



EXECUTIVE SUMMARY FOR HR MANAGERS

Daniel Kahneman's

THINKING, FAST AND SLOW



Thinking Fast and Slow by Daniel Kahneman is based on the insights gleaned from the extensive research of Nobel prize-winning psychologists Daniel Kahneman and Amos Tversky.

Key Concept: Two Systems, One Mind

There are two thinking systems that exist within the same brain. These two distinct brain systems are engaged in a constant struggle to control human behaviour and are often at the root of the poor judgement, false memories and bad decisions that go against what we know we should do. Kahneman demonstrates how these systems are harnessed by those who understand persuasion to override the rational mind and appeal directly to a person's intuition in order to compel them to act in a certain way.

System 1 (OS 1) is automatic. It operates on intuition and acts on impulse outside of your conscious control. When you come into contact with something that is burning hot, you don't have to think about pulling back your hand. You've whipped it back and let out a scream before your rational mind even has time to process the heat. That's System 1 at work—automatic, intuitive, impulsive, and no doubt part of our evolutionary survival mechanism. Decisions are made on “gut feeling”, impressions or general rules of thumb that in the past have allowed us to make think and act quickly in dangerous situations.

System 2 (OS 2) is not automatic. It is much more rational, deliberate and considered. It is the part of our mind that we are aware of—the one we typically think is responsible for all our personal decisions, choices, beliefs, self-control (or lack thereof) and attention span or ability to focus. Imagine you can't find your keys as you're about to leave the house. You check the spots you usually put them, the last place you know for sure you had them, and retrace your most recent route through the house—that's System 2 at work. It uses deliberate, rational thinking and focus to evaluate a situation and come to a logical conclusion that solves a problem.

Attention and Effort: Ultimately, it is the interaction between these two systems that determines how we think, make decisions and behave in our daily lives. According to Kahneman, lazy thinking—relying on automatic, instinctive reactions—makes us prone to errors and limits our overall intelligence. As humans, we are innately lazy thinkers, often taking the simplest and quickest route to minimise the effort and energy required to solve a problem, which is commonly referred to as the law of least effort. We have a tendency to underestimate problems that seem simple and jump to the obvious (and often incorrect) conclusion provided by System 1 without taking the time to engage System 2.

Key Concept: Heuristics And Biases

Heuristics: Heuristics are the mental shortcuts or processes that the mind uses to lighten the cognitive load when making decisions. Heuristics can allow us to solve problems with less effort, make quick and efficient decisions, or reduce an overwhelming amount of information into a manageable chunk. Heuristics can be a tremendous help, but they can also lead us astray when we become over-reliant on them or apply them to situations that require more thought and consideration.

There are many types of heuristics. Kahneman presents many of the common types of heuristics and explains the problems that can arise from these. Some of these heuristics are summarised below.

PRIMING

Priming—also called the *ideomotor effect*—is a process by which our thoughts and actions can be shaped through exposure to similar or related ideas, concepts, phrases or words. Priming is completely unconscious. Our minds and bodies are capable of being primed without us ever knowing it, which demonstrates that, contrary to what we would like to believe, we are not always in complete control of what we think and how we act. As we go about our daily lives, we are constantly being primed by the world around us, the things we see, the people we interact with, the situations we encounter.

SUBSTITUTION

When confronted with a complex or difficult problem, the mind opts to ease the cognitive load by substituting an easier question in its place. Thus, we answer a question that was never asked at all and go with that as the answer to the difficult question. This is the *substitution heuristic* at work.

AVAILABILITY

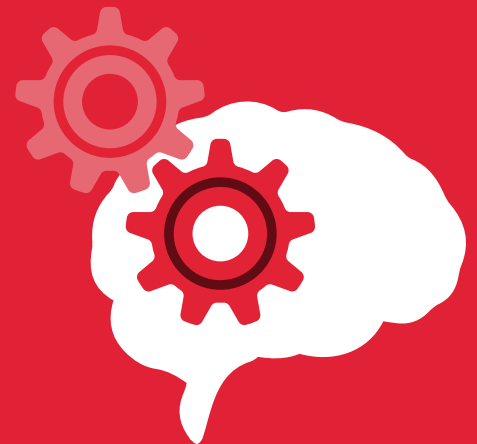
The *availability heuristic* is the mind's propensity to rely on answers or information that immediately spring to mind. We vastly overestimate or give more weight to commonly encountered information because it is easier to recall at a moment's notice. For example, our estimation of the likelihood of dying in an accident rises when we are exposed to more stories about accidental deaths in the media, even though we are statistically more likely to die from a stroke, heart attack or other common illnesses. Because accidents are much more memorable and easier to recall, the mind incorrectly uses this mental shortcut to give it more importance.

SNAP JUDGEMENTS

We've all made snap judgements—and many of us have later experienced how incorrect we were! A snap judgement is the way your mind makes quick decisions when the time and information needed to make a considered and logical decision are in short supply. When we have little else to go on, System 1 fills in the gaps in your knowledge. For example, we naturally connect the fact that we like someone with other positive characteristics, even though we know very little about the person in question.

HALO EFFECT

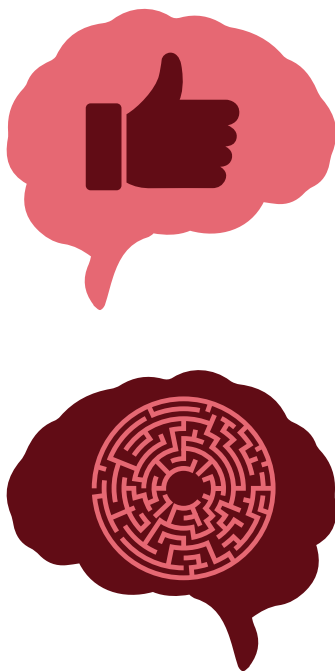
Unfortunately, snap judgements are too simplistic and cannot be relied on. Also known as the halo effect, we naturally tend to attribute more positive characteristics to a person, place or thing because of limited positive experience with them, which can lead to great errors in judgement. Kahneman coined the abbreviation, "WYSIATI," which stands for *what you see is all there is*. In other words, we should not rely on information based on impressions or intuitions and instead focus on the facts and data available to us.



Key Concept: Overconfidence In Cognitive Efficiencies

Our ability to control our thoughts and focus our mental energy is key to making accurate and informed decisions. It gives us a huge advantage when as we assess the world around us, the situations we find ourselves in, the problems we are presented with, and directly affects the decisions we make. The mind wants to be as efficient with the energy it expends as possible. It employs a variety of heuristics, biases, rules-of-thumb, and other cognitive efficiencies to automate or streamline the thinking process as much as possible. The things we pay attention to or focus on can have a powerful impact on our moods and behaviours, so it is important to manage our mental energy as best we can to prevent negative things from overwhelming our thought processes. Kahneman says, “Nothing in life is as important as you think it is when you’re thinking about it.”

Cognitive Ease: Situations that we are very familiar with—like driving same the route home, washing the dishes, taking a shower—are almost automatic. These actions require little attention or mental energy, a state that is known as *cognitive ease*. In this state, it is the automatic, unconscious, intuitive System 1 (OS 1) that is in control. In this state, we are much more relaxed as we act on intuition or habit without using much cognitive energy, but we are also much more likely to make simple errors as the more careful, rational System 2 is weakened.



Cognitive Strain: New situations or tasks that we are unfamiliar with—such as driving a new route, following a complex recipe, or using an unfamiliar gadget for the first time—require us to focus our attention and use more mental energy, even if the task itself is relatively simple. This state is known as *cognitive strain*. In situations like these, our hyper-aware, rational, problem-solving System 2 is in control, making us much more likely to make sound, rational decisions and less likely to make mistakes. However, we are less creative in our thought process and problem-solving as intuitive System 1 is weakened.

The good news is that we do have some influence over which system is used in certain situations. Familiarity creates a state of cognitive ease. Through practice, consistent exposure or repetition, we can make certain ideas or information so familiar and automatic that they become the domain of System 1. This also makes them much more persuasive because they are always at the forefront of our minds and, as previously explained, we react more positively to information we are familiar with and exposed to on a regular basis.

The opposite is also true. We can give ourselves an advantage in situations that require complex or highly logical thought processes by presenting the information in a way that bypasses System 1 and engages System 2 directly. This can be achieved, for example, by presenting a problem in a more challenging or confusing way, causing System 2 to take notice and direct some cognitive energy to the problem at hand.

Key Concept: Narrative Fallacy

Cognitive coherence: The mind is constantly trying to make sense of the world around us and the situations we find ourselves in. And, as previously described, it wants to do this as quickly and efficiently as possible. To achieve this, we construct specific images in our minds—shorthand visuals that represent concepts and ideas we regularly encounter. For example, when you think of a forest, you might visualise sunlight filtering through high branches, or perhaps miles of thick, brown tree trunks rooted to the earth. This use of mental images to capture and store essential ideas and concepts is called *cognitive coherence*.

Cognitive coherence provides the context necessary to help us understand the situation we are in and plan for the future. For example, when taking a trip, our mental image of a place might provide some clues of what clothes to pack or essential items to bring. For example, Ireland is known to be a wet and rainy place, so you might pack your suitcase full of waterproof rain jackets and warm clothes.

The problem, also called the *narrative fallacy*, arises when we rely too much on these images instead of the available data and statistics. If you checked the weather forecast, for example, you might find that your destination is experiencing a heat wave or dry, warm weather because it is summer. If you relied only on your mental image, you'd find yourself carrying your rain gear and sweating in your woolly jumper for the entire trip!

Reference class forecasting: In order to make more accurate predictions, we have to learn to decrease our confidence and reliance on these false mental images. A common way of doing this is through *reference class forecasting*, which instructs that we replace general images with specific instances from our own experience. For example, we recall times in the past where we expected rain and got warm, dry weather instead. This allows us to prepare more accurately for what we might encounter.

Long-term risk policy: Kahneman also explains a concept called a *long-term risk policy*, which prompts us to account for the possibility of being both correct and incorrect in our predictions. For example, even if we think it might rain every day, there is a possibility of sunshine, so it's best to pack some lighter clothing options and sunscreen just in case. That is your long-term risk policy.

Confirmation bias: Confirmation bias is our mind's tendency to accept ideas or information as truth when it agrees with our existing beliefs, opinions or preconceptions. This bias also makes us likely to agree with or accept an idea or piece of information that is suggested to us when we have no other information to go on. Essentially, the mind automatically accepts the idea that is suggested in the question, regardless of whether it is true or false.

Confirmation bias is a powerful concept to understand. In moments when a quick decision must be made and sufficient information is not available, confirmation bias can lead us to incorrect conclusions and bad decisions. Just like snap judgements, the halo effect and priming, confirmation bias operates on an unconscious level and affects how we behave and the decisions we make.

Hindsight bias: Memory is a complex function. It is surprisingly common for events of the past to be remembered through the lens of hindsight rather than as they were actually experienced. This is called *hindsight bias*, and it frequently causes us to recall events from the past incorrectly, often in ways that make our own actions or knowledge greater than they were in reality. We want to believe that the future is knowable, so our intuitive feelings seem more true in hindsight than they were at the time. According to Kahneman, "*The tendency to revise the history of one's beliefs in light of what actually happened produces a robust cognitive illusion.*"

Expert intuition: Experts often appear to have an effortless intuition that guides their behaviours and decisions. They know something and act on it without ever having to think about it. It manifests as a "sixth sense" or "gut instinct", an inexplicable feeling that unconsciously guides the expert through a process. In reality, this intuition is formed by constant repetition or practice over a long period. According to Kahneman, intuition is not magic—it is immediate pattern recognition.

Key Concept: Intuition vs. Formulas / Choices

The vast majority of us fail to understand even simple statistics, which leads us to make mistakes that could otherwise be avoided. Having some insight into the likelihood of certain things occurring can be a huge advantage in many aspects of our lives. There are many other common mistakes we make when it comes to statistics. Kahneman outlines some of these, including:

Base-rate neglect: Establishing the *base rate* in any given scenario and keeping this in mind is the foundation of understanding statistics. The base rate it creates a *statistical base* that other relevant statistics can rely on. Failure to establish or consult a base rate, also known as *base-rate neglect*, is a common error. It opens us up to unconscious bias, incorrect assumptions and causes us to make decisions or predictions based on inaccurate information. Instead of taking the time to establish a base rate, the mind takes the quickest and simplest route by focusing on what it expects is the most likely conclusion rather than what the statistics would support.

Regressing to the mean: Every situation has an average point. Although variations can occur and cause a deviation from that average, a point will eventually be reached where there is a shift and a return back towards the average. This is called *regressing to the mean*. In general, we tend to underestimate the role of luck, because, according to Kahneman, the mind is “strongly biased towards causal explanations”.



Key Concept: Two Selves

Two selves, one mind: Kahneman explains the concept of *memory selves*, two different processes at work in the mind that cause us to remember things in different ways. These two memory selves are the *experiencing self* and the *remembering self*.

The *experiencing self* creates a record of a particular experience as it happens in real time. It only records and understands what is available in that moment. It asks the mind: “How does this feel right now?” In contrast, the *remembering self* is looking at the event from a point in the future. It has all the information about what led up to the event, what exactly occurred, and how it was resolved or concluded. The remembering self has the full picture and asks the mind, “How was this experience on the whole?”

The experiencing self provides a more reliable and accurate version of the events. However, it is often the version created by the remembering self that dominates our memory.

Duration neglect: There are two common cognitive phenomena related to how our mind forms memories or impressions. These explain why the version of events created by the remembering self is more powerful than that of the experiencing self. *Duration neglect* is our tendency to select and focus on a particular moment of an experience or event rather than the total duration of the event.

Peak-end rule: The *peak-end rule* is our tendency to give more cognitive weight to the most heightened moment of an experience (the peak) and the final moment of that experience (the end) when forming a memory or impression as a whole. Kahneman presents a study on the memories of colonoscopy patients to illustrate *duration neglect* and the *peak-end rule* in action.

Key Concept: Risk Assessment

We would all like to believe that we approach risk assessment with a purely rational mind. In reality, the way we assess risk is highly influenced by how that risk is presented to us. Framing a situation in a specific way—for example, by changing the focus or shifting the perspective to include or omit certain facts and details—can completely change our perception of how much risk is involved. Even when presented with simple numbers or facts, many of us make simple errors in judgement.

An example of this presented in the book is that many people overestimate the likelihood of a rare occurrence when the figures presented are the relative frequency of that event rather than the statistical possibility of an occurrence. Either way, the risk remains the same but our perception of the risk changes based on how it is presented.

Our perception of risk is also influenced by a phenomenon known as the *denominator effect*. This effect occurs when our mind ignores plain facts and statistics and instead allows persuasive and engaging storytelling to inform our decisions. We are much more likely to remember, be persuaded by or agree with information that is presented to us in a context we can understand and visualise clearly.

Endowment effect: When assessing risk and loss, we often encounter the *endowment effect*, which is an emotional bias that causes us to overestimate the value of things we personally own compared to things we do not. For example, homeowners often overestimate the value of their homes because of their sense of personal ownership. This is similar to the *commitment heuristic* or *sunk-cost fallacy* whereby our decision-making is influenced by how much we have already invested. We are much more likely to justify further investment of time, energy or money based on our cumulative past investment, even if a return is statistically unlikely.

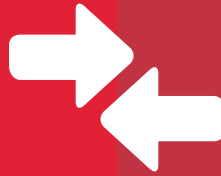


Key Concept: Utility Theory vs. Prospect Theory

UTILITY THEORY

For a long time, many renowned scholars and economists argued that individuals take a purely rational approach to decision making. Their theory—known as *utility theory*—suggested that when faced with a decision, an individual will assess only the most rational, relevant facts and choose the option that creates in the best possible outcome for them—the option that results in the most utility. Furthermore, this theory posits that wealth itself is weighed rationally by individuals, only valued by how much utility it provides.

In practice, however, this theory doesn't quite stand up. For example, if you have €5 million and I have €5 million, we have the same utility value, but are we equally happy? You might not be happy if you started with €10 million and lost €5 million. However, if I started with nothing at all and now have €5 million, I'm probably happier than you despite our identical net worth. Furthermore, we consistently value many things far beyond their pure utilitarian value. We value a family heirloom or an object with fond memories attached far beyond the material value of the object itself.



PROSPECT THEORY

Prospect theory, developed by the author and for which he won the Nobel prize in Economics, challenges utility theory by demonstrating that we do not always act in a purely rational way when making decisions. Kahneman uses two concepts, *reference points* and *the diminishing sensitivity principle*, to demonstrate that we don't always take the purely rational approach. Both of these concepts have one thing in common: *loss aversion*. This refers to our natural inclination to avoid incurring a loss rather than take a chance at a potential gain.

Reference points: Although it is completely irrational, our entire perception of value is based on the concept of *reference points*. The starting point of any transaction changes our behaviour and how much risk we are willing to take. Let's return to the previous example. When €10 million is the starting point, ending up with €5 million is seen as a huge loss. However, when the starting point is €0, walking away with €5 million is a huge win. This is true regardless of how high or low the numbers involved are. It is the *reference point* that determines how we value that final number.

Diminishing sensitivity principle: This principle is about relative loss and gain, showing that we experience diminished sensitivity to changes in our net worth. For example, although the monetary difference is the exact same, it is more painful to lose €100 when you've only got €200 than it is to lose €100 when you've got €100,000. The value of the loss remains the same, but our perceived value is greatly diminished when it is a smaller percentage of our overall resources.





Key Take-Aways

- The mind has two cognitive systems for thinking.
- System 1 (OS 1) works automatically and unconsciously based on intuition, cognitive shortcuts and snap judgements.
- System 2 (OS 2) required conscious focus and attention. It uses logical processes and reason to come to as accurate a conclusion as possible.
- While these two systems are always at work and interacting with each other, one can be dominant in certain situations.
- The mind is always trying to make sense of the world (cognitive coherence) by creating shortcuts, rules of thumb and oversimplified stories to explain a complex world.
- Hindsight bias causes us to remember events and experiences differently because we have more information and context after the fact.
- We estimate risk in different ways, feeling and fearing losses (loss aversion) more intensely than a desire to gain through chance.
- Utility theory is disproven as it is clear that humans do not act in a purely rational way. The author presents his own prospect theory as an alternative perspective on the matter.
- Understanding the two operating systems of the mind, heuristics, various cognitive biases and having a working understanding of basic statistics can help us to reduce bad decisions and prevent errors based on false information or faulty thinking.
- “The way to block errors that originate in System 1 is simple in principle: recognize the signs that you are in a cognitive minefield, slow down, and ask for reinforcement from System 2.”—Daniel Kahneman