

## Wisdom of the Crowd

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**Abstract:** *The wisdom of the crowd assumes that a crowd or group of people is remarkably more intelligent and smarter than the smartest individual among them. This operates in the world in many different guises. The wisdom-of-crowd phenomenon has been replicated across a number of disciplines. It has become increasingly relevant with the rapid spread of the Internet and social networks. This paper provides a brief introduction to the wisdom of the crowd.*

**Keywords:** crowd wisdom, wisdom of the crowd, crowd consensus, crowd sourcing, diversity of opinions, collective knowledge.

### I. Introduction

Total words should not Business executives routinely and frequently need to make tough predictions. Making the correct decisions may result in gaining millions of dollars of revenue. Since decision making is the pillar of management, most organizations employ gurus to make complex decision. With the prevalence of Internet access, more and more executives today exploit the Internet and use data to improve the prediction accuracy [i].

In his book [ii], James Surowiecki introduced some principles that can help companies and organizations improve decision making and managerial effectiveness. He argued that the collective intelligence of the crowd or group is usually better than that of an individual. The wisdom of the crowd (WOC) assumes that a collection of individuals will make better decisions than individuals. In other words, under normal circumstances, the average of estimates by many individuals can be close to the truth and provide the true value than individual estimates. The collective predictions of a crowd or group have been shown to be more reliable and accurate than the output of any expert or guru. The brainpower of the many is always superior to the thinking of the few. This implies that chasing the expert is a costly mistake.

### II. Characteristics of WOC

What characterizes collective intelligence? A group works because of diversity, independence, decentralization, and aggregation [iii].

**Diversity:** Diversity of opinions is important in decision making and problem solving. It adds perspectives that would otherwise be missing. It can increase intelligence at a collective level.

- **Independence:** This allows individuals to process and analyze information on their own. If individual judgments are unbiased and independent, their errors will cancel out by averaging. The

collective knowledge of a diverse and independent group can be harnessed by voting. Every individual is influenced by public opinion and peer pressure, but independence is hard to quantify.

**Decentralization:** This ensures that power does not reside in one individual or location. Important decision should not be made by an omnipotent guru. Collaboration is an example of how the power of the crowd is stronger than that of an individual.

**Aggregation:** Aggregation of different opinions needs to be dealt with whenever WOC is applied to a project. This brings together the effort of a group of self-governing individuals. It helps them reach a collective judgment.

The wisdom of the group is far from being perfect. In some cases, crowd may not be wise. Big crowd may be inefficient and unmanageable.

### III. Applications

In 1906, the British statistician Francis Galton asked 800 villagers to guess the weight of an about-to-be slaughtered ox at a village fair. He observed that the median of the guesses, 1,207 pounds, was, remarkably, within 1% of the actual weight of the ox [iv]. The phenomenon regained interest in 2004 with James Surowiecki's *The Wisdom of Crowds* [ii]. The Wikipedia project (which started in 2001) is often regarded as a good example of the wisdom of the crowds. Everyone is asked to contribute to an online encyclopedia [v].

The wisdom of the crowds can be used in many prediction strategies such as prediction markets, economic forecasts, and risk assessments. Applications of the wisdom of crowds are currently found in three major categories: prediction (such election and stock market), crowdsourcing, and crowdfunding; all supported by social networks.

WOC has been introduced and used in many fields of life such as education, business, economics, stock markets, movie industry, online games, language processing, clinical practice, political election, and academic peer review. We will briefly consider some of these.

- **Prediction Markets:** Group decision making can address some complex problems such as predicting markets, which may involve financial risk. By allowing anonymity, prediction markets can reduce the effects of power relationships and social interactions. Unlike opinion polls, prediction markets can forecast outcomes very accurately [i].
- **Education:** The wisdom of crowds can be used for creating new educational approaches and teaching techniques. Collaboration of crowds can be used in many ways, including writing exams, classroom interactions, student evaluation, etc. Strong lesson

plans and effective learning units can be developed or improved following the wisdom of crowds [vi].

- *Financial Trading*: Social mechanisms play a crucial role in a financial system. It has been observed that social trades outperform individual trades. Social trading places one in a better position for making profits than individual trading [vii].
- *Government*: The government can harness the wisdom of the crowd so that the citizens can contribute to the decision making process of the government. The collective wisdom of the people is much greater than that of a bunch of politicians [viii].
- *Election*: WOC is also applied in electoral voting. Because of the wisdom of the crowd, it has been observed that citizens' forecast always works. Regardless of which voting method is used, groups are better than individuals in forecasting election outcome [ix, x].

*Peer Review*: It would not be possible to judge the quality of a piece of research work without peer review. Citations of a publication (in the form of cited references) are based on the opinions of previous researchers and measure an aspect of scientific quality [xi].

#### IV. Conclusion

Crowd wisdom uses the group as a decision-making instrument. It has been found to be best suited for problems involving political and economic prediction or optimization, but not suited for problems that require creativity. New technologies allow us to harness that wisdom like never before. The Internet, in particular, has become a critical tool in implementing WOC.

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