How to Make Better Forecasts and Decisions: Avoid Face-to-face Meetings

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Abstract
When financial columnist James Surowiecki wrote *The Wisdom of Crowds*, he wished to explain the successes and failures of markets (an example of a "crowd") and to understand why the average opinion of a crowd is frequently more accurate than the opinions of most of its individual members. In this expanded review of the book, Scott Armstrong asks a question of immediate relevance to forecasters: Are the traditional face-to-face meetings an effective way to elicit forecasts from forecast crowds (i.e. teams)? Armstrong doesn't believe so. Quite the contrary, he explains why he considers face-to-face meetings a detriment to good forecasting practice, and he proposes several alternatives that have been tried successfully.

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SHOULD THE FORECASTING PROCESS ELIMINATE FACE-TO-FACE MEETINGS?

HOW TO MAKE BETTER FORECASTS AND DECISIONS: AVOID FACE-TO-FACE MEETINGS by J. Scott Armstrong

PREVIEW: When financial columnist James Surowiecki wrote *The Wisdom of Crowds*, he wished to explain the successes and failures of markets (an example of a “crowd”) and to understand why the average opinion of a crowd is frequently more accurate than the opinions of most of its individual members. In this expanded review of the book, Scott Armstrong asks a question of immediate relevance to forecasters: Are the traditional face-to-face meetings an effective way to elicit forecasts from forecast crowds (i.e. teams)? Armstrong doesn’t believe so. Quite the contrary, he explains why he considers face-to-face meetings a detriment to good forecasting practice, and he proposes several alternatives that have been tried successfully.

*J. Scott Armstrong, Professor of Marketing at the Wharton School, University of Pennsylvania, was a founder of the *Journal of Forecasting*, *International Journal of Forecasting*, and *International Symposium on Forecasting*. He is the creator of forecastingprinciples.com, and editor of *Principles of Forecasting* (Kluwer 2001), an evidence-based summary of knowledge on forecasting. In 1996, he was selected as one of the first six Honorary Fellows by the International Institute of Forecasters. Along with Philip Kotler and Gerald Zaltman, he was named the Society of Marketing Advances’ Distinguished Marketing Scholar of 2000. For the past 13 years, he has been writing *Persuasive Advertising: An Evidence-Based Approach*, which he forecasts will appear in 2007.*

- In *The Wisdom of Crowds*, Surowiecki claims that the collective thinking of many individuals, acting alone, contains wisdom. He concludes that traditional face-to-face meetings, which prevent forecasters from acting alone, yield poor decisions and inaccurate forecasts.

- We do have guidelines on how to run meetings effectively, but it is rare to find group leaders who use them. Yet traditional meetings persist partly because people falsely believe that they are necessary for aggregating opinions.

- There are better alternatives, including Markets, Nominal Groups, and Virtual Teams. I describe how these work and report the evidence on their value.

- Some argue that face-to-face meetings are needed in certain contexts, such as when it is important to gain commitment to decisions, but they have no evidence to back up these assertions.
Introduction

Every week I hear people complain about meetings. What would happen to your organization if it became difficult to have face-to-face meetings? To this end, some organizations hold meetings in rooms without chairs. Some impose limits on the length of the session or the number of people who attend.

But what if an organization went further and penalized people for spending time in meetings? Or required that the meeting have a clear-cut payoff? As part of assessing the results, management could provide a visible taxi-style meter that uses attendees’ billing rates to show the meeting’s costs. Or what if management abolished face-to-face meetings entirely?

The Wisdom of Crowds

I have been thinking about the need for face-to-face meetings for some time now. Recently, I have been spurred on by The Wisdom of Crowds (Surowiecki, 2004), a delightful yet exasperating book. It is delightful because the writing is so clever and contains descriptions of interesting research studies, many of which were new to me; it is exasperating because it is not well organized, but the writing is so clever that one may not notice the gaps in logic. Nevertheless, the book’s major conclusion is important:

Traditional meetings yield poor decisions and inaccurate forecasts.

Dave Barry summarized this conclusion in fewer words: “If you had to identify, in one word, the reason that the human race has not achieved, and never will achieve, its full potential, that word would be meetings.” Apparently Barry’s quote hit a nerve; a Google search for his conclusion turned up almost 600 relevant sites (out of 10,000 total sites) in July 2006.

The term “crowds” in the title of Surowiecki’s Wisdom of Crowds is unfortunate. He claims that the collective thinking of many individuals, when acting alone, contains wisdom. Crowds act together, and they do not have wisdom. A more descriptive title would have been “The Superiority of Combined Independent Anonymous Judgments.”

The book has been widely reviewed on Amazon, with comments from over 200 readers who have provided a bimodal ratings distribution. The negative reviewers fell into two classes: those who were upset at the basic conclusions and those who were upset at the gaps in logic. The experts priced this book at $25, but the crowd’s price for a new copy in May 2006 was $10. If you enjoy books like Who Moved my Cheese? and Jack Welch’s Winning, you are unlikely to enjoy The Wisdom of Crowds. But it will make you reconsider your assumptions about meetings. At least it had that strong effect on me.

Face-to-face Meetings Could Be Effective

We do have guidelines on how to run meetings effectively. This was well summarized over four decades ago by Norman R. F. Maier. His research showed how group leaders could make effective use of people’s information. His book (Maier, 1963) provides evidence-based principles for running meetings. Exhibit 1 provides a summary of guidelines that draws heavily on Maier’s research.

Unfortunately, it is rare to find group leaders who use Maier’s advice. In my 46-year career, I can remember only

<table>
<thead>
<tr>
<th>GUIDELINES FOR PROBLEM-SOLVING MEETINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Use time budgets. Allocate time to discuss various topics and provide ample slack time.</td>
</tr>
<tr>
<td>• Be problem centered. Keep your discussion focused on a problem. Avoid looking for excuses or seeking to blame others.</td>
</tr>
<tr>
<td>• Record suggestions. Keep track of all suggestions for solving a problem or making sense of an issue so that each suggestion may be explored fully.</td>
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<tr>
<td>• Explore. Explore a number of suggestions for addressing an issue. Probing and evaluative questions can then be asked. How would that strategy work out? Do I understand the issue, or do I need to search out more information? Am I mistaken in my assumptions about the issue? What are the advantages or disadvantages of each proposal? Is there a way to combine suggestions to generate a better solution?</td>
</tr>
<tr>
<td>• Protect people. Protect individuals from personal attacks and criticism, especially if they present minority or divergent viewpoints. Avoid saying, “That’s a bad idea.”</td>
</tr>
<tr>
<td>• Understand and resolve differences. Once ideas have been generated, encourage dissent. Understand differences of opinions within the group and attempt to resolve them.</td>
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</tbody>
</table>
a handful of business students, academic administrators, or business executives who have run meetings effectively. Productive meetings are possible but rare.

Why do people persist in holding face-to-face meetings? First, we are social animals; many of us enjoy the interaction with others in a face-to-face setting. Second, managers like the control that meetings give them over others; they can see that others are coming together at their commands. Third, people believe that meetings are effective; managers believe that they are doing something useful when they meet (although they often do not have the same opinion about meetings among their blue-collar workers).

A fourth reason is that people falsely believe that by merely aggregating opinions without a face-to-face meeting, one would get a decision or forecast that is only average. The scientist Sir Francis Galton dispelled such a belief in 1878. He showed that by averaging portraits of women, the resulting portrait was judged not average looking but rather more beautiful than all the component portraits. Larrick and Soll (2006), in a clever series of experiments, showed that among highly intelligent subjects (MBA students at INSEAD), most did not understand that the error of the group-average judgment is almost always smaller than the error of the average person in a group. More surprising to them was that the group-average judgment is sometimes better than the best judgment.

**The Case Against Face-to-Face Meetings**

Face-to-face meetings are expensive to schedule and run. They might involve travel costs or come at inconvenient times, when attendees are busy or tired. Time is wasted when people come late, talk about irrelevant topics, or leave early.

Meetings are also subject to many types of biases. How loudly do people talk? How deep are their voices? What do the people look like? How is the furniture arranged? How are people dressed? What is each person’s body posture? Who has the power? How does the group leader guide the meeting? Does the group nurture dissent? Do people have preconceived positions on the topic at hand?

Some attendees are so concerned about what they want to say that they do not listen to what others are saying. Some are so intent on listening that they have no time to think. Some feel the need to restate their positions. Few people take notes; therefore they soon forget what happened in the meeting and are unable to develop useful action plans.

Not surprising then is the prevalence of studies showing that, compared with other methods of aggregating opinions (such as using the average of a set of independent judgments), the simple act of meeting face-to-face harms forecasting and decision making, although the people involved in these experiments typically do not believe the results.

Interestingly, the findings for forecasting and decision making are similar to those studies that involve groups generating creative ideas. As shown in the research review by Gallupe et al. (1991), individuals produce more creative suggestions than groups do, even if the groups are well run.

There are two conditions under which independent judgments should be combined. First, the experts must have useful information about the topic of interest; combining ignorance does not lead to wisdom. Second, participants must represent diversity of knowledge. The key word is “knowledge.” For example, it makes little sense to include experts because of differences in looks, heights, weights, religions, races, genders, and so on. In fact, Stewart’s (2006) meta-analysis of 26 tests found a small negative relation between team members’ demographic heterogeneity and group performance.
Decision making and forecasting can be improved to the extent that
• people state opinions independently, and
• opinions are aggregated objectively, using a predetermined mechanical scheme.

The implication of the above research is that managers need to be creative in finding ways to use the knowledge effectively in a group while preventing members from meeting face-to-face. This will improve forecasting and decision making. It will also save time and money. Fortunately, modern technology has provided useful alternatives.

**Alternatives to Face-to-Face Meetings:**

**Markets, Nominal Groups, and Virtual Teams**

There are a number of ways to implement alternatives to face-to-face meetings. I will discuss three: markets, nominal groups, and virtual teams.

**Markets (Prediction Markets, Information Markets, or Betting Markets)**

Experts and nonexperts alike bet on outcomes. These markets are common in finance and sporting events. People receive feedback only through prices and volume of trading.

In *The Wisdom of Crowds*, Surowiecki describes the use of markets for prediction. Their superiority has been shown by studies in financial markets since the 1920s. Although investors do not meet, they observe the outcomes of actions by others and draw on related information to make their decisions.

Outside of finance and sports, there have been few comparative studies on the value of prediction markets. The future looks promising, however. Surowiecki reports that some companies are using prediction markets for new-product sales. Since predictions for such problems are typically made in traditional meetings, I would expect prediction markets to produce more accurate forecasts.

I hope that *The Wisdom of Crowds* will lead some companies to consider the use of prediction markets. Technology should not pose a barrier. Some organizations will delegate a person to set up a betting market for sporting events.

**Nominal Groups (Including Delphi)**

In nominal groups, judgments are collected from a group of experts and are summarized by a group facilitator.

Surowiecki relied on suggestive and interesting (but indirect) evidence on the value of nominal groups. He failed to effectively use the wisdom of the crowds of forecasting researchers in his search for evidence on the value of simply combining judgments. In Armstrong (2001), I summarized 11 comparative empirical studies on the value of combining judgmental forecasts, which, to my knowledge, was an exhaustive listing of such studies. The median error of the group average in these studies was 12.2% less than that of the average expert’s error.

The Delphi technique goes beyond nominal groups. It involves an anonymous collection of expert judgments by mail, Internet, or written responses. Feedback on the responses is provided to the experts, who then repeat this exercise for at least two rounds.

Rowe and Wright (2001) found that Delphi improved accuracy over traditional groups in five of the studies, harmed accuracy in one, and was inconclusive in two. Using an alternative benchmark, they found that it was more accurate than one-round expert surveys for 12 of 16 studies, with two ties and two cases in which Delphi was less accurate. For these 24 comparisons, Delphi improved accuracy in 71% of the cases and harmed it in 12%. I was unable to find any published studies that compared prediction markets with Delphi.

Freeware for Delphi is provided at forecastingprinciples.com. Usage of this freeware has increased substantially in recent years.

**Virtual Teams**

Virtual teams, enabled largely by the Internet, have several advantages. They allow for a freer flow of information than do markets or nominal groups. Members of virtual teams can use mail, e-mail, and Web sites. Phone calls are used only in emergencies, and conference calls are not used. These procedures remove some biases (for example, body language and modes of speech). They allow time for people to think before responding, and they provide a record of what was accomplished.

Despite the growing popularity of virtual teams, I was unable to find comparative studies on the value of these groups. However, based on related research summarized by Surowiecki, I expect that virtual teams would be much more effective than face-to-face groups, but less effective than prediction markets and Delphi. Consistent with this,
Ganesan, Malter, and Rindfleisch (2005), in a study on new-product development, found that e-mail was superior to face-to-face meetings with respect to new-product creativity and development speed.

**A Prediction Case**

Can you predict the results of the following experiment? To solicit useful feedback on research studies, a group of 160 experts was provided with research papers, one paper per expert. The experts were randomly divided into two treatment groups. In group A, ten sets of eight experts participated in 80-minute meetings, where authors of the ten studies presented their papers and addressed questions. (Each group heard only one study.) In group B, each subject in the nominal groups of eight experts worked alone and without interruption for 80 minutes on one of the ten papers. These experts wrote comments in the margins of the papers. In effect, the intent was to have equal amounts of time spent on each paper. Which treatment, A or B, produced more useful suggestions? In which treatment did the authors of the study use the suggestions more effectively?

Unfortunately, there is little research to establish which of the mechanical methods of combining expert judgments are most creative, most accurate, least expensive, and most acceptable. For example, I have found that no published empirical comparisons have been made among prediction markets, Delphi, and virtual teams. In fact, the above study has not been conducted. Based on related research, however, I assume that Treatment B (nominal groups) would be superior to Treatment A (traditional groups) in terms of producing useful, accurate, and creative ideas. I also assume that, in Treatment B, the acceptance rate by the authors of the papers would be much higher.

**Are Face-to-Face Meetings Useful Under Some Conditions?**

The evidence against face-to-face meetings is extensive, and I have made no attempt to provide a complete summary here. I did, however, attempt to contact all authors whose work I cite in order to ensure that I have referenced the information properly. My primary concern is to find evidence that favors face-to-face meetings.

Are there conditions under which meetings contribute to forecasting or decision making? I speculate on three possibilities. The first is when the experts cannot read. The second is when very small groups, perhaps two people, may be able to work effectively. The third is when it is important to gain commitment to decisions. With respect to the third condition, one must be concerned not only with the quality of a decision but also with its acceptability. Would the feeling of involvement in a decision more likely lead to acceptance when the group has made a forecast or decision?

Some papers have suggested that meetings are useful when the situation is complex and the solutions are not obvious. While this suggestion has some intuitive appeal, tests of this concept have failed, according to Dennis and Kinney (1998). I doubt that such meetings are effective, given the evidence that (1) people can understand complex material better and faster when it is written (Chaiken & Eagly, 1976); (2) people in groups are poor at generating creative approaches; (3) many participants have difficulty performing complex analyses in the presence of others; and (4) groups are not tolerant of creative solutions.

Although I have circulated my paper for comments from e-mail lists and from other researchers, I have been unable to obtain evidence to support the use of face-to-face groups under these or any other conditions. Some people have responded with their opinions that meetings are useful or that many managers like meetings. There was one paper that provided promising results for face-to-face meetings, but the findings were not clear. Some people responded that they could not think of evidence favoring face-to-face meetings.

Such sessions may meet people’s needs for socializing. Magne Jørgensen (personal communication) mentioned one company that did away with face-to-face meetings for their projects, replacing them with e-mail messages. To satisfy people’s needs for meeting and talking, they sponsored social events.

**Action Steps**

Perhaps the first step is damage control. Reduce the number of meetings, the length of meetings, and the number of people invited. Post a chart on the group’s homepage to track the people-hours (and their associated costs) that are consumed by the meetings. Ask the group leader to use Maier’s guidelines for meetings. In addition, ask attendees to summarize the actions they have taken after each meeting.

If people in your organization do not know how to respond without meetings, you can bring them together in a room
and then use structured procedures that simulate nominal groups, as described by Aiken and Vanjani (2003). For example, you could ask for a short “time-out” during a meeting and ask everyone to write his or her ideas. Software is available for conducting structured meetings, and these products have proved useful (Valacich et al., 1994) and have been gaining acceptance in organizations. For example, Briggs et al. (1998) reported that electronic brainwriting (individual idea generation) has been used by several million people in over 1,500 organizations around the world.

Individuals can also take action. My approach is to ask the person who calls a meeting to describe the problem and to inquire whether it would be useful to ask participants to provide written suggestions rather than to attend the meeting. The leader nearly always says yes and takes my proposal in a positive way. This approach makes it easier for people to absorb my suggestions and my reasoning while it reduces their desire to argue against me (because I am not there).

Conclusions

We rely heavily on face-to-face meetings, which are more expensive than alternative approaches, even though it is difficult to find evidence that supports their use. Although evidence-based principles exist for running face-to-face meetings effectively, they are used so rarely that we must turn to more practical solutions. In fact, a pattern of evidence suggests that prediction markets, nominal groups, and virtual teams allow for a more effective use of a group’s collective wisdom. Technology has enhanced the value of these approaches.

References


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Introduction

I always welcome Scott Armstrong’s contributions to the discourse on forecasting. He has contributed more to our understanding of the field than almost anyone else in recent decades. In responding to James Surowiecki’s book *The Wisdom of Crowds*, Scott considers the ubiquitous forecasting meeting. He concludes that “the simple act of meeting face-to-face harms forecasting and decision making.”

We have all attended unproductive meetings. But is it the sessions themselves that are the problem or the inefficient way they are run? Scott addresses this question by referring to some guidelines from Norman Maier. Would meetings still be useless if leaders followed Maier’s advice? Could we make forecasting meetings more productive?

Drawing on my experience in attending many sales forecasting meetings, I wish to suggest:

**Forecasting meetings are really NOT about forecasting.**

It might be termed a “forecasting meeting,” and its identifiable output might be a final forecast, but the real benefit is something quite different. I believe that meetings have at least five purposes.

*The Five Purposes of Sales Forecasting Meetings*

First, a meeting usually produces a final forecast that is used by operations, finance, and procurement groups.

Second, a meeting produces a commitment to act. The organization’s schedule for planning, procurement, workforce numbers, and production are all based on this commitment. Management must foster a sense of ownership among members of the forecasting team.

Third, a meeting provides the important benefit of information sharing. For example, a session of a major Mexican foods producer considered the sales forecast for salsa. Based on time-series information and the knowledge of existing contracts, the product manager suggested a reasonable estimate. The production manager then commented that he was having difficulty in sourcing quality tomatoes, and the purchasing manager questioned whether the new salsa bottles would be available. On the basis of this input, the final forecast was very different from the original.

Fourth, a meeting allows stakeholders the opportunity to be heard. For example, a major global manufacturer of health and hygiene products needed to revise a sales forecast. The meeting was attended by the product manager, the warehouse manager, the sales director, the production manager, and the marketing director. The product manager suggested a forecast for one of her major products. The warehouse manager jumped up and exclaimed that he refused to accept this forecast. His end-of-year bonus was based on the value of the stock in his warehouse, and he believed that the forecast would hurt his chances of earning the bonus. The forecast was not adjusted, but the contentious quantity of product was transferred out of the warehouse. With an increasing emphasis on key performance indicators (KPIs), the ability to be heard becomes increasingly important.

Fifth, a meeting should result in a forecast that is linked to the planning and budgeting cycle. Some might say that this linkage takes us out of the realm of forecasting. But we are essentially estimating, planning, and budgeting for the same phenomena. This reconciliation process can be quite tricky. To reflect plans and budgets, managers often adjust forecasts during meetings. The March meeting of a major cosmetics manufacturer dealt with the sudden realization that to accept the next quarter’s forecast would mean that the company would be underachieving its budget by some 20%. So the product manager was told to bring back an “acceptable” forecast. Management also implied that the revised forecast needed to be “close to the mark!”
Despite these five functions, some claim that the forecasting process can be implemented through e-mail. My contention is that a meeting gives us a better opportunity to develop ideas sequentially, to share information, and to be creative. This is an empirical proposition that deserves attention and research.

**What Does the Research Show?**

Forecasting meetings might be seen as a waste of time. They may not produce more accurate forecasts. In fact, there is some evidence that meetings compromise forecast accuracy (Lawrence et al., 2000). However, a close look at some of this research suggests that the forecasts were better characterized as *targets*. In these cases, there was a strong incentive to skew the forecasting numbers based on the cost function appropriate to the business.

Scott Armstrong contends that “the research findings (both direct and indirect) support the conclusion that people should not meet face-to-face.” He cites some of the research on the benefits of averaging and bootstrapping, and he touts the lure of prediction markets. (Incidentally, how would a prediction market be used in a sales-forecasting environment?) I do not wish to address this research, but I will respond to Scott’s challenge that we nominate contrarian views and research. I would like to mention two articles of interest. First, in Ang & O’Connor (1991), we compared four consensus forecasting techniques used in meetings:

- a forecasting meeting in which a consensus forecast was accepted,
- the same meeting, but a participant had produced his or her own forecast prior to the session,
- a simple average of individual estimates (which Scott seems to recommend), and
- a nominal group technique (another Scott-recommended method).

One technique seemed superior: the forecasting meeting in which one attendee had produced his or her own forecast prior to the meeting. This was especially true for high-difficulty time series. Moreover, we were able to isolate the reason for the superior forecasts. The improvement came from the discussion in meetings! This technique was actually borrowed from an international organization that produces household consumer products.

The second piece of research is relatively recent. Rockenbach et al. (2006) were concerned with the optimality of team decisions with individual decisions. The results from the meetings were more consistent with portfolio selection theory, and the team decisions accumulated surprisingly greater value at a significantly lower risk. Perhaps some meetings are useful.

Scott cites and extends the work of Norman Maier, suggesting six principles for the conduct of effective meetings: (1) use time budgets; (2) be problem centered; (3) record suggestions; (4) explore; (5) protect people; and (6) understand and resolve differences. The last two principles address why forecasting meetings are needed. The real problem is the way that meetings are conducted. Ineffective meetings lack definable objectives, have ambiguous outcomes, or lack definable KPIs. Sales forecasting meetings have a number of key advantages. They have well-defined objectives. Simple validation KPIs can be applied to the output. These meetings are held regularly, so continual improvements can be made to the structuring process. But I recognize the problems associated with the lack of a good meeting chairperson. Also, there is a tendency to get bogged down while producing forecasts for products for which a statistical method would have sufficed.

I welcome the debate on the efficacy of sales forecasting meetings. To my mind, these meetings have important organizational and social consequences. Could these live sessions be replaced by e-mail messages or virtual groups? Perhaps. But e-mail has become a major burden for many organizations. Some firms are even configuring their e-mail systems to restrict employee access.

**References**


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COMMENTARY: A DEPERSONALIZED INTERACTIVE PROCESS IS THE KEY by Joe Smith

Joe Smith is the Director of Forecasting and Revenue Management Solutions for Coca-Cola Enterprises Inc. North American Business Unit. He has successfully facilitated the design and implementation of CCE’s standard, internally collaborative forecasting system. Joe’s career at CCE spans over seventeen years with experience in strategic planning, category management, promotion control and sales analysis. Joe graduated from Eastern Michigan University in 1987 with a BBA in Finance with a concentration in investment analysis. His passion for applying mathematics, planning processes and consensus building has led him to his most recent pursuits in building enterprise-level planning support systems.

When I was approached by the editor of Foresight to write a book review, I was more than happy to participate. I was told that the book was The Wisdom of Crowds, by James Surowiecki. I logged onto Amazon and ordered it the same day. As a practicing business professional serving as the director of forecasting and revenue management solutions for a $20 billion corporation, and as one who is an active reader of business books, I thought this book would be a really good fit for me. I am constantly challenging my team to convert academic ideas into pragmatic policies for the company. Most companies have little tolerance for new theories until they are successfully applied. So I set out not only to write a review but also to flush out the implications of the book for our company processes.

My organization, Coca-Cola Enterprises, has been actively transforming its approach to forecasting and business planning. In our own way, we have been leveraging “the wisdom of crowds” by creating an internally collaborative forecasting process. We request input from over two thousand employees every week – key account managers, distribution center managers, and business unit staff. We centrally aggregate this input into official forecasts. We continually strive for greater levels of participant cooperation, although I must confess that obtaining such cooperation is always a challenge!

The Wisdom of Crowds brings to life the well-understood precept that “two heads are better than one” – or that many heads are better than one. Of course these sayings are true if you can figure out how to get the heads to communicate. Surowiecki recognizes the significance of this challenge, and he provides dozens of examples of how organizations have improved internal communication. The common thread of the solution is getting a diverse group of knowledgeable, cooperative, and strongly opinionated people to provide their respective points of view. Then the group’s collective opinion often will be better than that of any single member, even the most expert.

This basic message should resonate with forecasting practitioners. So how does an organization leverage Surowiecki’s findings? The author does not provide straightforward, step-by-step answers. If you are looking for the practical explanation of how to apply Surowiecki’s ideas, you are left to your own creativity.

But I think we can infer certain messages for our own organizations. For my organization, The Wisdom of Crowds imparts the following advice:

- The individual forecaster needs to demonstrate what Surowiecki calls “local knowledge” and must be resolute in presenting his or her point of view;
- Managers must then focus their efforts on capturing the local knowledge of practitioners through a nonthreatening forum;
- Capturing this knowledge requires continuous practitioner participation in the forecasting process.

Our internal forecasting process encompasses thousands of forecasters, all of whom are required to participate on a weekly basis. That this is no simple chore is a point vividly made by my colleague, Simon Clarke, in the previous issue of Foresight (Clarke, 2006). Local knowledge must be captured as a routine, compulsory activity. Then we need support tools to compile, digest, and share that knowledge.

Sharing local knowledge does not have to take much time; however, it does require an interactive environment. The forecasting team might conduct face-to-face meetings or conference calls; the important point is that strong facilitation is employed and that feedback is not personalized. Assuring depersonalization is critical and merely requires that discussions are focused exclusively on the facts.
Surowiecki and Armstrong emphasize that transforming local knowledge into the wisdom of the crowd requires participant anonymity. In my experience, however, the key is not anonymity so much as sharing information in a cooperative environment. The participants in the crowd need to learn from each other in order to improve their forecasting capabilities. Like most large corporations, my organization cannot afford to wait for anonymous answers. The live interactive meeting is our catalyst. It would be nice to leisurely await the natural evolution of a forecast consensus, but waiting is not practical.

We employ any means possible to assure routine live interaction with forecast participants, including traditional face-to-face meetings, Web-based meetings, and conference calls. Through these exchanges we have established a compulsory forecasting discipline. Our employees know that forecasting is not an optional activity; it is part of the job.

**Reference**


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**Editor’s Note:** Readers from Omaha are invited to respond.
product launches are presented. The traditional meeting is the forum where forecasters can absorb other experts’ opinions and concerns, and where forecasters can refine their understanding of the company’s operations. When the forecaster attends a meeting to listen and learn, she is not necessarily subjected to the litany of problems, including intimidation, that Armstrong catalogs.

The forecaster needs managerial validation of the assumptions that underpin her modeling, and meetings can foster cross-business pollination. Meetings also allow the forecaster to solicit feedback on her presentation of forecast outcomes; for example, would management like to see optimistic, pessimistic, and most-likely forecasts? Face-to-face meetings are a practical, convenient way to share information.

The key participants in meetings request clarification, question assumptions, and offer feedback on how the forecast might affect their respective areas of operations. The forecaster learns which projections the organizational leadership needs—and which format is most useful to management. By involving key players, the forecaster is connected to the business’ synapses, and she gains a realistic outlook, one that ensures that the forecast can be applied to the firm’s operations.

To summarize, the forecaster as statistician is most effective working alone. The forecaster as gatherer of key business information will find value in face-to-face meetings. There she will be able to perform the following tasks:

- Gathering nonformalized information,
- Validating the assumptions used for modeling,
- Ensuring that the forecasts are realistic and actionable and,
- Gaining credibility, earning trust, and enhancing reputation and visibility within the organization.

Understandably, few organizations have the luxury of hiring multiple, independent, diverse, and decentralized forecasters and then averaging their projections into a “final” forecast. In addition, the use of independent markets for designing decisions and predicting business outcomes in organizational settings is not feasible because the cost of maintaining such markets would be prohibitive. In principle, if employees knew that management would allow them to maintain some privacy and to become independent agents, they might embrace such a system. However, this approach would signal a major shift in the business practices of most organizations.

Armstrong believes that forecasters’ abilities are hindered by face-to-face meetings. This argument seems to presume that forecasters will, after a traditional meeting, rush back to their mathematical models and change their underlying assumptions in order to satisfy the needs expressed at the meeting. If that were true, the meeting should have taken place before the model had been formalized. For example, forecasting a particular financial situation without any supporting assumptions from specific sales strategies can be futile, as no one will give the forecast any credence. For most forecasters, the credibility, confidence, and feedback generated at meetings are all worthwhile. A forecaster cannot sterilize statistical calculations from hard business facts.

Forecasting is a business function that provides a vital “public” good to the organization. For this reason, the forecaster cannot rely solely on private information. Meetings in which forecasters play key roles can elevate forecasters from their private world to the public function they need to serve.

Perhaps some meetings should be banned, but it is difficult to determine which meetings are expendable. The forecaster can decide whether or not to attend a particular meeting. Let forecasters do what they do best, including shaping the way they acquire and use information. They are hired to produce accurate and usable forecasts. As icing on the cake, forecasters are rewarded by being recognized as a source of an organization’s foresight. The interactions in face-to-face meetings can enable the evolution of the forecaster from statistician-practitioner to forecaster-strategist.

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The commentaries reinforce my belief that research evidence alone is not sufficient for organizations to consider new methods. I suggest procedures to facilitate the implementation of evidence-based findings.

Is there a need for more evidence?

Are there conditions under which face-to-face meetings improve forecasting and decision making? The commentators all provide opinions from their experiences, but Marcus O’Connor was the only one to offer evidence from a research study. Ang and O’Connor (1991), in a comparative study of 36 three-person student groups, found that when the forecasting task was difficult, a procedure whereby one person prepared forecasts prior to a face-to-face meeting led to improved forecasts vs. a nominal group process (in which face-to-face meetings did not occur).

Ang and O’Connor’s evidence conflicts with much of the prior evidence. This makes it worthy of replications or extensions that would allow for feedback within the nominal group procedure and within Delphi, as well as controls for reflection time. The prior evidence, much of which has been around for decades, is not favorable to the use of face-to-face meetings. For example, Van de Ven and Delbecq (1974), based on a laboratory experiment, concluded that nominal groups and Delphi were superior to face-to-face meetings with respect to decision making. In my judgment, the weight of the scientific evidence suggests that face-to-face methods harm creativity, forecasting, and decision making.

Interestingly, research on persuasion suggests that examples are more persuasive than scientific evidence when people hold strong beliefs that are contrary to the evidence. So here is my story. In developing a procedure for forecasting the vote in political elections, I worked in a virtual group consisting of myself and two others, neither of whom I had met previously. For the first few months, all communications were by e-mail, which provided a written record of what was done by each of us. We eventually had a conference call, mostly for social reasons. In my experience, this is probably the most creative and efficient group (defined as three or more people) with which I have been involved. We produced a successful website, a near perfect forecast of the U.S. Presidential election of 2004, and received recognition in Foresight for forecasting accuracy (Cuzán et al. 2005).

How can you implement research-based findings?

Some of the commentators reacted to my arguments by giving their opinions on why their organizations’ current procedures are optimal. How can one get around this problem of resistance to research evidence?

Important changes in organizations should be under the control of the decision makers who are affected. Thus, the question might be framed, “What type of information (e.g., experimental, trial and error, or prior research) should we obtain in order to decide when we can use alternatives to face-to-face meetings?” Unfortunately, the commentaries did not address this question.

There may be some value in using the “second solution” technique, in which the decision makers are prohibited from solving the problem as they currently do. Instead, they must develop an alternative procedure. Once that is done, the constraint is relaxed and they can compare the new procedure with their original one. Maier and Hoffman (1960), in a problem involving a change in employee work procedures, found that solutions were of higher quality when groups were instructed to find a second solution after they had presumably solved the problem. The second solutions were obtained in about two-thirds of the time needed for the initial solutions, and the groups generally preferred their second solutions to the first ones.

Restrict your consideration of alternative procedures to those supported by comparative studies. Procedures that have been tested fairly and found useful might be useful for you as well. There are many such methods.

Joe Smith and Marcus O’Connor comment that prediction markets – a major alternative to face-to-face meetings recommended by Surowiecki and myself – are not feasible for sales forecasting within organizations. However, Ray (2006) mentions that Microsoft, Hewlett-Packard, Eli Lilly
and other major firms use prediction markets; he also makes suggestions on how to implement them. The proposal to use nominal groups dates back at least three decades. Detailed operational suggestions were provided in Delbecq et al. (1975); the book also includes testimonials on the successful application of the nominal group technique in a health care organization and in a business, ARA Services. I also believe that the Delphi technique is feasible – you can go to Software on forecastingprinciples.com and obtain freeware to guide you. My paper also provided operational guidelines for conducting face-to-face meetings.

Jamilya Kasymova and Catalin Vieru comment that their organization could not afford to adopt the procedures recommended by Surowiecki and me. I believe this to be contrary to the evidence. For example, based on comparisons among 12-person groups, Gallupe et al. (1992) found that electronic brainstorming groups produced about three times as many unique ideas as did traditional brainstorming groups. In any event, this issue can be easily resolved; one has only to try alternative procedures and monitor the costs.

References


