

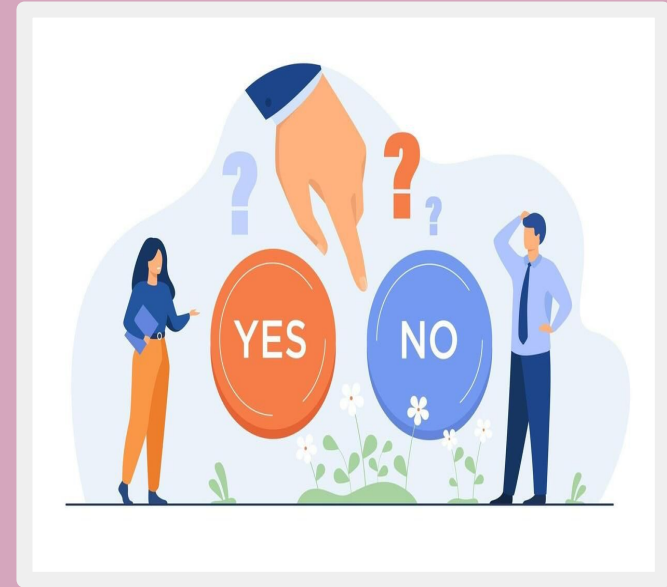
Turning Data into Wisdom: Pages 121-140

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The Apply Phase

- Most important phase of the entire process → point at which a decision is made
- Many jump from this phase to making a decision based on analysis. Instead, one must do the following:
 - Orient yourself to the data and information obtained
 - Apply personal experiences, intuition, and mental models to the analysis
 - Challenge the data and assumptions
 - Review with a diverse team
 - Make a final decision



Balancing Data, Experience and Intuition

Experience + intuition + data = balance in data

Takeaways:

- The **human element** of decision-making is crucial when working with data
- Despite its importance, data does not tell you the full story or what the right decision should be
- Intuition should be used in the decision making process

Should we trust our intuition?

- Intuition results from processing of the brain + incoming sensory information + stored knowledge and experiences
- More experiences with a domain = more matches = intuition is more reliable
- Can be flawed: with little to no experience with a domain, = brain fails to find a match = intuition is unreliable



Intuition Driven Decision Making



Relies on Gut Feeling
Make best guesses
Relies heavily on previous experience
Inherently risky
Corrective

Data Driven Decision Making



Relies on Facts
Choices are tested
Inspired by previous experience
Risk aversing
Directive

Balancing Data, Experience and intuition: Applying to a Real-World Example

A hospital used data and analytics to review staff productivity

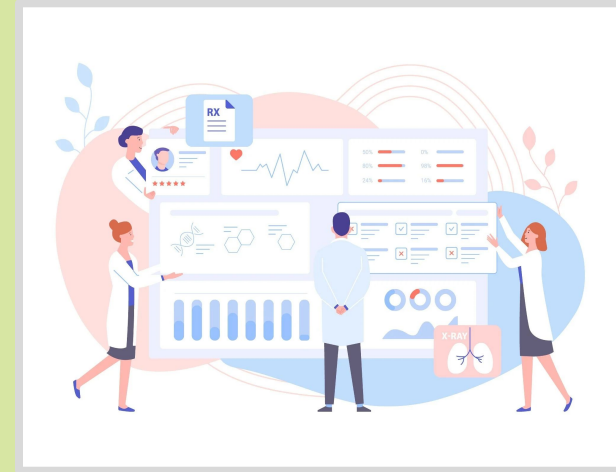
Problem: cleaning patient rooms took **longer** than it should

Data analytics: measurement used: the average time for hospital rooms to be cleaned = delays happened on weekends and occasionally Wedensdays

Limitations: it appeared that staff lacked proper training and/or limited resources available, but failure to pinpoint the root cause

Finding Balance: with further discussion and brainstorming ways to alleviate the issue, a manager applied her own experience to the problem and realized the local football team plays at those times

Solution: along with experience and data = root cause identified → cleaners were sitting down and failing to clean patient rooms in a timely manner



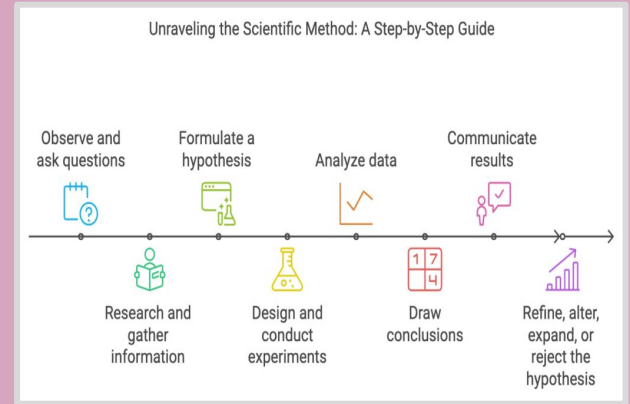
Challenging the Data

Scientific method: cyclical process including systematic observations, measurement or assessment, and experimentation

- Explores observations and answers for informed decision-making
- Requires testing in an attempt to disprove hypotheses

Why is this important?

- People unconsciously have confirmation bias
→ look for data to validate hypotheses/decisions



Confirmation bias

is the tendency to search for, interpret and recall information in a way that supports what we already believe.

American Views: Trust, Media and Democracy, Gallup/Knight Foundation (2018)

#DidYouKnow

News Literacy Project

Implementing Skills to Challenge Data

Soft skills: personal habits or traits that shape how an individual works and how the individual works with others

Systems thinking: helps us to see the bigger picture and how things are interrelated

- Helps us determine root causes

Critical thinking: challenges data and determines if it is *really* telling us what it appears to be telling us

Active listening: allows for open-mindedness and the ability to hear other perspectives



Challenging Assumptions

- Break free of the assumptions you may already hold about an issue due to your personal background
- Try to analyze data stepping outside of predetermined biases



Challenging Assumptions: Applying to a Real-World Example



- Google creates “People Analytics Department”
 - Whether managers make a difference in team performance
 - Based off of performance reviews and employee surveys of managers
 - Determined that good managers make more money and happier employees
- But what makes a good manager?

What Makes a Great Manager?

Created “Great Managers Award” to encourage employees to nominate managers that they felt made a difference - and compiled examples of what made them so effective



Using data from both workers and managers on good manager practices, Google was able to compile lists of advantageous behaviors and those that may lead a manager to struggle.

Situations that Trigger Bias

Cognitive Overload

Ambiguous Information

Perceived Threats

Short on Time

Emotional Overload

Overconfidence

1. Cognitive Overload

When the volume of data and information being processed is too overwhelming to properly assess

Can lead to making generalizations and only noticing details that confirm already formed beliefs





2. Ambiguous Information

Seeking clarity on unclear information can also lead to making generalizations and assumptions supporting a current mindset, and relying too heavily on generalizations



3. Perceived threats

We become susceptible to biases as a survival mechanism when faced with fear



4. Short on Time



Making informed and well research decisions is a time consuming process

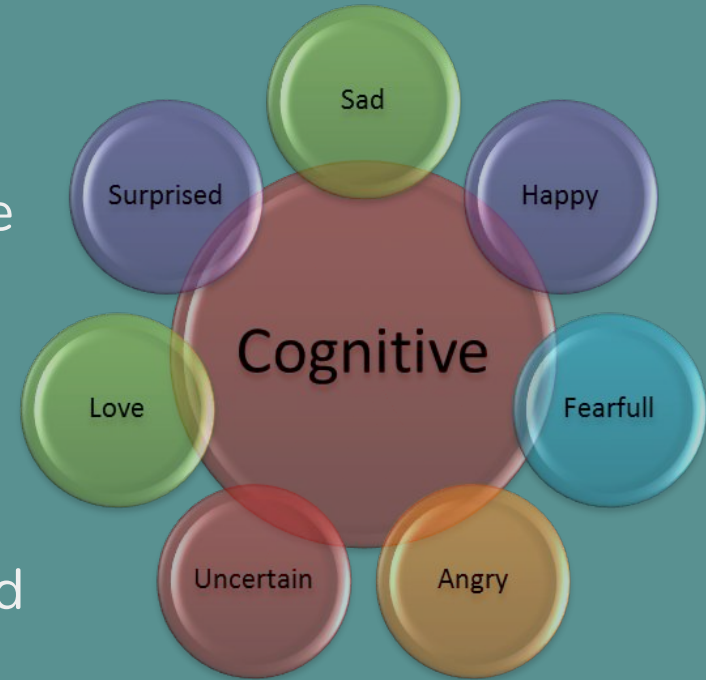
Bias can come into decision making when short on time due to making assumptions

5. Emotional Overload

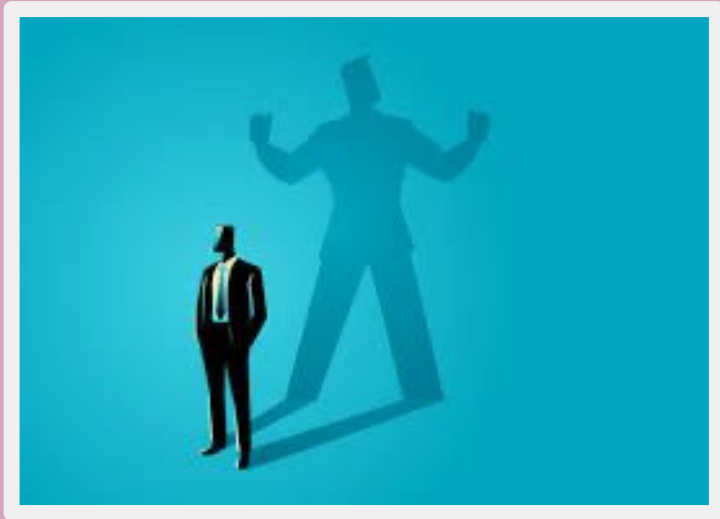
Emotions such as stress, anger, and frustration can cloud judgement and make our decisions more reactionary

Can lead to premature and ill-informed decisions

Acronym HALT - hungry, angry, lonely, and tired



6. Overconfidence



If a decision maker is overconfident in their beliefs, they are prone to bias because they assume that their decision is already rational and correct



Mitigating Bias

Multiple strategies exist for the management of bias at the individual level





Strategy 1: Slow Down your Thought Process

- Think through information to be discussed
- Reflect on reasoning process
- “Sleep on it” and give it time



Strategy 2: Seek Perspectives from Cognitively Diverse Individuals



Diversity is an important part of data-informed decision making

Cognitive Diversity: “inclusion of people who have different styles of problem-solving and can offer unique perspectives”

Exposure to other methods of thinking allows us to avoid bias and include other backgrounds and ways of thought

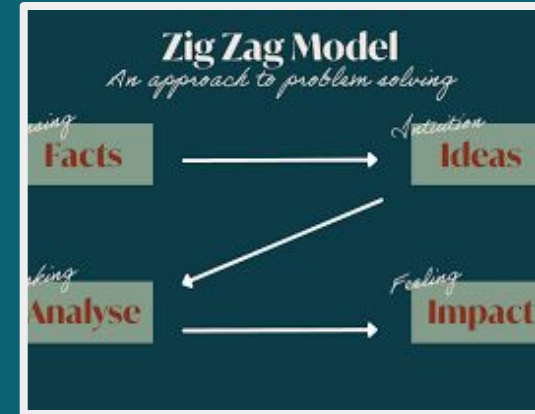


Strategy 3: Leverage Existing Tools, Models, and Frameworks Within the Process

- Help decision-makers mitigate bias during their decision-making.
- Methods include the Zig-Zag process model for problem-solving, the Ladder of Inference, Strategic Foresight, and Future Search.

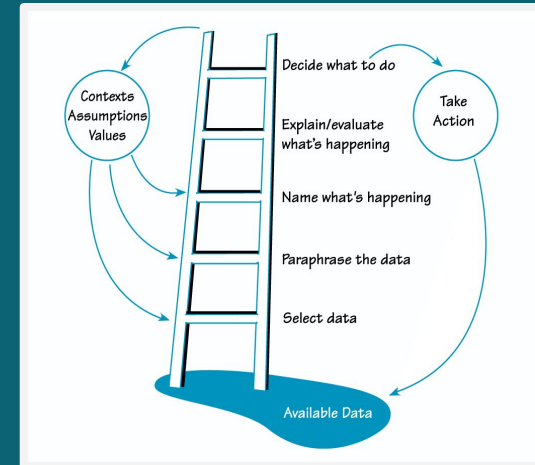
The Zig-Zag Process Model for Problem-Solving

- Uses the idea that individuals experience the world using four functions: sensing, intuition, thinking, and feeling.
- To make the most efficient and successful decision, these functions must be used in a specific order.



The Ladder of Inference

- Created by organizational psychologist, Chris Argyris.
- Uses a step-by-step reasoning process to avoid incorrect inferences in your decision-making process.

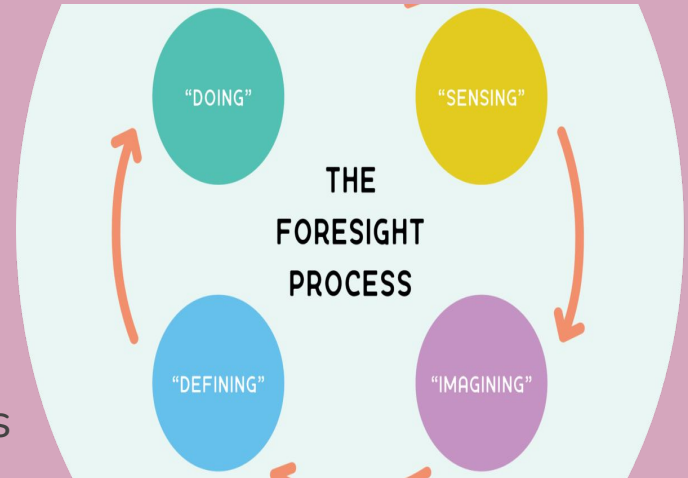


Strategic Foresight

- A business-planning process focused on preparing for the future.
- Allows individuals to think differently about situations through a mindset of openness and awareness.

Future Search

- Useful in team meetings.
- Enables organizations and communities to quickly transform their capability to action.



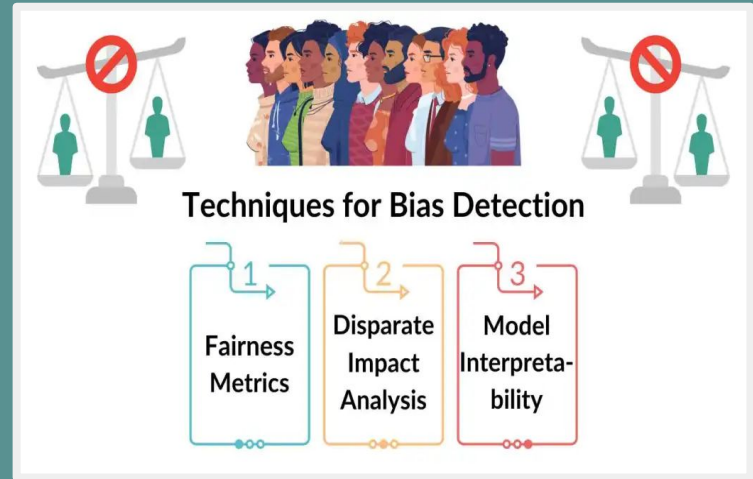
Strategy 4: Examine Alternatives



- To avoid bias, it is important to systematically explore multiple alternatives to a question based on the data and analysis provided.
- Potential outcomes and consequences must be identified and explored for each alternative.

Strategies for Mitigating Bias at the Group Level

- While all of the strategies listed for mitigating bias at the individual level are still applicable, there are additional strategies that should be used to achieve a greater outcome from the data-informed decision making process.





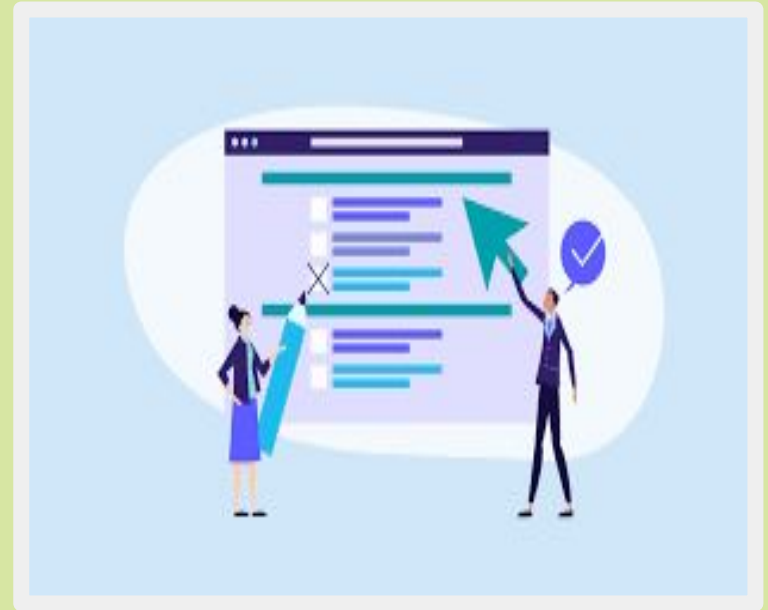
Strategy 1: Set Up Independent Groups

Several independent groups set up to work simultaneously on a specific task or problem.

These groups will facilitate different
perspectives

Strategy 2: Appoint a Critical Evaluator

- A “critical evaluator” critically weighs the value of each team member’s viewpoints and possible decisions.
- This enables each viewpoint to be dissected, allowing the team to arrive at the best possible solution.





Strategy 3: Have Leaders Avoid Expressing Their Personal Opinions

- Designed to reduce the pressure on team members to conform to their leader.
- The leader should ideally stay away from meetings where decisions are being discussed to avoid changing the members' opinions.



Strategy 4: Dialogue Don't Discuss

- Helps teams make decisions while avoiding non productive conflict.
- Uses an unbiased, unemotional approach to get everyone's ideas and input without passing judgement.
- Compares ideas to foster discovery and dialogue before moving toward action.



Strategy 5: Reframe



- Helps any team members with a bias thought process to see different perspectives.
- Frames are used to challenge filters that are based on our experiences, values, assumptions, and cultures.

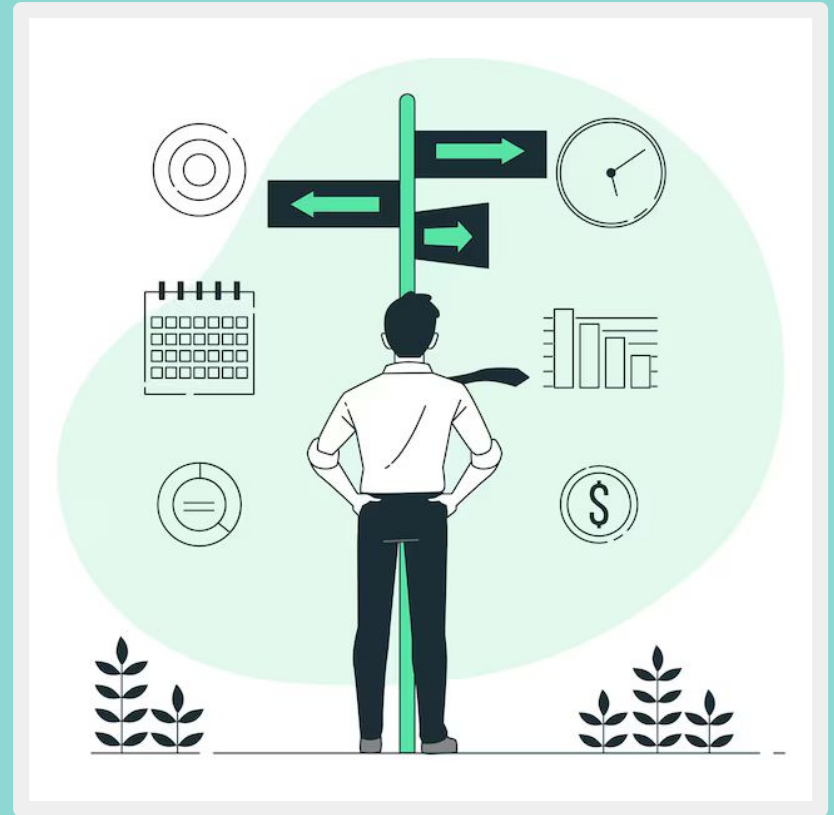


Communication Elements in Frames

- Metaphors
- Stories
- Traditions
- Slogans and Catchphrases
- Artifacts
- Contrast
- Spin

Possible Decisions

- Values based framing.
- Financial benefits framing.
- Gain framing.
- Loss framing.



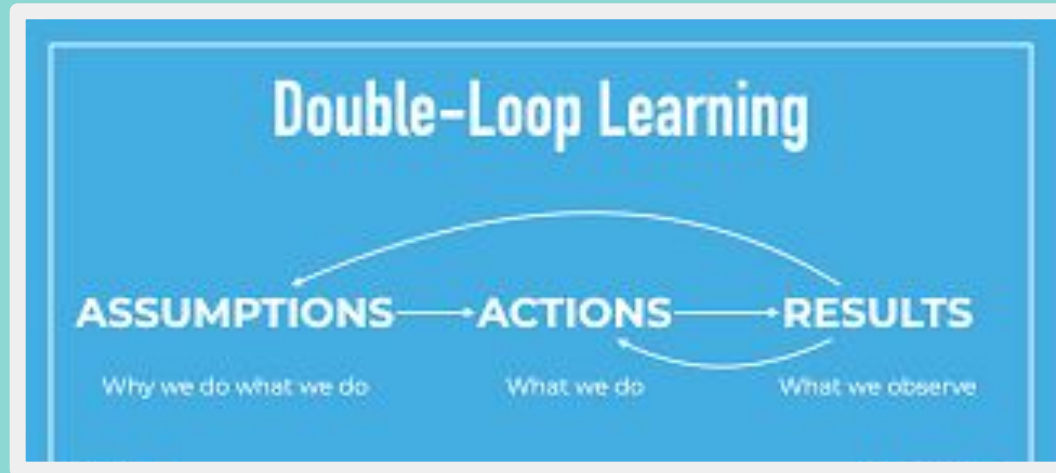
Approaches to Leadership

- Visionary
- Coaching
- Democratic
- Pace-setting
- Commanding



Double Loop Learning

Allows for no data to be hidden and allows for a seamless process in presenting data which includes reflection and critique of original decisions and processes



Strategies for Mitigating Bias at the Organizational Level

1. Create an organization wide data and analytics strategy
2. Use a systematic and systemic process and methodology



Strategy 3: Educate

- Create educational programs to inform workforce
- Training focused on bias and data literacy
- Soft Skills: active listening, critical thinking and communication



Strategy 4: Foster a Safe Environment to be Curious, to Challenge, and to fail



- Unlearn old habits
- Challenge assumptions
- “Safe environment that supports failing fast, fixing fast, learning fast, and then disseminating what is learned to the rest of the organization.”

Making a Decision

- Be explicit about level of uncertainty
- Programmed Decisions: reoccurring
- Non-Programmed Decisions: one-off decisions, not a routine
- Type 1 Decisions: irreversible
- Type 2 Decisions: reversible if they present non ideal outcomes
- OODA loop: observe, orient, decide and act





Summary and Key Takeaways

- Take time to reflect and understand data
- Apply past experiences, intuition and mental models to decision making
- Look to challenge data and initial hypothesis
- Be conscious of bias
- Time is of the essence