

Champions and Lotteries

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Part of what makes a strategy decision good is that it has odds of producing a good outcome. We (correctly) say that betting on a champion is a good strategy even though the strategy occasionally fails, and that betting on a lottery is a bad strategy even though it occasionally succeeds.

How can we tell the difference between a champion and a lottery when it comes to something as fuzzy and complex as competitive strategy? Based on the robust population of management gurus, the profusion of transformative processes with cool acronyms, and the continued existence of disappointing results, it's apparently not so simple.

Let's take a quiz.

1. A fair coin flipped eight times comes up heads every time. What are the odds of heads on the ninth flip?
2. How often does a college basketball team that's trailing at halftime come back to win?¹
3. A device promises to use technology to separate "good" items from "bad" items. It correctly identifies 90% of the bad items as bad, and it correctly identifies 96% of good items as good. Is it a useful device?²
4. Last year revenue was \$100 million and profit was \$10 million. What will profit be if revenue hits \$120 million this year?

1 This question and its subsequent analysis come from "Net Gains: How Watching Basketball Can Improve Your Approach to Investing," by Jonathan Clements, *The Wall Street Journal*, March 15, 2006. The analysis was performed by Allan Roth of Wealth Logic.

2 This question was inspired by the recent description of a biometric security device in *The Wall Street Journal*.

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Please write down your answers before you continue reading.

Sometimes we believe distinguishing champions from lotteries comes from more, better, and/or faster data and analysis. (Then again, what value is there to GM for them to know the exact day when Toyota becomes the world's biggest car maker?) Sometimes we embrace a guru's silver bullet: ask the customer, go for it, broaden your product line. (Then again, there are competing gurus who advise exactly the opposite.)

If all it took to get better decisions were more data punctuated with more bullets, we could ensure managers would never make mistakes. Mistakes get made, though, in part because we managers, generally being human, make human mistakes. Those mistakes include the ways we think about numbers.

Managers are accustomed to numbers: gap analysis, financial spreadsheets, market forecasts, cost/benefit tradeoffs, benchmarks, and more. Then there are the "mental models" that all of us apply, consciously or not, as we judge whether an event will happen, whether a move will be profitable, how a competitor will react, and so on. We are not computers but we are constantly computing.

How well we compute usually has to do with arithmetic and more to do with thinking. The answers to the quiz:

1. Since it is a fair coin, the odds of heads on the ninth flip are exactly 50%. The coin doesn't remember what it's done; heads isn't "due." Although it's not a hard concept when it comes to coins, we violate it when we say our luck is bound to change. It's worth considering whether our bad luck is really us repeatedly doing something ineffective.
2. According to a study of 3,300 college basketball games played from November 2005 to January 2006, less than 20% of the teams trailing at the half came back to win. Most people estimate much higher percentages, suggesting over-optimism or the "availability effect" of memorable come-from-behind wins.
3. This problem comes up in areas such as medical tests and security screening. It might seem sufficient to know the cost of the device versus the benefit of trapping bad items. It's not. It's necessary also to know the cost of false positives; that is, the

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cost of mistakenly identifying good items as bad. Say there are 100 bad items in every batch of 100,000. The device described in question #3 would correctly identify 90% of the 100 bad items, or 90, and it would mistakenly finger 4% of the remaining 99,900 items, or 3,996. Of the 4,086 (90 + 3,996) items identified as bad, less than 5% (90/4,086) would actually be bad.³ If the cost of a false positive is \$100 (say, it leads to using a more-precise test or to discarding a good item), and if the benefit of a true positive is a savings of \$1,000, then (in this example) the false positives cost \$399,600 and the true positives save \$90,000. Not a good deal, unless the cost of using the device is negative (which is possible if, for instance, using it forestalls lawsuits).

4. There's not enough information to answer that question. Did you come up with a number anyway? That's a mental model in action.

What we (or computers working on our behalf) predict about profit if revenue goes to \$120 million depends on what we think and what we assume. Did question #4's revenue get to \$120 million at the same price, a higher price, or a lower price? Is it necessary to build new capacity or subcontract some work? Which costs are fixed and which are variable? Did we even distinguish between fixed and variable costs, or did we use a misleading "total cost per unit" in our calculations? Frankly, doing the arithmetic is the easy part.

The statement "I think XYZ will work" comes from some kind of assessment. Every assessment, whether by a computer or in someone's head, contains a model. It's easy to spot the model when there's a spreadsheet or statistical analysis. What's less obvious is that estimates and gut feelings are models too: they're the mental models we the people use on problems such as quiz question #4.

Predictions and reality

Predictions can fit reality well in a stable or consistent environment or over a short time horizon. Predictions fit in those cases because the situations are predictable, not because

³ This analysis was inspired by *Innumeracy*, by John Allen Paulos.

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the predictions are clever. Ironically, it is the deceptive success of forecasting tools (whether computer-based or in our heads) during times of stability that make us vulnerable to their shortcomings when there's a change, leading us to blame the data, the analysts, or the whole idea of analysis. We throw out the baby and keep the bathwater.

There's another time when predictions seem to fit reality well. Think about meteorologists. Meteorologists have learned to forecast well in part because they can't make the weather; they had to learn to model causes, effects, and probabilities. Managers, on the other hand, have opportunities to make their weather (i.e., make the numbers): cut price at the end of the quarter, lay off people, defer maintenance, make future concessions in return for business today (e.g., loyalty programs and quantity discounts), etc. The predictions – “we will grow at 6% this year” – look valid not because they are valid, but because managers feel enormous pressure to do whatever it takes to change conditions to fit the predictions. (Would management really want to make the numbers if they knew their full cost?) And it is a vicious circle, because the seeming accuracy of predictive models leads us to trust them more, and to label as failures those who are unwilling to pay hidden costs for nominal success.

The problem is not in forecasting tools or in quantitative models in general; actually, the problem has nothing to do with computers. The problem is in the way we structure and frame the problems we want to solve. Our perceptions lead us to different costs and benefits (*see table below*).

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Ways to forecast sales	Costs	Benefits
Extrapolate a trend line <i>(momentum, we're on a roll)</i>	Risk of unpleasant surprise if the future diverges from the past; would we extrapolate negative trends?	Easy to calculate
Look for correlations <i>(when we did X, sales went up)</i>	Risk of reversing cause and effect, risk of thinking a coincidence is a cause ⁴	Consistent with experience, identifies action
Model customer purchase decisions <i>(the cause of sales)</i>	Complex, often unfamiliar	Realism, identify causes, foresight and anticipation

What can you do when there are no historical precedents for a product or market, no relevant benchmarks, no trend lines, nothing but excitement, hope, and high-stakes decisions? Even when there are no “data” with which to develop a forecast, managers still have to (and will) make decisions that depend on expectations of sales. ACS recently developed a simple sales-forecasting quantitative tool for a company entering a new market. The tool allowed sales executives to pool their knowledge and to assess probabilities of differing amounts and timing of sales, which it used to run a series of simulations to yield best estimates for future sales.⁵ Before adopting the tool (and the model implicit in it), some executives argued that prospects were good enough to warrant staying the current course, whereas others argued that a shortfall was dangerously likely, leaving the business to run dry before striking oil. The analysis showed the business had favorable odds (roughly 65%) of reaching breakeven in the desired timeframe; however, the odds were not high enough to allay all the executives’ concerns, so they decided to take a third path: allocate some resources to contingency planning.

4 Your author recently had minor surgery. (He’s doing fine, thank you.) He noted that his pain was highest when his doses of painkillers were highest. When he reduced the painkillers, the pain diminished. Does that mean the painkillers caused his pain?

5 It was similar to an expected-value analysis, enhanced with various assessments of risk.

What to do

We can often tell the difference between a champion and a lottery. We know when a thoroughbred, a star, or a top team is competing; we know when a rookie is making his or her first appearance on the field. It's important also that we know that they're playing the same game as before. When Tiger Woods plays golf, we're betting on a champion. If Tiger Woods decided to play hockey, we'd be betting on a lottery.

The more the game changes (even if the same players are involved), the closer it is to a lottery, making assessments and predictions harder. Yet you still must make decisions. What can you do to place your bets well?

- Recognize when you've been relying on predictions (whether from computers or people's heads, including your own) that implicitly assume the past will persist into the future. Although that assumption might not be wrong, it is certainly more risky when times are changing.
- Spend the time to think the situation through. It doesn't have to be a lot of time, and not spending the time is rather like saying you don't have time to stop for gas. Ask *what will it take* for us to compete in this new game (e.g., we need new product features, or advertising in new media, or higher productivity). Ask *what has to happen* for our actions to succeed (e.g., our competitors will not start a price war, a political crisis must get resolved, a lawsuit must get dropped).
- The human tendency to look for confirmation is a huge problem in strategy decision-making. Look vigorously for *disconfirming* evidence — that is, reasons why things *won't* work — so you can anticipate threats (and uncover opportunities) while you have time to tackle them.
- Get explicit about assumptions. For instance, ask people (especially if they are in disagreement) to describe the logic behind their opinions. You'll hear things such as "if we cut our price then we will increase volume, which will let us cover our fixed costs." The explicit statements help uncover implicit assumptions. In that case, the assumption is increased volume, which you will find (if you keep looking) rests on the deeper assumption that competitors won't cut their prices too.

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- Put numbers on things. If Ralph says X will happen and Alice says it won't, ask them to estimate their probabilities. You'll end up with one conversation if Ralph says 55% and Alice says 45%, and a very different conversation if Ralph says 95% and Alice says 20%.

One reason why ACS is so committed to business war gaming is that business war games automatically and convincingly lead to most, and often all, of those benefits.

Opportunity doesn't come from more-accurately extrapolating the past. It also doesn't come from rejecting analysis (which is impossible anyway, because mental models are inescapable). Opportunity comes from thinking clearly, effectively, and courageously – “courageously” because it requires the courage to question habits – about how we think and decide. The quality of our decisions is what makes our strategies into champions or lotteries.

About the author

Mark Chussil is founder and CEO of Advanced Competitive Strategies, Inc., a pioneer in the field of business war gaming, and a veteran of 100 business war games for *Fortune* 500 companies around the world (www.whatifyourstrategy.com). He knows competitive strategy, having spent 30 years developing simulation technologies, designing and implementing business war games, advising senior managers, conducting research, and lecturing. Mark is also a founder of Crisis Simulations International, LLC (www.crisissimulations.com). He designed ACS's award-winning ValueWar® business simulator and CSI's patent-pending DXMA™ crisis simulator. Mark has published extensively, and he has lectured and consulted on six continents. He earned his B.A. from Yale and his M.B.A. from Harvard.

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