An Introduction to

Decision Intelligence

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Decision Intelligence

Definition of decision = an irrevocable allocation of resources

Decision Intelligence is the discipline of turning information into better action at any scale, in any setting.

Decision making is a skill that can be strengthened.

Good decision making compound over time. (when launching a rocket, a small error in setting the initial direction of your journey can have a huge impact on the landing).

The use of data in central to excellence in good decision making.

Outcome Bias

Decision = Irrevocable allocation of resources

Outcome = How things turn out later.

An outcome has 2 main components:

- The quality of the decision
- Luck (randomness)

Giving too much importance to outcomes can penalize good decision making, as a good decision might be turned down in favour of a bad one, due to a previous outcome influenced by random events

Outcome and hindsight bias

Evaluating decisions once the outcome is known can generate many type of bias.

Often people that were successful tend to overestimate their role in influencing that outcome (survivorship bias)

Always evaluate decisions based ONLY on what was known at the time when the decision was made.

HINDSIGHT bias comes from our tendency to forget or downplay elements that affected a decision and to overstress other, when we evaluate a situation after the outcome is known.

The importance of good documentation

When we are “making sense of things in hindsight” we tend to forget elements that influenced our decision, and in absence of a well structure and thorough documentation of the decision making process we are prone to miss important lessons we could learn from the way we went through the process of making decisions.

- Which factors were considered?
- How was information gathered?
- Which sources were used?
- Was the right amount of information collected based on what was at stake?

Lesson: For important decisions, you need to document the decision making process.

Difficult decisions

What makes some decision harder than others? Relevant factors include:

- Number of options (fewer options make a decision simpler)
- Similarity between options (an obvious winner makes a decision easier)
- High stakes (low stake decisions are easier to make)
- Lack of clarity of objectives (clear criteria make a decision easier)
- Cost (lower cost make a decision easier)
  - Cost of execution
  - Cost of making mistakes
- Reversibility (technically decision making is an irrevocable allocation of resources and therefore is never fully reversible). If you can with minimal cost or effort reverse or pivot the effect of your decisions, the pressure is lower and the decision easier to make.
- Cognitive effort (amount of information to be memorized, the presence of distractions, etc.). Less burden on the brain makes a decision easier
- Pressure. Lower stress makes a decision easier
- Emotional triggers. Less emotion makes a decision easier
- Information available. More and better information make a decision easier
- Risk (when the probability is known).
- Ambiguity (when the probability is unknown).
- Time pressure and timing (overlap with other decisions). More free time makes a decision easier.
- Number of stakeholders. Fewer decision makers make a decision easier
- Social effects (scrutiny, consequences). Fewer people affected make the decision easier.
- Internal Conflicts. Fewer categories of incentives make a decision easier.
- Adversarial effects. Lack of competitors makes a decision easier.

Making difficult decisions

Most important takeaway :

When a decision is difficult,

pause, slow down and reevaluate.

When a decision is easy,

you can approach it with confidence.

Setting Goals

Goal setting: Think about your priorities and opportunities.

Forming priorities: Begin with non-priorities.

Other people's priorities: Do I also care? How much?

Goal setting mistakes:

1. Too concrete
2. Too vague

Have layers of goals that serve different purposes(like LEAD vs LAG measures a 4DX execution framework):

- Outcome goals (the win/s you are interested in, often non measurable)
- Performance goals (measurable and mostly under control)
- Process goals (measurable and fully under control)

Be careful that your process goals should never become more important than outcome goals!

The value of clairvoyance

It corresponds to the effort, information and data put towards a decision.

A good decision maker does justice to what's at stake.

A good decision maker doesn't overspend or underspend on a decision.

- Don't overspend on less important decisions
- Don't underspend on very important decisions

Visualize the best and worst case scenarios that could come out of your decision.

If you could have certainty, what is the most you would pay for it?

- When the value isn't high, use intuition (prioritize resource effectiveness). In particular when
  - Time pressure
  - You have significant expertise

  You can also use low stake decision scenarios to practice for higher stake ones

- Maximize effort when:
  - Time abundance, when you have plenty of time
  - High importance
  - Lack of expertise
  - The decision requires structure

Heuristics and Biases

Things that limit and affectour decision making

- Willpower is limited and cannot solve all situations
- Biological factors
- Tendency to flawed evaluations (heurisitcs and biases)

Principal/Agent Problem

A conflict in priorities between the owner of a business and the agent who is managing it. (ex: long-term VS short term approach)

The solution is to create constraints on the agent’s behaviour, to avoid decisions that go against the principal’s interests.

Decisiveness

Factor that make people undecisive:

1. Bad habit. Implicity deciding to:
    a. Delay a decision
    b. Postpone a decision
    c. Deprioritize a decision
2. Distracted by other decisions. Solution: be intentional about your priorities.
3. Grief and emotions. When every option is bad, pick the least worst one and move on.
4. Similar options. Avoid spending excessive time to choose between similar choices.

Confirmation Bias

What you already believe affects the way you perceive new information.

Do not assume that data leads to objectivity.

Framing effect:

The same information presented in a different way leads to different outcomes.

Data

Data in electronic format offers several advantages:

- Better memory
- Easier access
- Ability to reshape it

However, most decision makers tend to overestimate data. Data may not always be true or useful.

AI is based on data. Data is made by people.

The value of data is memory, not objectivity.

Better questions

Where do good questions come from?

Analytics: taking a look at information, a sensory upgrade for modern decision makers.

It is how you get inspired to ask better questions.

A data analyst is NOT a decision maker.

His role is to maximize the speed of access to good information, dodging red herrings. Having domain knowled is an important asset for dat analysts.

Managing analytics is about investing time into exploration.

Data-driven decisions

For a decision to be dat-driven, the data has to drive it. Not data-inspired!

Confirmation bias is very frequent with data.

Decision-makers often use data to feel better about what they were going to do anyway.

Decision makers need to set goalposts in advance and resist the temptation to move them after they have seen the results of data analysis.

The data-divren decision making process

To get rigorous answers from data questions it is important to deal with information in the right order.

How to drive a data-driven decision:

1. No information. What would you do with no new information. Does the information change my mind?
2. Full Information. What would you do with any information you wanted? What would it take to convince you?
3. Look at the information, and the numbers should tell you if you are in scenario A or B.
4. Partial information. Dealing with partial information. Full information is always better than partial information. You know the facts you don't need statistics. When you are dealing with uncertainty you are forced to take a statistical approach.

Stattsticians help you balance the probability of making the wrong decision, with the budget you're willing to pay for data. Statistic offers more rigour and better answers under uncertainity.

Data science

Data science is the discipline of making data useful

A map of data science, depending the number of decisions we know we want to make in advance:

1. No decisions (you are open-mindedly exploring options:
    a. analytics
2. Few important decisions:
    a. statistics
3. Many decisions:
    a. Machine-Learning/AI (model-based decision automation)
4. Negative-one decisions (you already know the answer and you want to persuade other people not to go for it):
    a. Persuasion (data story-telling, data journalism, marketing, etc)

Group Decisions

Benefits of group decisions:

- Protects against individual blind spots
- Can balance out extreme tendencies
- Protects against biological factors, like tiredness
- Places guardrails on unwise decisions
- Balances individual incentives

Downsides of group decisions:

- Increases difficulty
- Increases time
- Lost indipendence
- Diffusion of responsibility
- Socials factors can take over and personal influence may end up weighing more than information-driven ideas

The more people sharing in the decision, the higher the skills necessary in order to tap into the benefits and mitigate the downsides.

One solutions can be to limit the number of true decision-makers and increase the number of advisors.

Is the group making a decision or ratifying a decision? Practice the skill of diagnosing who the true decision makers are.

The career-making question

What would it take to change your mind?

- Understand whether there is a decision to be made in the first place
- Try to read between the line to spot hidden factors that might delay, affect or influence the decision making process
- Understand the default action
- Decision metric and criteria

Data-driven culture

Learning to prioritize your efforts takes experience.

Avoid getting lost in the infinite powers of data

Beware of data charlatans, who use alleged data-driven models to push their agenda.

Even with data, you are still just aperson with an opinion

Ensure decision criteria are in place before anyone looks at the data.

You need to sell data-driven decision making as the steering wheel of your organization.

Decisions makers do not need to be data experst to tap into the benefits of data.

Data science depends on the availability of good data. An organization has to invest in the documentation infrastructure, processes and personnel required to produce good data.

Barriers to organizational decision making

- Data illiteracy
- Lack of skills
- Lack of advocacy
- Responsibility spread unwisely
- Lagging overall investment
- Misaligned incentives
- Lack of coordination between individuals or teams
- Silosed processes

Most often, decision makers lack the skill, not the will, to do the right thing.

Delivering value

- Understand the priorities
- Understand the information sources
- Understand what it would take to change the decision maker’s mind
- Is there a decision to be made?
- Understand what repeated decisions should be executed and optimized (automation)
- Work with decision makers to understand their needs
- Evaluate data sources
- Hire people and protect their careers
- Take the principal-agent problem and group decision making dynamics into account
- Perform good work and advocate for it

Take-aways

- Understand the difference between an outcome and a decision, and how to navigate outcome bias
- Understand confirmation bias and hot to mitigate it
- Remember the factors that make a decision easy vs hard
- Remember the value of clairvoyance to avoid overspending over a decision
- Remember decision framing (no/full/partial information scenarios)
- State what makes a decision dat-driven
- Identify the (real) decision maker in a group setting
- The career-making question: what would it take to change your mind?)
- Understand the importance of investing in tools and data
- Nurture your teams of expert and build a data-driven organizational culture