*The Wisdom of Crowds*

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*This article is about the book by James Surowiecki. For the collective opinion, see*[*Wisdom of the crowd*](https://en.wikipedia.org/wiki/Wisdom_of_the_crowd)*. For the TV series, see*[*Wisdom of the Crowd*](https://en.wikipedia.org/wiki/Wisdom_of_the_Crowd)*.*

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| ***The Wisdom of Crowds*** | |
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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***, published in 2004, is a book written by [James Surowiecki](https://en.wikipedia.org/wiki/James_Surowiecki) about the aggregation of information in groups, resulting in decisions that, he argues, are often better than could have been made by any single member of the group. The book presents numerous case studies and [anecdotes](https://en.wikipedia.org/wiki/Anecdote) to illustrate its argument, and touches on several fields, primarily [economics](https://en.wikipedia.org/wiki/Economics) and [psychology](https://en.wikipedia.org/wiki/Psychology).

The opening anecdote relates [Francis Galton](https://en.wikipedia.org/wiki/Francis_Galton)'s surprise that the crowd at a county fair accurately guessed the weight of an [ox](https://en.wikipedia.org/wiki/Ox) when their individual guesses were averaged (the average was closer to the ox's true butchered weight than the estimates of most crowd members).[[1]](https://en.wikipedia.org/wiki/The_Wisdom_of_Crowds#cite_note-1)[[2]](https://en.wikipedia.org/wiki/The_Wisdom_of_Crowds#cite_note-2)

The book relates to diverse collections of independently deciding individuals, rather than [crowd psychology](https://en.wikipedia.org/wiki/Crowd_psychology) as traditionally understood. Its central thesis, that a diverse collection of independently deciding individuals is likely to make certain types of decisions and predictions better than individuals or even experts, draws many parallels with statistical [sampling](https://en.wikipedia.org/wiki/Sampling_(statistics)); however, there is little overt discussion of statistics in the book.

Its title is an allusion to [Charles Mackay](https://en.wikipedia.org/wiki/Charles_Mackay_(author))'s [*Extraordinary Popular Delusions and the Madness of Crowds*](https://en.wikipedia.org/wiki/Extraordinary_Popular_Delusions_and_the_Madness_of_Crowds)*,* published in 1841.[[3]](https://en.wikipedia.org/wiki/The_Wisdom_of_Crowds#cite_note-3)



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Types of crowd wisdom[[edit](https://en.wikipedia.org/w/index.php?title=The_Wisdom_of_Crowds&action=edit&section=1)]

Surowiecki breaks down the advantages he sees in disorganized decisions into three main types, which he classifies as

**Cognition**

Thinking and information processing, such as [market](https://en.wikipedia.org/wiki/Market_(economics)) judgment, which he argues can be *much* faster, more reliable, and less subject to political forces than the deliberations of experts or expert committees.

**Coordination**

Coordination of behavior includes optimizing the utilization of a popular bar and not colliding in moving traffic flows. The book is replete with examples from [experimental economics](https://en.wikipedia.org/wiki/Experimental_economics), but this section relies more on [naturally occurring experiments](https://en.wikipedia.org/wiki/Natural_experiment) such as pedestrians optimizing the [pavement](https://en.wikipedia.org/wiki/Sidewalk) flow or the extent of crowding in popular restaurants. He examines how *common understanding* within a culture allows remarkably accurate judgments about specific reactions of other members of the [culture](https://en.wikipedia.org/wiki/Culture).

**Cooperation**

How groups of people can form networks of [trust](https://en.wikipedia.org/wiki/Trust_(sociology)) without a central system controlling their behavior or directly enforcing their compliance. This section is especially pro [free market](https://en.wikipedia.org/wiki/Free_market).

Five elements required to form a wise crowd[[edit](https://en.wikipedia.org/w/index.php?title=The_Wisdom_of_Crowds&action=edit&section=2)]

Not all crowds (groups) are wise. Consider, for example, mobs or crazed investors in a [stock market bubble](https://en.wikipedia.org/wiki/Stock_market_bubble). According to Surowiecki, these key criteria separate wise crowds from irrational ones:

|  |  |
| --- | --- |
| **Criteria** | **Description** |
| Diversity of [opinion](https://en.wikipedia.org/wiki/Opinion) | Each person should have private information even if it's just an [eccentric](https://en.wikipedia.org/wiki/Eccentricity_(behavior)) interpretation of the known facts. (Chapter 2) |
| Independence | People's opinions aren't determined by the opinions of those around them. (Chapter 3) |
| Decentralization | People are able to specialize and draw on local knowledge. (Chapter 4) |
| Aggregation | Some mechanism exists for turning private judgements into a collective [decision](https://en.wikipedia.org/wiki/Decision_making). (Chapter 5) |
| Trust | Each person trusts the collective group to be fair. (Chapter 6) |

Based on Surowiecki's book, Oinas-Kukkonen[[4]](https://en.wikipedia.org/wiki/The_Wisdom_of_Crowds#cite_note-4) captures the wisdom of crowds approach with the following eight conjectures:

1. It is possible to describe how people in a group think as a whole.
2. In some cases, groups are remarkably intelligent and are often smarter than the smartest people in them.
3. The three conditions for a group to be intelligent are diversity, independence, and decentralization.
4. The best decisions are a product of disagreement and contest.
5. Too much communication can make the group as a whole less intelligent.
6. Information aggregation functionality is needed.
7. The right information needs to be delivered to the right people in the right place, at the right time, and in the right way.
8. There is no need to chase the expert.

Failures of crowd intelligence[[edit](https://en.wikipedia.org/w/index.php?title=The_Wisdom_of_Crowds&action=edit&section=3)]

Surowiecki studies situations (such as [rational bubbles](https://en.wikipedia.org/wiki/Stock_market_bubble)) in which the crowd produces very bad judgment, and argues that in these types of situations their cognition or cooperation failed because (in one way or another) the members of the crowd were too conscious of the opinions of others and began to emulate each other and conform rather than think differently. Although he gives experimental details of crowds collectively swayed by a persuasive speaker, he says that the main reason that groups of people intellectually conform is that the system for making decisions has a systematic flaw.

Surowiecki asserts that what happens when the [decision making](https://en.wikipedia.org/wiki/Decision_making) environment is not set up to accept the crowd, is that the benefits of individual judgments and private [information](https://en.wikipedia.org/wiki/Information) are lost and that the crowd can only do as well as its smartest member, rather than perform better (as he shows is otherwise possible).[[5]](https://en.wikipedia.org/wiki/The_Wisdom_of_Crowds#cite_note-WOC-R-01-5) Detailed case histories of such failures include:

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| --- | --- |
| **Extreme** | **Description** |
| Homogeneity | Surowiecki stresses the need for diversity within a crowd to ensure enough variance in approach, thought process, and private information. |
| Centralization | The [2003 Space Shuttle *Columbia* disaster](https://en.wikipedia.org/wiki/Space_Shuttle_Columbia_disaster), which he blames on a hierarchical [NASA](https://en.wikipedia.org/wiki/NASA) management bureaucracy that was totally closed to the wisdom of low-level engineers. |
| Division | The [United States Intelligence Community](https://en.wikipedia.org/wiki/United_States_Intelligence_Community), the [*9/11 Commission Report*](https://en.wikipedia.org/wiki/9/11_Commission_Report) claims, failed to prevent the [11 September 2001 attacks](https://en.wikipedia.org/wiki/11_September_2001_attacks) partly because information held by one subdivision was not accessible by another. Surowiecki's argument is that crowds (of [intelligence](https://en.wikipedia.org/wiki/Intelligence_(information_gathering)) [analysts](https://en.wikipedia.org/wiki/Intelligence_analysis) in this case) work best when they choose for themselves what to work on and what information they need. (He cites the [SARS](https://en.wikipedia.org/wiki/SARS)-virus isolation as an example in which the free flow of data enabled laboratories around the world to coordinate research without a central point of control.)  The [Office of the Director of National Intelligence](https://en.wikipedia.org/wiki/Office_of_the_Director_of_National_Intelligence) and the [CIA](https://en.wikipedia.org/wiki/CIA) have created a [Wikipedia](https://en.wikipedia.org/wiki/Wikipedia)-style information sharing network called [Intellipedia](https://en.wikipedia.org/wiki/Intellipedia) that will help the free flow of information to prevent such failures again. |
| Imitation | Where choices are visible and made in sequence, an "[information cascade](https://en.wikipedia.org/wiki/Information_cascade)"[[6]](https://en.wikipedia.org/wiki/The_Wisdom_of_Crowds#cite_note-6) can form in which only the first few decision makers gain anything by contemplating the choices available: once past decisions have become sufficiently informative, it pays for later decision makers to simply copy those around them. This can lead to fragile social outcomes. |
| Emotionality | Emotional factors, such as a feeling of belonging, can lead to [peer pressure](https://en.wikipedia.org/wiki/Peer_pressure), [herd instinct](https://en.wikipedia.org/wiki/Herd_instinct), and in extreme cases [collective hysteria](https://en.wikipedia.org/wiki/Collective_hysteria). |

Connection[[edit](https://en.wikipedia.org/w/index.php?title=The_Wisdom_of_Crowds&action=edit&section=4)]

At the 2005 [O'Reilly](https://en.wikipedia.org/wiki/O%27Reilly_Media) [Emerging Technology](https://en.wikipedia.org/wiki/Emerging_technology) Conference Surowiecki presented a session entitled *Independent Individuals and Wise Crowds*, or*Is It Possible to Be Too Connected?*[[7]](https://en.wikipedia.org/wiki/The_Wisdom_of_Crowds#cite_note-7)

The question for all of us is, how can you have interaction without [information cascades](https://en.wikipedia.org/wiki/Information_cascade), without losing the independence that's such a key factor in group intelligence?

He recommends:

* Keep your ties loose.
* Keep yourself exposed to as many diverse sources of information as possible.
* Make groups that range across hierarchies.

[Tim O'Reilly](https://en.wikipedia.org/wiki/Tim_O%27Reilly)[[8]](https://en.wikipedia.org/wiki/The_Wisdom_of_Crowds#cite_note-8) and others also discuss the success of [Google](https://en.wikipedia.org/wiki/Google), [wikis](https://en.wikipedia.org/wiki/Wiki), [blogging](https://en.wikipedia.org/wiki/Blog), and [Web 2.0](https://en.wikipedia.org/wiki/Web_2.0) in the context of the wisdom of crowds.

Applications[[edit](https://en.wikipedia.org/w/index.php?title=The_Wisdom_of_Crowds&action=edit&section=5)]

Surowiecki is a very strong advocate of the benefits of decision markets and regrets the failure of [DARPA](https://en.wikipedia.org/wiki/DARPA)'s controversial [Policy Analysis Market](https://en.wikipedia.org/wiki/Policy_Analysis_Market) to get off the ground. He points to the success of public and internal corporate markets as evidence that a collection of people with varying points of view but the same motivation (to make a good guess) can produce an accurate aggregate prediction. According to Surowiecki, the aggregate predictions have been shown to be more reliable than the output of any [think tank](https://en.wikipedia.org/wiki/Think_tank). He advocates extensions of the existing futures markets even into areas such as [terrorist](https://en.wikipedia.org/wiki/Terrorism) activity and prediction markets within companies.

To illustrate this thesis, he says that his publisher can publish a more compelling output by relying on individual authors under one-off contracts bringing book ideas to them. In this way, they are able to tap into the wisdom of a much larger crowd than would be possible with an in-house writing team.

[Will Hutton](https://en.wikipedia.org/wiki/Will_Hutton) has argued that Surowiecki's analysis applies to value judgments as well as factual issues, with crowd decisions that "emerge of our own aggregated free will [being] astonishingly... decent". He concludes that "There's no better case for pluralism, diversity and democracy, along with a genuinely independent press."[[9]](https://en.wikipedia.org/wiki/The_Wisdom_of_Crowds#cite_note-9)

Applications of the wisdom-of-crowds effect exist in three general categories: [Prediction markets](https://en.wikipedia.org/wiki/Prediction_market), [Delphi methods](https://en.wikipedia.org/wiki/Delphi_method), and extensions of the [traditional opinion poll](https://en.wikipedia.org/wiki/Psephology).

**Prediction markets**[[edit](https://en.wikipedia.org/w/index.php?title=The_Wisdom_of_Crowds&action=edit&section=6)]

*Main article:*[*Prediction market*](https://en.wikipedia.org/wiki/Prediction_market)

The most common application is the prediction market, a speculative or betting market created to make verifiable predictions. Surowiecki discusses the success of prediction markets. Similar to [Delphi methods](https://en.wikipedia.org/wiki/Delphi_method) but unlike [opinion polls](https://en.wikipedia.org/wiki/Opinion_poll), prediction (information) markets ask questions like, "Who do you think will win the election?" and predict outcomes rather well. Answers to the question, "Who will you vote for?" are not as predictive.[[10]](https://en.wikipedia.org/wiki/The_Wisdom_of_Crowds#cite_note-10)

Assets are cash values tied to specific outcomes (e.g., Candidate X will win the election) or parameters (e.g., Next quarter's revenue). The current market prices are interpreted as predictions of the probability of the event or the expected value of the parameter. [Betfair](https://en.wikipedia.org/wiki/Betfair) is the world's biggest prediction exchange, with around $28 billion traded in 2007. [NewsFutures](https://en.wikipedia.org/wiki/NewsFutures) is an international prediction market that generates consensus probabilities for news events. [Intrade.com](https://en.wikipedia.org/wiki/Intrade.com), which operated a person to person prediction market based in Dublin Ireland achieved very high media attention in 2012 related to the US Presidential Elections, with more than 1.5 million search references to Intrade and Intrade data. Several companies now offer enterprise class prediction marketplaces to predict project completion dates, sales, or the market potential for new ideas.[[*citation needed*](https://en.wikipedia.org/wiki/Wikipedia:Citation_needed)] A number of Web-based quasi-prediction marketplace companies have sprung up to offer predictions primarily on sporting events and stock markets but also on other topics. The principle of the prediction market is also used in [project management software](https://en.wikipedia.org/wiki/Project_management_software) to let team members predict a project's "real" deadline and budget.

**Delphi methods**[[edit](https://en.wikipedia.org/w/index.php?title=The_Wisdom_of_Crowds&action=edit&section=7)]

*Main article:*[*Delphi method*](https://en.wikipedia.org/wiki/Delphi_method)

The Delphi method is a systematic, interactive [forecasting](https://en.wikipedia.org/wiki/Forecasting) method which relies on a panel of independent experts. The carefully selected experts answer questionnaires in two or more rounds. After each round, a facilitator provides an anonymous summary of the experts' forecasts from the previous round as well as the reasons they provided for their judgments. Thus, participants are encouraged to revise their earlier answers in light of the replies of other members of the group. It is believed that during this process the range of the answers will decrease and the group will converge towards the "correct" answer. Many of the consensus forecasts have proven to be more accurate than forecasts made by individuals.

**Human Swarming**[[edit](https://en.wikipedia.org/w/index.php?title=The_Wisdom_of_Crowds&action=edit&section=8)]

Designed as an optimized method for unleashing the wisdom of crowds, this approach implements real-time feedback loops around synchronous groups of users with the goal of achieving more accurate insights from fewer numbers of users. Human Swarming (sometimes referred to as Social Swarming) is modeled after biological processes in birds, fish, and insects, and is enabled among networked users by using mediating software such as the [UNU](http://www.unu.ai/) collective intelligence platform. As published by [Rosenberg](https://en.wikipedia.org/wiki/Louis_B._Rosenberg) (2015), such real-time control systems enable groups of human participants to behave as a unified [collective intelligence](https://en.wikipedia.org/wiki/Collective_intelligence).[[11]](https://en.wikipedia.org/wiki/The_Wisdom_of_Crowds#cite_note-11) When logged into the UNU platform, for example, groups of distributed users can collectively answer questions, generate ideas, and make predictions as a singular emergent entity.[[12]](https://en.wikipedia.org/wiki/The_Wisdom_of_Crowds#cite_note-12)[[13]](https://en.wikipedia.org/wiki/The_Wisdom_of_Crowds#cite_note-13) Early testing shows that human swarms can out-predict individuals across a variety of real-world projections.[[14]](https://en.wikipedia.org/wiki/The_Wisdom_of_Crowds#cite_note-14)[[15]](https://en.wikipedia.org/wiki/The_Wisdom_of_Crowds#cite_note-15)

In popular culture[[edit](https://en.wikipedia.org/w/index.php?title=The_Wisdom_of_Crowds&action=edit&section=9)]

[Hugo-winning](https://en.wikipedia.org/wiki/Hugo_Award_for_Best_Novel) writer [John Brunner](https://en.wikipedia.org/wiki/John_Brunner_(novelist))'s 1975 [science fiction](https://en.wikipedia.org/wiki/Science_fiction) novel [*The Shockwave Rider*](https://en.wikipedia.org/wiki/The_Shockwave_Rider) includes an elaborate planet-wide information futures and [betting pool](https://en.wikipedia.org/wiki/Betting_pool) called "Delphi" based on the Delphi method.

Illusionist [Derren Brown](https://en.wikipedia.org/wiki/Derren_Brown) claimed to use the 'Wisdom of Crowds' concept to explain how he correctly predicted the UK National Lottery results in September 2009. His explanation was met with criticism on-line, by people who argued that the concept was misapplied.[[16]](https://en.wikipedia.org/wiki/The_Wisdom_of_Crowds#cite_note-16) The methodology employed was too, flawed; the sample of people, couldn't have been totally objective and free in thought, because they were gathered multiple times and socialised with each other too much; a condition Surowiecki tells us is corrosive to pure independence and the diversity of mind required (Surowiecki 2004:38). Groups thus fall into [groupthink](https://en.wikipedia.org/wiki/Groupthink) where they increasingly make decisions based on influence of each other and are thus *less* accurate. However, other commentators have suggested that, given the entertainment nature of the show, Brown's misapplication of the theory may have been a deliberate smokescreen to conceal his true method.[[17]](https://en.wikipedia.org/wiki/The_Wisdom_of_Crowds#cite_note-bbctrick-17)[[18]](https://en.wikipedia.org/wiki/The_Wisdom_of_Crowds#cite_note-18)

This was also shown in the television series East of Eden where a social network of roughly 10,000 individuals came up with ideas to stop missiles in a very short span of time.[[*citation needed*](https://en.wikipedia.org/wiki/Wikipedia:Citation_needed)]

*Wisdom of Crowds* would have a significant influence on the naming of the crowdsourcing creative company [Tongal](https://en.wikipedia.org/wiki/Tongal), which is an anagram for Galton, the last name of the social-scientist highlighted in the introduction to Surowiecki's book. Sir Francis Galton recognized the ability of a crowd's averaged weight-guesses for oxen to exceed the accuracy of experts.[[19]](https://en.wikipedia.org/wiki/The_Wisdom_of_Crowds#cite_note-fjibloomberg-19)

Criticism[[edit](https://en.wikipedia.org/w/index.php?title=The_Wisdom_of_Crowds&action=edit&section=10)]

In his book *Embracing the Wide Sky*, [Daniel Tammet](https://en.wikipedia.org/wiki/Daniel_Tammet) finds fault with this notion. Tammet points out the potential for problems in systems which have poorly defined means of pooling knowledge: Subject matter experts can be overruled and even wrongly punished by less knowledgeable persons in systems like Wikipedia, citing a case of this on Wikipedia. Furthermore, Tammet mentions the assessment of the [accuracy of Wikipedia](https://en.wikipedia.org/wiki/Reliability_of_Wikipedia) as described in a study mentioned in *Nature* in 2005, outlining several flaws in the study's methodology which included that the study made no distinction between minor errors and large errors.

Tammet also cites the [Kasparov versus the World](https://en.wikipedia.org/wiki/Kasparov_versus_the_World), an online competition that pitted the brainpower of tens of thousands of online chess players choosing moves in a match against [Garry Kasparov](https://en.wikipedia.org/wiki/Garry_Kasparov), which was won by Kasparov, not the "crowd". Although Kasparov did say, "It is the greatest game in the history of chess. The sheer number of ideas, the complexity, and the contribution it has made to chess make it the most important game ever played."

In his book [*You Are Not a Gadget*](https://en.wikipedia.org/wiki/You_Are_Not_a_Gadget), [Jaron Lanier](https://en.wikipedia.org/wiki/Jaron_Lanier) argues that crowd wisdom is best suited for problems that involve optimization, but ill-suited for problems that require creativity or innovation. In the online article [*Digital Maoism*](https://en.wikipedia.org/wiki/Digital_Maoism), Lanier argues that the collective is more likely to be smart only when

1. it isn't defining its own questions,

2. the goodness of an answer can be evaluated by a simple result (such as a single numeric value), and

3. the information system which informs the collective is filtered by a quality control mechanism that relies on individuals to a high degree.

Lanier argues that only under those circumstances can a collective be smarter than a person. If any of these conditions are broken, the collective becomes unreliable or worse.