific type of decentralization. These conditions are essential to making good decisions which are the result of disagreement and contest rather than consensus or compromise.

## PART I

*“A classic demonstration of group intelligence is the jelly-beans-in-the-jar experiment, in which invariably the group’s estimate is superior to the vast majority of the individual guesses.”*

In this demonstration, most group members are unlikely to be talking to each other or solving problems together. Instead, individual guesses were aggregated and then averaged. In many cases, there will be a few people who guess better than the group. However, there is usually no evidence that certain people consistently outperform the group. And, those same people may not always be the ones outperforming the group.

Wise crowds, as mentioned earlier, are characterized not only by diversity of opinion, independence, and decentralization, but also aggregation.

**Diversity of Opinion** means individuals have some private information or their own interpretation of known facts. **Independence** comes when people’s opinions are not influenced by those around them. **Decentralization** means people draw on local knowledge, while **aggregation** demonstrates that a mechanism exists for turning individual judgments into a collective decision.

## Key Concepts

### Conditions for Crowd Wisdom:

**Diversity** means individuals may have some private information or their own interpretation of known facts.

**Independence** preservation depends on diversity. Independence means freedom from the influence of others.

**Decentralization** encourages individuals to make important decisions, not just in one location based only on one specific type of information, but dispersed through a variety of locations from where local knowledge is drawn and shared.

**Aggregation** of varying opinion can provide a solution more likely to be smarter than even the smartest person’s answer.

### Elements of Collective Intelligence:

**Cognition** problems are problems with definitive solutions.

**Coordination** problems require members of a group to try to coordinate their behavior knowing that everyone else has the same goal.

**Cooperation** problems involve the challenge of encouraging distrustful people to work together.

\* \* \*

Information about the author and subject:

[www.wisdomofcrowds.com](http://www.wisdomofcrowds.com)

Information about this book and other business titles:

[www.randomhouse.com](http://www.randomhouse.com)

Wise crowds are likely to make accurate judgments and excellent decisions because they meet these conditions.

Generation of a diverse set of possible solutions is the initial condition in the process of using the wisdom of crowds to make decisions. Diversity in a conceptual and cognitive sense, can encourage exploration of a variety of ideas, generating meaningful differences among those ideas. The less diversity, the less diverse the concepts or ideas will be, neglecting a potentially larger range of possibilities. More diversity increases the chances that some one will consider a radical or unlikely idea. Good

problem solving and decision making can be achieved successfully by selecting a group randomly rather than spending time finding only the smart people to solve a specific problem. A group with diverse levels of intelligence most always does better than a group containing only smart individuals. Intelligence alone is not enough. People who know less improve a group's performance.

"Homogeneous groups are great at doing what they do well, but they become progressively less able to investigate alternatives," says Surowiecki.

It's unlikely that just one person, even an intelligent one, *"...if you can assemble a diverse group of people who possess varying degrees of knowledge and insight, you're better off entrusting it with major decisions rather than leaving them in the hands of one or two people, no matter how smart those people are."*

wisdom will be smarter than that of an expert demonstrates that cognitive diversity matters. People also often overestimate the importance of an expert. After a survey of expert forecasts and analyses in a wide range of fields, Wharton professor J. Scott Armstrong wrote that he "could find no studies that showed an important advantage for expertise".

Other studies have shown that experts' judgment is often inconsistent with that of other experts in the field. Experts are as likely to disagree with each other as agree. Moreover, experts often believe they know more than they do. This data does not, however, suggest that well-informed experts are of no value. But it does mean experts' advice and predictions should be discussed with others to come up with the best overall solution. Over time, it is unlikely that one person will do better than a group.

"...trying to find smart people will not lead you astray. Trying to find the smartest person will," says Surowiecki.

## About the Author

**James Surowiecki** is a staff writer at *The New Yorker*, where he writes the popular business column, "The Financial Page." His work has appeared in a wide range of publications, including the *New York Times*, the *Wall Street Journal*, *Artforum*, *Wired*, and *Slate*. He lives in Brooklyn, New York.

One of the most difficult aspects of collectively wise decision making is the Independence of Opinion. Having diversity is essential to preserving this independence. Independence means freedom from the influence of others. If people espouse differing and independent opinions, a group is more likely to come up with a good decision. Independence is important to keep the mistakes that people make from becoming correlated. It is also important because people are more likely to have new information rather than data everyone else knows. The more influence

people within a group have on each other and the more personal contact they have, the more they will likely believe the same things and make the same mistakes.

There is an assumption that when things are uncertain, the best thing to do is conform. This assumption contradicts the notion of independence. When everyone in a group follows the exact same strategy, for example, it is easier for individuals to stick with the crowd due to a fear of failing or of being seen as crazy, than if they were to devise a different strategy. This concept is sometimes called *herding*. Safety in numbers can be incredibly alluring. What happens in the case of herding is that individuals will mimic each other rather than try to trade information based on their own opinions. And mimicking limits the amount of new information brought to the group.

The Art of Decentralization is another condition of the wisdom of crowds. It implies that establishment of self-interested, independent people will work in a decentralized manner on the same problem. The result is a collective solution, likely to be better than one person directing from the top down. With decentralization, many important decisions are made by individuals, not in one location, and based on their own specific knowledge. Decentralization fosters specialization, which can make people more productive and efficient. It also increases the scope and diversity of opinions that are generated.

The wider distribution of real decision-making power can be demonstrated when local problems get solved by those close to the problem. People with local knowledge are more likely to have accurate input to come up with

a workable solution. This often outweighs managerial decision-making expertise. Decentralized organizations can offer this wider distribution of decision-making power because the more people who have responsibility for their own local environments, the more engaged and enthusiastic they will be. Decentralization also makes coordination easier because the reduction of the need for supervision lets employees concentrate on finding new ways to accomplish tasks and solve problems. If local employees have the authority to use relevant knowledge to solve a problem, then it is less likely there will be coordination and cooperation problems. Moreover, decentralized organizations are continually getting useful feedback from customers to help forecast demand, anticipate the future, and make wise decisions. On a day-to-day basis, decentralizing

*“The positive case for diversity...is that it expands a group’s set of possible solutions and allows the group to conceptualize problems in novel ways.”*

responsibility can change the way companies are run and transform the way these companies solve cognition problems. Even if decentralized groups are small, they are more amenable to strong, collective decision making. In the face of genuine uncertainty, there is little evidence that single individuals can make consistently good decisions.

An example of a successful decentralized system is that of Linux (a unix operating system) in the early 1990s. Linux was owned by no one, with no formal organization and contributors from all over the world. Due to decentralization, Linux could maintain diversity, and guarantee there would be an immense field of possible solutions. In a traditional organization, the best employees are hired to solve problems but because of natural organizational and bureaucratic politics, a limited number of possible solutions are generated.

It is also crucial to remember that the information coming out of a decentralized group must be Aggregated throughout the system, to maintain a balance between local and global counterparts. For instance, in a free market, the aggregating mechanism is price, which reflects the actions of buyers and sellers everywhere. Price also reflects investors’ judgments as to the worth of a company. If a group has a means of aggregating varying opinions, the collective solution will most likely be smarter than even the smartest person’s answer.

Another element of the wisdom of crowds is that of everyday coordination problems. In the matter of coordination, people must think not only about what they believe is the correct answer, but also about what other people think it is. What each person in a group does depends on and affects what everyone else will do. Many coordination problems require bottom-up solutions rather than those resulting from top-down authority or coercion. Coordination problems can be hard to solve.

“When what people want to do depends on what everyone else wants to do, every decision affects every other decision, and there is no outside reference point that can stop the self-reflexive spiral,” says Surowiecki.

Coordination can be enabled by culture, through establishment of norms and conventions that regulate behavior. For example, it’s easier for people to drive on the right side of the road rather than having to guess the intentions of oncoming drivers. Conventions maintain order and stability. When it comes to coordination problems, conventions enable people to handle certain situations without having to think about them. Conventions make it easier for groups of disparate and disconnected people to organize themselves.

Not only does convention play an important role in daily social life, but it has an effect on economic life and the way companies operate. Social organization that solves problems without leaders or complicated rules can be demonstrated by looking at a flock of birds moving through the air. A flock moves together purposefully, coordinating their patterns and movements strategically, but they all follow conventional rules of staying close to the middle, a certain distance from the next bird, and out of the way of predators. Spontaneously, birds will re-group when divided. In this case, birds may only be operating with partial knowledge and limited calculating abilities. But as in a free-market economy, they are making decisions on what’s good for themselves without anyone directing them.

People in free markets, as in the example of the birds, can coordinate themselves to achieve beneficial, if not complex goals even when they’re not sure initially what those goals are or what’s required to accomplish them. They may not, as individuals, know where they are going, but as a group they can get there quickly.

As a group, members must take into account what others are doing, which will help solve coordination problems. However, then cooperation problems that can crop up, such as keeping sidewalks clear of snow, paying taxes, or curbing pollution, and need to be solved differently. Group members need to adopt a broad definition of self interest that maximizes profits in the short term. The key here is trust between the members. If there is no trust, then myopic self interest will reign and groups will likely fail to solve cooperation problems.

Groups also benefit from strong reciprocity, which is the willingness to punish bad behavior even when doing so results in no personal material benefits. This sounds irrational, but it pushes people to move beyond their definition of self interest and do things that result in serving the common good. In other words, irrational acts can produce a collectively rational solution. This “prosocial behavior” demonstrates that societies and organizations only work if people cooperate. While cooperation typically makes everyone better off, for each person, it often seems irrational to do so. People tend to look after their own interests first. However, cooperation is the result of “repeated interactions with the same people”. When people work with each other time and time again, they begin to recognize the benefits of cooperation and avoid taking advantage of each other.

Something not often associated with trust or cooperation is capitalism. Different cultures may have different ideas about trust, cooperation and the kindness of strangers. And capitalist rhetoric often emphasizes the virtue of greed, cynicism, and selfishness. However, over time, capitalism succeeds with trust and less selfish behavior. The benefits of trust include the fairness and reliability over everyday business transactions. People need to have confidence in the promises made about products or services. The establishment of this confidence has evolved through the history of capitalism, through systems of trade between groups following a collective code of rules. Creating conditions where trade could flourish depended on fair dealings. History has demonstrated the importance of intra-group trust, just as it remains important today that honesty can be profitable.

For instance, J.P. Morgan built a successful business on Wall Street based on the idea of trust. In the late nineteenth

century, investors who had previously been burned by shady railroad investments did not want to put more money into the endeavor. Having a Morgan man on the board of directors helped to guarantee that an organization was reliable. Fair dealing became valuable and often determined the level of short- and long-term prosperity. Modern capitalism weaves trust into the fabric of everyday business.

There is, however, a paradox here. The social benefits of trust and cooperation work well together, but the more

*“Information isn’t in the hands of one person. It’s dispersed across many people. So relying on only your private information to make a decision guarantees that it will be less informed than it could be.”*

people trust, the more of a target they become for others to exploit. While trust is valuable, corruption is the most damaging of social market interactions.

Most often, the businesses that benefit from long-term success are those whose businesses depend on credibility. The integrity of business operations increases their market value.

## PART II

Traffic jams, which are the result of having too many cars on the road, consist of decentralized individuals trying to coordinate their activities with one another. Once a road is crowded and congested, each driver must anticipate the actions of other drivers using information such as brake lights and turn signals. Since drivers do not have a sense of the “bigger picture” of traffic, their decisions are haphazard and produce a stop-and-go disorganized pattern of movement. One reason coordination on a crowded highway is difficult is due to the diversity of drivers. While diversity is essential to good decision making, it can also make it harder to solve coordination problems.

Collective work can be wiser than that of individuals due to collaboration, competition, and reputation. In the case of the quest to work globally to find and analyze the SARS virus, individuals around the world shared their work, discussed avenues for future investigation, and debated current results. Various labs regularly traded virus samples in order that they all check on and learn from each other’s work. Working together, labs collectively discovered the Coronavirus, said to cause SARS.

“Working on their own, any one of those labs might very well have taken months or years to isolate the virus,” says Surowiecki. “Together it took them just a matter of weeks.”

The labs, even though orchestrated originally by the World Health Organization, agreed to share data, and without some one at the top dictating what each lab

*“Capitalism is the healthiest when people believe that the long-term benefits of fair dealing outweigh the short-term benefits of sharp dealing.”*

would do, each lab was able to make the collaboration work. While the labs had the freedom to focus on what they believed were promising modes of investigation, they were able to organize themselves successfully. As a result, real-time benefits were reaped and solutions to the problem were achieved as quickly and efficiently as any top-down organization might have done.

Collaboration can be seen as the division of cognitive labor, and as such, enables individuals to incorporate many different kinds of knowledge. Collaboration works because it offers a diversity of perspectives. A collective enterprise can establish free and open exchange of information. This makes it possible for others to use that data to build new hypotheses.

In the scientific realm, enterprises can be both intensely competitive and highly cooperative. A steady infusion of diverse thought coupled with ongoing competition helps provide a check on flawed ideas. Competition between scientific enterprises, for example, depends on a certain level of cooperation, as it’s rare that one scientist can succeed in isolation. This mix of collaboration and competition demands open access to information. The more widely knowledge is spread, the more valuable it becomes. For scientists who are motivated by public recognition and influence, open science makes their self-interested behavior collectively beneficial. Recognition, in the case of scientists, allows generation of ideas that can be incorporated into the general realm of scientific knowledge, encouraging collective problem solving. The process of accepting new ideas increases the collective wisdom of these scientists.

And, as mentioned earlier, good communications among individuals requires a degree of trust which even during competition will foster fair play with the data

involved. Not only does wisdom depend on a stream of common knowledge but the ability to discern which hypotheses may be trustworthy and those that are not.

Too often people ignore the fact that small groups discussing an idea to solve a problem actually work, in addition to the wisdom of larger groups. Small groups, such as juries or boards of directors make consequential decisions about the future of people or organizations. The nature of the relationship between people in small groups is different because the influence of each other’s judgment is always present. Debate and analysis of all available data takes place more often in small groups where this influence is apparent.

“...small groups have the opportunity to be more than just the sum of their parts,” says Surowiecki. “A successful face-to-face group is more than just collectively intelligent. It makes everyone work harder, think smarter, and reach better conclusions than they would have on their own.”

In small groups, divergent opinions nearly always benefit their discussions. Minority viewpoints offer the group the opportunity to think carefully about all possible solutions. Dissenting views force the majority to analyze and scrutinize its own positions. Even a single different opinion can make a small group wiser. The point here is that societies and groups within those societies need dissent to make the wisest decisions.

Group polarization results when the more people discuss an issue, the less likely they are to offer extreme judgments. Evidence from small groups such as juries suggests the opposite is true. What happens in group polarization is that a group’s majority may already support one position, and consequently arguments will be made in support of that opinion. Those who are uncertain about their opinion will likely be influenced by what they hear. And, the most influential may not be the most informed. Influence may be encountered in groups where there are gender or status differences which shape speaking patterns even though they may be ill informed.

When, in a series of experiments, military fliers were asked to solve a logic problem, pilots were found to speak more convincingly than the navigators, even if the pilots were wrong, and the navigators were right. In this situation, navigators deferred to the pilots because they assumed the pilots’ status meant they were more likely to be right.

In small groups, however, ideas still need a champion who will be a strong advocate for an idea, even if it's not good or well informed. If champions are overly talkative, they may not be well liked, but they will be heard. The more champions talk, the more likely it is others will follow their lead, thereby becoming more influential or important in the discussion at hand. But talkativeness does not necessarily mean expertise. Talkative people may overestimate their own knowledge. If they were right most of the time, and the most well informed, then polarization might not be a problem, but most of the time it is. The good news is that groups can be depolarized. Evidence has demonstrated that depolarized groups consistently make better decisions with the group often outperforming its best member.

In one study, people were divided into two groups of six, and each group created two smaller groups containing three individuals with strongly opposed views. It was found that discussion moved the groups from the extremes toward each other, and that as this happened they became more accurate when tested on factual matters. The true advantage a team has is collective wisdom. It is important to realize that this collective wisdom depends on well-executed deliberation and, as important, the group's establishment of a sound method of aggregating its members' opinions.

As mentioned earlier, how companies get their employees to coordinate themselves is an important factor in achieving future goals, usually those of making the future more predictable to ensure greater profitability. Sometimes a top-down model of coordination in larger groups can isolate the leader because it is not easy to monitor everyone's actions. Small groups can monitor each other more easily and therefore are immediately and directly connected to their members' efforts.

The downside to small groups is often a limitation of resources. There is little room for error because benefits of decisions made depend completely on their own efforts. With both positive and negative attributes, there is no organizational model that offers an ideal solution, and there are trade offs. Many try to combine retaining the structure of a large organization, establishing small groups and maintaining access to additional information from outside the business.

Historically companies worked in similar ways in order to be successful. Corporations were generally vertically integrated and hierarchical with many layers of management. These endless layers of management discouraged people from being accountable for their own

***"The Assumption is that society as a whole will end up knowing more if information is diffused as widely as possible, rather than being limited to a few people."***

work. Corporations were also generally centralized. Final decision-making power was traditionally concentrated on very few people or perhaps just the CEO.

According to Surowiecki, collective decision making was too often confused with the quest for a consensus. It is not essential, however, to have a consensus to tap into the wisdom of a crowd. Striving for consensus encourages lowest-common-denominator solutions and inhibits free exchange of conflicting opinions. Top-down and rigidly hierarchical organizations believe they can coordinate by command and control, which ultimately discourages the initiative of employees. Over time, managers become insulated from outside perspectives and lose access to information useful to produce smart solutions to organizational problems.

Today the concentration of power resting in the hands of a few can still lead to success, but with improvements in information technology, information sharing has made the dissemination of data to many employees cost-effective and efficient.

Exchange of real information can, however, be hampered by managers who cannot accept opposition from subordinates. In the effort to avoid conflict, employees may go along with others, restricting their output and preventing good information from emerging.

"Companies need good information in order to make plans for the future," says Surowiecki. "But too often corporations are organized in such a way that good information is precisely what they are unlikely to get."

To avoid this pitfall, corporations should be finding ways to encourage their employees to uncover and act on all possible information. Elimination of rigid management hierarchies would also result in wider distribution of real decision-making power and style.

“...the more important the decision, the more important it is that it not be left in the hands of a single person,” says Surowiecki.

The best collective judgments come from groups where there is a wide range of opinions and diverse sources of information. This prevents similar biases from leading to similar mistakes.

Groups with a mix of ability, engagement, and information can use collective intelligence to solve cognition, coordination, and cooperation problems, and produce superior collective judgments.

In a group situation, it doesn't matter how individually intelligent experts may be. Collectively they need to have enough people with differing attitudes so they are not prone to imitating each other. Rather than finding one expert to make a decision or solve a problem, questions should be directed toward a crowd. Capturing collective wisdom includes the average of a group. It has become increasingly acknowledged that the average opinions of groups are often more accurate than those of most group individuals. The power of collective thinking determines the wisdom of crowds. And it's the crowd that's wiser than society's smartest people.

\* \* \*

*A chapter-by-chapter summary and a bibliography are provided.*

## Remarks

**The Wisdom of Crowds** tries to describe the world as it is, looking at ideas that may not be similar but that are ultimately very much alike. This book is also about the world as it might be. Common thinking suggests that knowledge is concentrated among an elite few, depending on a specific person to make the right decision. And, people often attribute success to the few smart people than the crowd as a whole.

Just as scientific hypotheses are tested and found to be true, many scientists may not find them credible. The same is true when analyzing the ideas about individual

versus collective wisdom. This book describes a variety of instances where theories are questioned, considered, or discounted.

This thought-provoking book establishes a framework around the question of small- and large-group dynamics, and how, under the right circumstances, collective wisdom can have a significant impact on decision making. The author's analysis of behavioral theory is revealed through illuminating anecdotes and case studies ranging from traffic-jam theory to social psychology, to business, to everyday life.

This accessible, engaging, and persuasive discussion of the power of groups and simple behaviors backed by real-world examples and experiments bases its reasoning on complex statistics that involve group thinking and smart decision making. The book addresses the complex and sociological theories that help explain how a group of people can reach accurate decisions.

In advance praise for this book, Malcolm Gladwell, author of *The Tipping Point*, says, “**The Wisdom of Crowds** is dazzling. It is one of those books that will turn your world upside down. It's an adventure story, a manifesto, and the most brilliant book on business, society, and everyday life that I've read in years”.

## Reading Suggestions

### Reading Time: 13-15 Hours, 307 Pages in Book

Over the course of this book, case studies refer to everything from tightly organized groups very much aware of their identities to those with no formal organization at all. These groups may all be different, but they have a common ability to act together to make decisions and solve problems.

Surowiecki's clear writing simplifies complex material and can help anyone improve the way they can make the best decisions and solve problems.

The first half of this book consists mostly of sociological theory, supported by practical examples. Information in this half begins by discussing the wisdom of crowds and then explores the three conditions that make it possible. The second part of the book consists mostly of case studies,

highlighting different ways of organizing people toward a common goal. The examples also point out how and why collective intelligence can either flourish or flounder. The organization of this book is designed so that reading it from the beginning to the end will provide a straightforward and comprehensive understanding of the book's main points.

## CONTENTS

### **PART I**

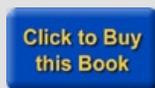
1. The Wisdom of Crowds
2. The Difference Difference Makes: Waggle Dances, the Bay of Pigs, and the Value of Diversity
3. Monkey See, Monkey Do: Imitation, Information Cascades, and Independence
4. Putting the Pieces Together: The CIA, Linux, and the Art of Decentralization
5. Shall We Dance?: Coordination in a Complex World
6. Society Does Exist: Taxes, Tipping, Television, and Trust

### **PART II**

7. Traffic: What We Have Here Is a Failure to Coordinate
  8. Science: Collaboration, Competition, and Reputation
  9. Committees, Juries, and Teams: The Columbia Disaster and How Small Groups Can Be Made to Work
  10. The Company: Meet the New Boss, Same as the Old Boss?
  11. Markets: Beauty Contests, Bowling Alleys, and Stock Prices
  12. Democracy: Dreams of the Common Good
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