
Behavioral Science's Contributions to Decision Making

draft: July 26, 2010

Introductory Questions

- Re future decision, Are we interested in “Who is at fault,” or in a *process view of how to make better decisions*?
- Is an introvert more likely to be a librarian or a salesman?
- Does more information make for better decisions?
- In what decile would you place yourself in terms of driving skill?
- What percentage of companies in any of the customer service industries consider themselves to be in the top quartile of performance?

What Can We Learn From Our Own Good/Not-so-good Decisions?

Improving Our Decision-Making at XXXX

XXXX Event				
1. Decision A				
2. Decision B				
3. Decision C				
4. Decision D				
?				

Good Decisions and Good Process

EXHIBIT 1.1 Process versus Outcome			
		Outcome	
		Good	Bad
Process Used to Make the Decision	Good	Deserved Success	Bad Break
	Bad	Dumb Luck	Poetic Justice

Source: Russo and Schoemaker, *Winning Decisions*, 5. Reproduced with permission.

Good Decisions and Good Process

Here are Four Common Behavioral Biases That Influence our Decision-Making . . .

1. The Anchoring Trap: Over-Relying on First Thoughts

- Example
 - “Is the population of Turkey greater than 35 million?”
 - When a group of individuals was asked this question the answer was never too far off of 35 million
 - “Is the population of Turkey greater than 100 million?”
 - When a different group of individuals was asked this question, the answers were almost always higher than the original 100 million
- Lesson
 - Your starting point can heavily bias your thinking
 - Initial impressions, ideas, estimates, or data “anchor” subsequent thoughts
- Action
 - Always view a problem from different perspectives
 - Think on your own before consulting others
 - Seek information from a wide variety of sources

2. The Status Quo Trap: Keeping On Keeping On

- Example
 - A group of people were randomly give 1 of 2 gifts. One half receiving a mug, and the other half receiving a Swiss chocolate bar
 - The group was informed that they could exchange their gift if they were not happy with it
 - Logic dictates that 50% of the people would switch, while actually only 10% switched
- Lesson
 - The status quo automatically has an advantage over every other alternative
- Action
 - Consider the status quo as just another alternative
 - Know your objectives
 - Avoid exaggerating switching costs

3. The Sunk Cost Trap:

Protecting Earlier Choices

- Example
 - You pre-ordered a non-refundable ticket to a baseball game
 - On the day of the game, you are tired and there is a blizzard raging outside
 - You regret buying the ticket and just want to stay home.
 - What do you do?
- Lesson
 - It's a sunk cost, and it shouldn't influence your decision
- Action
 - Be OK with making mistakes
 - Listen to people who were not involved in the earlier decisions
 - Focus on your goals

4. The Confirmation Trap: Seeing What You Want to See

- Example
 - You feel the stock market will be going down and that now may be a good time to sell stock
 - Just to be reassured on your decision, you call a friend who just recently sold their stock
- Lesson
 - Beware of looking for information that will most likely support your initial point of view
- Action
 - Expose yourself to conflicting information
 - Get a devil's advocate
 - Don't ask leading questions

5. The Incomplete Info Trap:

Review Your Assumptions

- Example
 - Harry is an introverted guy. We know that he is either a librarian or a salesman. Which one do you think he most probably is?
- Lesson
 - Overlooking the simple data element can make our intuitions go completely astray
- Action
 - Make your assumptions explicit
 - Always favor hard data over mental simplifications

6. The Conformity Trap: Everybody Else is Doing It

■ Example

- First, researchers asked one group of students a series of very simple questions
 - In this situation most of the students got the questions right
- Second, actors posing as students asked another group the same questions only purposely emphasizing the wrong answers
 - In this situation, many more students provide the wrong answers than in the previous group

■ Lesson

- Other people's actions do heavily influence ours

■ Action

- Discount the influence of others
- Beware "social proof"
- Be courageous

7. The Illusion of Control Trap: Shooting in the Dark

- Example

- The vast majority of lotto players choose to pick their own numbers instead of having them randomly selected using the “auto-pick” option
- We all know that however the numbers are chosen, it doesn’t change the chance of winning, so why they strong preference for picking our own numbers?

- Lesson

- We still tend to irrationally believe that we can somehow influence results
- We just love to feel control

- Action

- Understand that randomness is part and parcel of life
- Beware of superstitions

8. The Coincidence Trap: We Suck at Probabilities

- Example

- John Riley won a one-in-a-million-chance lottery—twice! That makes it a one-in-a-trillion-chance event
- Wrong—In doing the math, if throughout the years, 1000 lottery winners keep playing at least 100 times, that adds up to a non-negligible 10% chance that someone will win twice

- Lesson

- The “miracle” is not only possible but, give enough attempts, its likelihood increase to a point of becoming almost inevitable

- Action

- Don't over-rely on gut estimates
- Beware of “after the fact” probabilities

9. The Recall Trap:

Not all Memories are Created Equal

- Example

- What's your best guess for the probability of a randomly selected flight ending in a fatal crash?
- While many people grossly overestimate the probability, MIT studies show that fatal accidents happen at a rate of only 1 in 10,000,000

- Lesson

- We analyze information based on experience, on what we can remember from it

- Action

- Get hard data
- Be aware of your emotions
- Beware of media

10. The Superiority Trap: The Average is Above Average

■ Example

- A study surveyed drivers asking them to compare their driving skills to other people in the experiment
- 93% of the participants rated themselves as 'above average'

■ Lesson

- People have much inflated views of themselves

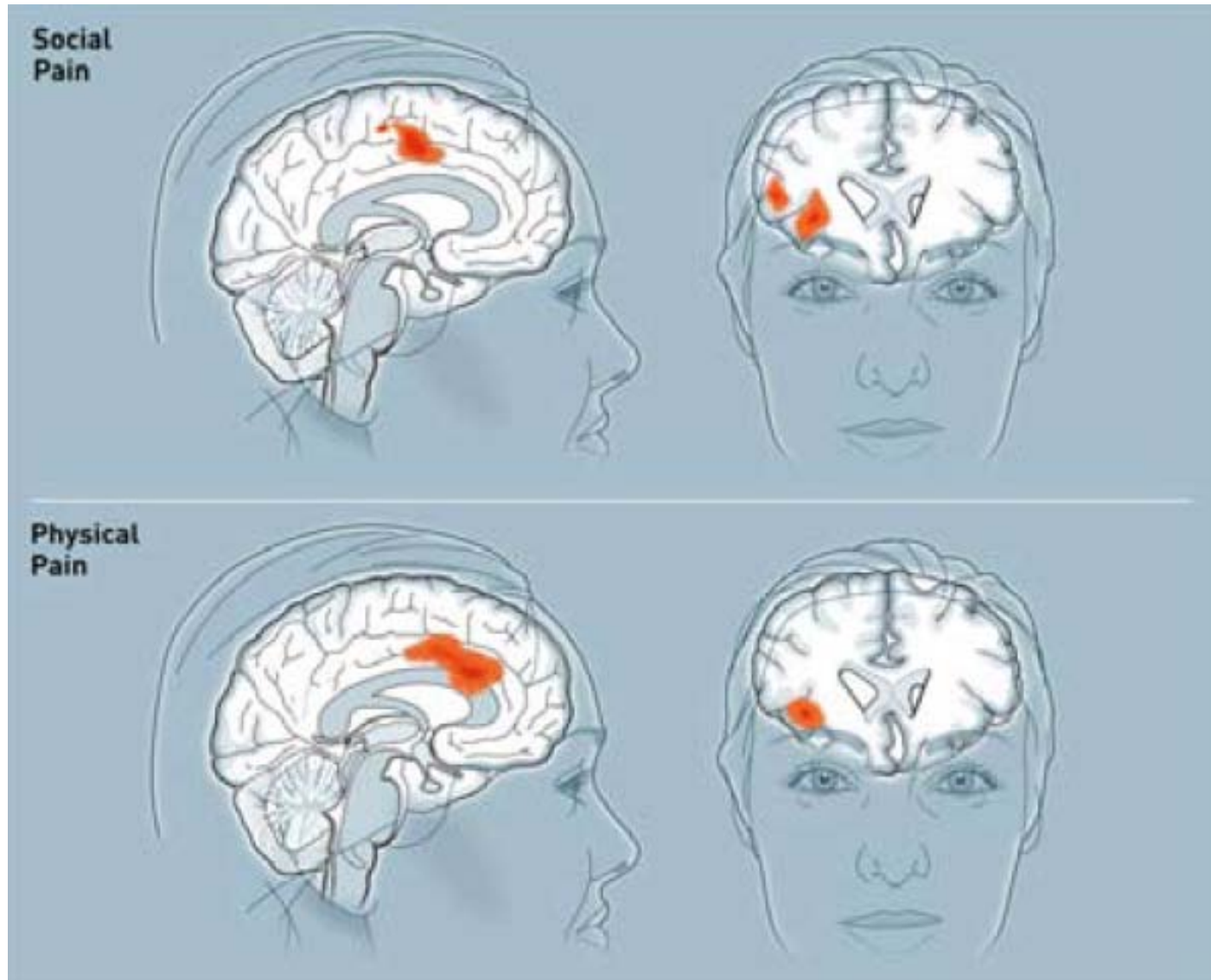
■ Action

- Be humble
- Surround yourself with honest people
- Don't go overboard

#1: What Can We Learn from the Process?

XXXX Event	Possible Key Facts	Hypotheses	Possible Learning	Comment
<i>1. Decision A</i>				

Why Negatives Are so Painful in Decision Making



Propositions

- All organizations make “strategic” mistakes
- Many mistakes derive from behavioral biases
- Better decision *processes* reduce the impact of behavioral biases
- While difficult, decision-making processes can be “bias balanced” through the use of imaginative approaches

Examples Of Strategic Mistakes (cont.)

- In 1987, a Denver-based company sold to BP a technology to detect oil from airplanes
- If it works, BP isn't talking!
- What BP did "right:"
 - Small bet upfront
 - Rapid prototyping
 - Bought equity
 - Eventually took over, with royalties
- What kind of decision was Deepwater?

Which were bad decisions, which were "good decisions with bad outcomes," and Why?

What are Some Specific Solutions for the Five Classes of Bias?

1. Action related: Scenarios, Balance Sheets, Decision check lists
2. Stability related: Zero-based budgets, “Clean sheet” analyses
3. Pattern recognition: Competitive role playing, Buffet’s incentivized outsider
4. Social related: Red/Blue teams, role reversals
5. Internal related: Transparency re inherent conflicts

General Solution: Pre-Mortem

1. Assume the proposed solution turns out in three years to be an absolute disaster
2. Everyone employed in the effort has been let go, cost in the millions
3. Each person writes down the five reasons why this could happen
4. Consolidate, examine, and consider mitigation of each risk
5. Remember “fat tail” issue (ABS, Katrina, BP spill, Black Swans)

How Can *You* Make Better Decisions?

*For More Information, contact
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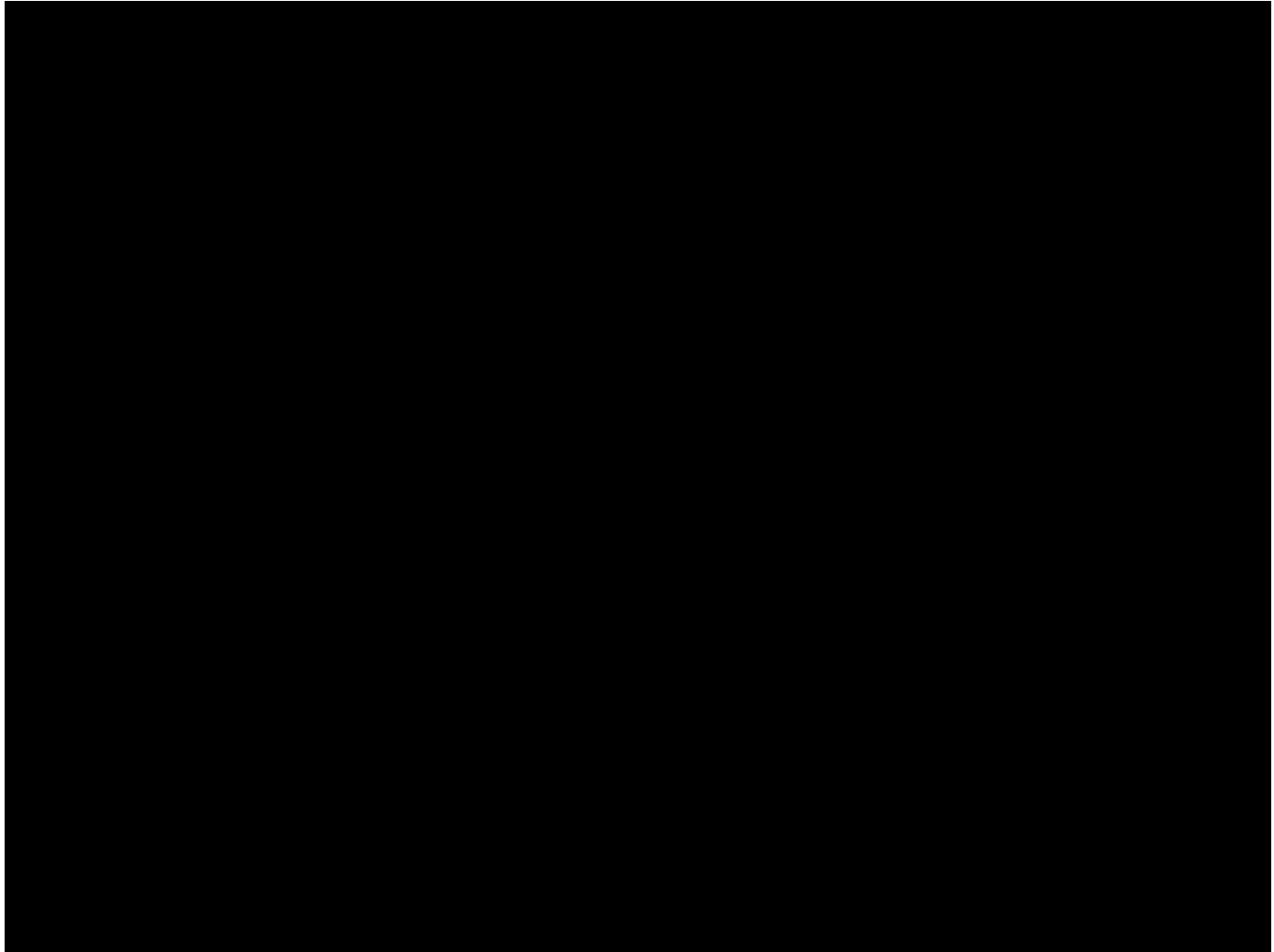
We Must Cope with Many Biases

- Bandwagon effect
- Bias blind spot
- Choice-supportive bias
- Confirmation bias
- Congruence bias
- Contrast effect
- Distinction bias
- Endowment effect
- Expectation bias
- Extraordinary bias
- Focusing effect
- Framing
- Illusion of control
- Impact bias
- Information bias
- Irrational escalation
- Just-world phenomenon
- Mere exposure effect
- Money illusion
- Moral Credential effect
- Need for Closure
- Negativity bias
- Neglect of probability
- Normalcy bias
- Omission bias
- False consensus effect
- Halo effect
- Herd instinct
- Illusion of transparency
- Illusory superiority
- In-group bias
- Just-world phenomenon
- Projection bias
- Self-serving bias
- Self-fulfilling prophecy
- Consistency bias
- Clustering illusion
- Capability bias

Even a Second Page's worth!

- Egocentric bias
- False memory
- Hindsight bias
- Reminiscence bump
- Self-serving bias
- Gambler's fallacy
- Hindsight bias
- Illusory correlation
- Last Illusion
- Observer-expectancy effect
- Optimism bias
- Ostrich effect
- Overconfidence effect
- Positive outcome bias
- Primacy effect
- Recency effect
- Selection bias
- Stereotyping
- Subjective validation
- Survivorship bias
- Telescoping effect
- Texas sharpshooter fallacy
- Well travelled road effect
- Actor-observer bias
- Egocentric bias
- Outcome bias
- Post-purchase rationalization
- Pseudo certainty effect
- Restraining bias
- Selective perception
- Status quo bias
- Wishful thinking
- Zero risk bias
- Ambiguity effect
- Attentional bias
- Authority bias
- Availability cascade
- Belief bias

Some Biases Help Us Survive . . .



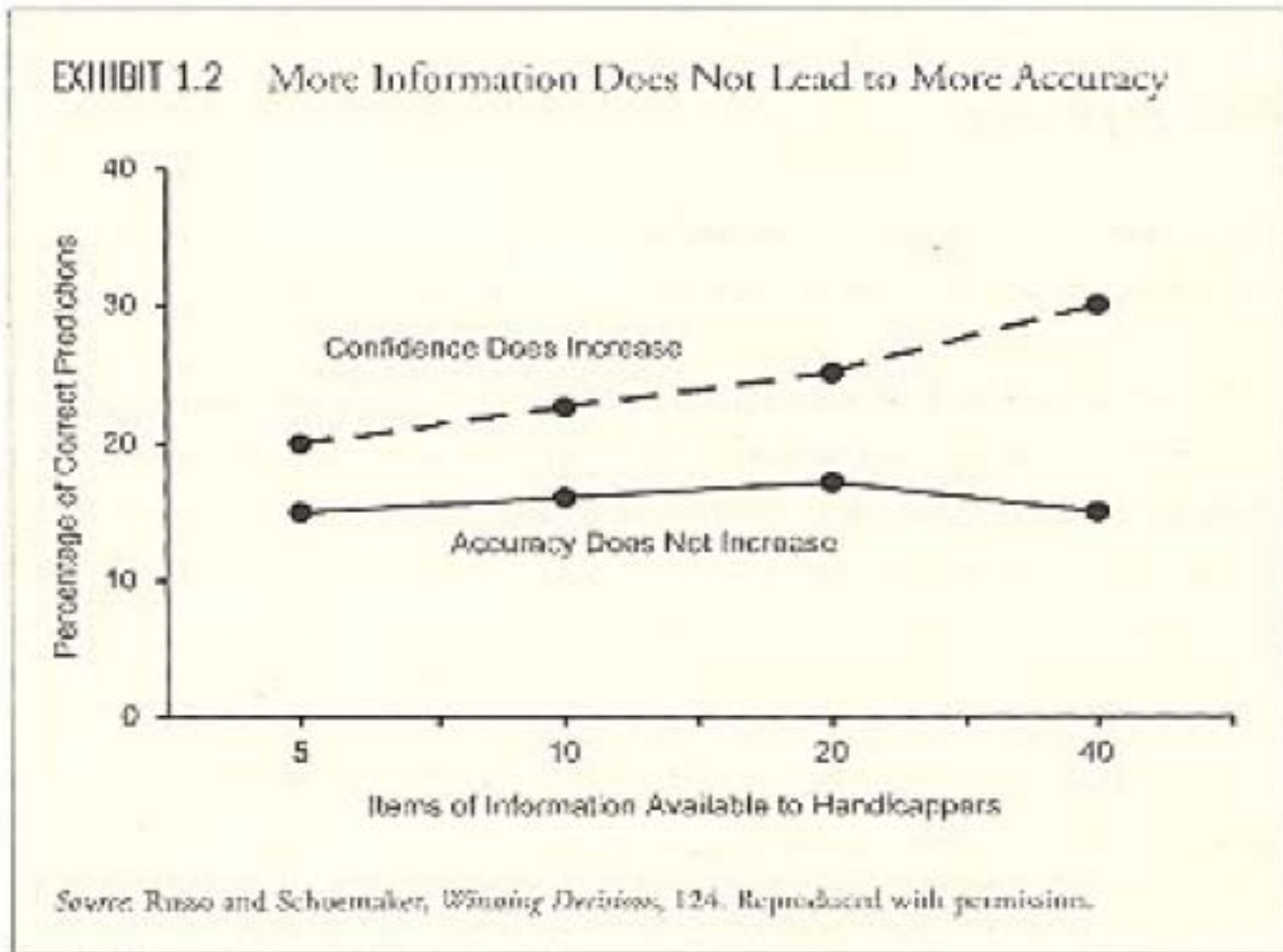
Are Decision Biases Important?

- One study examined 1000 investment decisions
 - Quality of the decision process used accounted for 52% of the difference in the quality of results
 - In both the top and bottom quartile of results:
 - Quality of analysis improved results by 5.3%
 - Quality of process improved results by 6.9%
 - Most often concepts used to improve quality of decision processes:
 - Explicit discussion of uncertainties
 - Transparent criteria for success
 - Skills/experience of participants explicit
 - Contradictory reviews conducted
 - Contradictory information sought out

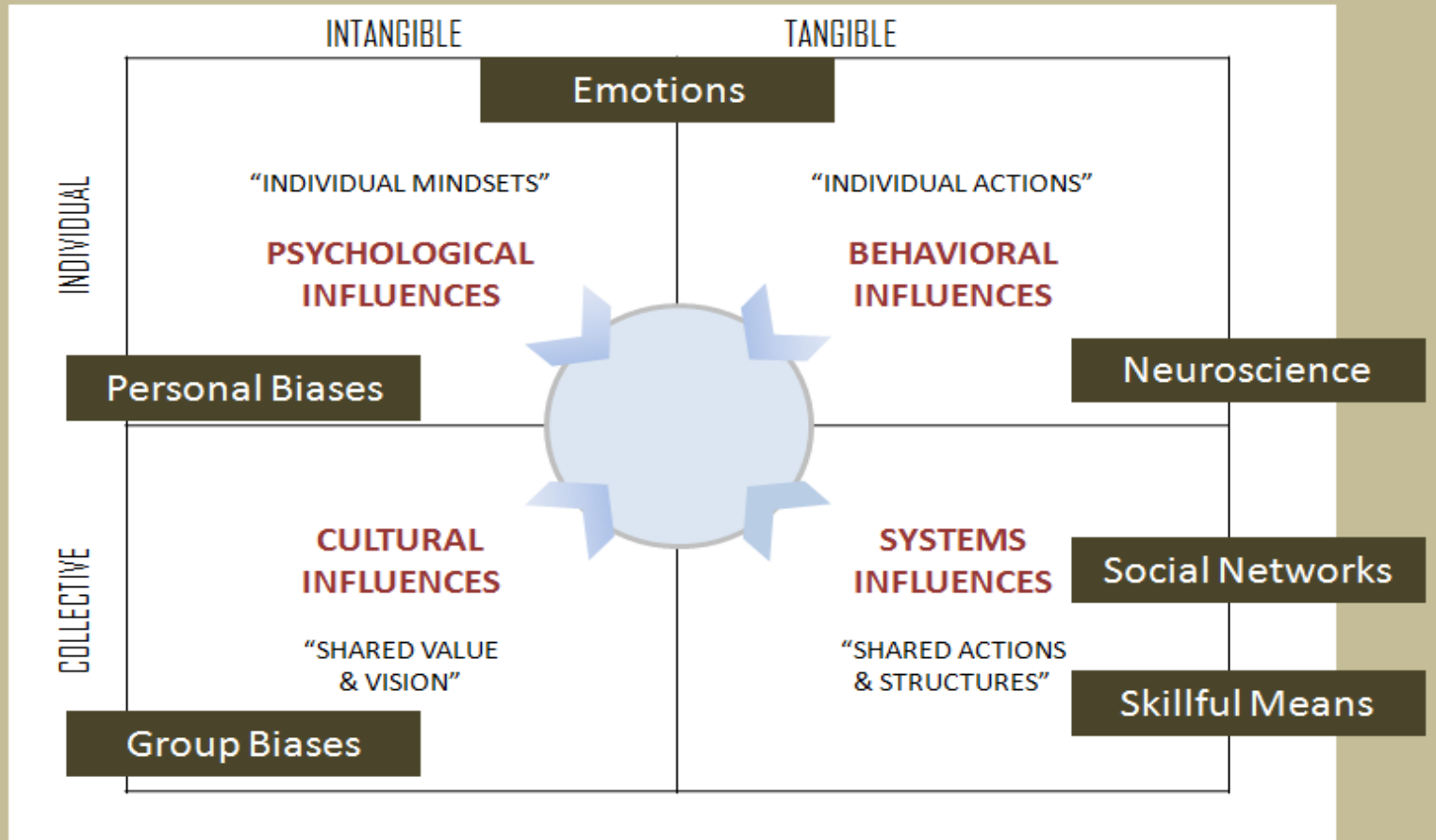
How Cope with Decision-related Biases?

- **#1: The only certainty is that there is no certainty**
 - Investors need to train themselves to consider a sufficiently wide range of outcomes, as unexpected events do occur – e.g. recent US economic depression, energy crisis, and multiple wars
- **#2: Decisions are a matter of weighing probabilities**
 - A focus on probability is sound when outcomes are symmetrical, but completely inappropriate when payoffs are skewed – e.g. roughly 90% of option positions lose money
- **#3: Despite uncertainty, we must act**
 - We must base the vast majority of our decisions on imperfect or incomplete information, but still make decisions based on an intelligent appraisal of available information – e.g. with more data, confidence in predictability *may* rise
- **#4: Judge decisions not only on results, but also on how they were made**
 - A good process is one that considers price against expected value – e.g. investors can improve their process through quality feedback and ongoing learning

Note That MORE Information May Not be Better!



One can map biases in several ways . . .



AQAL Model: Ken Wilber

What Can We Learn From Our Own Good/Not-so-good Decisions?

Improving Our Decision-Making at ECMC: Some Thoughts

Draft: June 4, 2010

ECMC Event	What Went Wrong?	Hypothesis	Possible Solutions	Comment
ECSC Private Loan Program	- Wrong lending algorithm?	- We weren't as smart as we thought we were	- E.g., hire outside consultant to evaluate our proposed approach	This is Warren Buffett approach
Premiere Acquisition	- Mgt team not a good fit	- We believed what we wanted to/needed to believe		
3/27 incident	- Data wasn't as safe as we thought	- We were over-confident - We didn't ask, "What can go wrong?????"		
?				

A language to discuss biases

Psychologists and behavioral economists have identified dozens of cognitive biases. The typology we present here is not meant to be exhaustive but rather to focus on those biases that occur most frequently and that have the largest impact on business decisions. As these groupings make clear, one of the insidious things about cognitive biases is their close relationship with the rules of thumb and mind-sets that often serve managers well. For example, many a seasoned executive rightly prides herself on pattern-recognition skills cultivated over the years. Similarly, seeking consensus when making a decision is often not a failing but a condition of success. And valuing stability rather than “rocking the boat” or “fixing what ain’t broke” is a sound management precept.

This bias typology was prepared by Dan Lovall and Olivier Sibony.



Action-oriented biases

drive us to take action less thoughtfully than we should.

Excessive optimism. The tendency for people to be overoptimistic about the outcome of planned actions, to overestimate the likelihood of positive events, and to underestimate the likelihood of negative ones.

Overconfidence. Overestimating our skill level relative to others', leading us to overestimate our ability to affect future outcomes, take credit for past outcomes, and neglect the role of chance.

Competitor neglect. The tendency to plan without factoring in competitive responses, as if one is playing tennis against a wall, not a live opponent.



Interest biases

arise in the presence of conflicting incentives, including nonmonetary and even purely emotional ones.

Misaligned individual

Incentives. Incentives for individuals in organizations to adopt views or to seek outcomes favorable to their unit or themselves, at the expense of the overall interest of the company. These self-serving views are often held genuinely, not cynically.

Inappropriate attachments.

Emotional attachment of individuals to people or elements of the business (such as legacy products or brands), creating a misalignment of interests.¹

Misaligned perception of corporate goals.

Disagreements (often unspoken) about the hierarchy or relative weight of objectives pursued by the organization and about the trade-offs between them.



Pattern-recognition biases

lead us to recognize patterns even where there are none.

Confirmation bias. The over-weighting of evidence consistent with a favored belief, underweighting of evidence against a favored belief, or failure to search impartially for evidence.

Management by example.

Generalizing based on examples that are particularly recent or memorable.

False analogies—especially, misleading experiences.

Relying on comparisons with situations that are not directly comparable.

Power of storytelling. The tendency to remember and to believe more easily a set of facts when they are presented as part of a coherent story.

Champion bias. The tendency to evaluate a plan or proposal based on the track record of the person presenting it, more than on the facts supporting it.



Stability biases

create a tendency toward inertia in the presence of uncertainty.

Anchoring and insufficient adjustment.

Rooting oneself to an initial value, leading to insufficient adjustments of subsequent estimates.

Loss aversion. The tendency to feel losses more acutely than gains of the same amount, making us more risk-averse than a rational calculation would suggest.

Sunk-cost fallacy. Paying attention to historical costs that are not recoverable when considering future courses of action.

Status quo bias. Preference for the status quo in the absence of pressure to change it.



Social biases

arise from the preference for harmony over conflict.

Groupthink. Striving for consensus at the cost of a realistic appraisal of alternative courses of action.

Sunflower management. Tendency for groups to align with the views of their leaders, whether expressed or assumed.

¹ Sydney Finkelstein, Jo Whitehead, and Andrew Campbell, *Think Again: Why Good Leaders Make Bad Decisions and How to Keep It from Happening to You*, Boston: Harvard Business Press, 2008.



To listen to the authors narrate a more comprehensive presentation of these biases and the ways they can combine to create dysfunctional patterns in corporate cultures, visit mckinseyquarterly.com.

Another Way is by “Family”: Five Families of Biases

- #1: *Action-oriented Biases*, e.g. Comparisons:
 - 95% of drivers believe they are in the top 50% of competence, and 25% believe they are in the top 1%
 - 68% of U. of Nebraska faculty think they are in the top 25% of teachers
 - 85% of Stanford Business School students believe they are above the median in performance
 - Only the clinically depressed are relatively accurate in self-assessment!

Five Families of Biases (cont.)

- #2: *Stability Biases*, e.g. Aversion to Loss:
 - Consistently, consumer product companies spend the same % of advertising dollars by category, by year, *even when they think they are not!*
 - It is estimated people are 2 ½ times more concerned about losing the same amount of money as making that amount of money
 - Example: Babe Ruth hit a lot of home runs, but also struck out very often

Five Families of Biases (cont.)

- #3: *Pattern Biases*, e.g. Confirmation Bias
 - e.g., overweighting evidence which confirms one's earlier decision
 - Getting “tired ears”

Five Families of Biases (cont.)

- #4: *Social Biases*, e.g. “Sunflower management,” “Captainitis”):
 - Employees consistently follow the “Captain’s” lead, even when they believe he is wrong – e.g., Air Florida 1982 crash at Reagan Airport

Five Families of Biases (cont.)

- #5: *Internal Biases*, e.g. Misaligned incentives, emotional attachments:
 - Jack Welch picking a friend in GE to run Kidder, Peabody (who had previously failed his Series 7 Exam)

Resources

- **Michael Shermer: *The Pattern Behind Self-deception (Filmed Feb 2010)***
 - *Posted on TED Website (June 2010)*
- **Dan Lovallo and Olivier Sibony: *The Case for Behavioral Strategy (March 2010)***
 - *Including Excerpt From: Sydney Finkelstien, Jo Whitehead and Andrew Campbell: *Think Again-Why Good Leaders Make Bad Decisions and How to Keep it From Happening to You* (Harvard Business Press 2008)*
- **Michael J. Mauboussin: *Finding Financial Wisdom in Unconventional Places (2007)***
 - *Including Interpretation of : Robert Rubin's Four Principles of Decision Making*
- **J. Hammond, R. Keeney, and H. Raffia: *The Hidden Traps in Decision Making (1998)***
 - *Based on Harvard Business Review Article (January 2006)*