

Assess

Monitor the outcome

- Fail fast > Fix fast > Learn fast
- Identify mechanisms for on-going monitoring: ensure accountability, improve data, review mechanism

Ask

Formulate a focused question

- Start with a goal in mind
- Good analysis questions are: clear, specific, scoped, data oriented, and answerable

Announce

Decide and communicate

- Consider the levels of business decisions: strategic, tactical, operational
- Use the [Vroom-Yetton-Jago Model](#) to determine whether to make a decision alone or involve a group and to what extent the group should be involved
- When considering how much time to allow when making a decision, use a [OODA loop](#): observe, orient, decide, act
- Employ a [Pugh Matrix](#) or a Decision Matrix to weight various options for the decision
- Communicate – Use the [Rule of 3](#) and the [Pyramid Principle](#)

Acquire

Search for the best available data

- Specify the data necessary to answer the analysis questions. Find the [nouns!](#)
- Use the [Knowledge Crystallization](#) process to get the most compact description possible for a set of data relative to some task without removing information critical to its execution.



Apply

Integrate the data with your professional expertise and be conscious about your mental model

- Balance data with experience
- Avoid cognitive biases: too much information, not enough meaning, and not enough time
- Use the [Ladder of Inference](#) to avoid incorrect inferences

Analyze

Critically appraise and analyze the data

- Use Thomas Davenport's [6 Questions](#) to validate the data and the analysis, and verify the data is represented properly
- Use the [5 Whys](#) technique to find the root cause of the problem



Clear

Clearly stated with as little ambiguity as possible. State any assumptions explicitly.

Specific

May not be easily translated into a single analysis question. Create a set of analysis questions, each of which address a specific aspect to the business.

Scoped

Should have a defined scope.

Data Oriented

Should point clearly to what data will be required to answer the question.

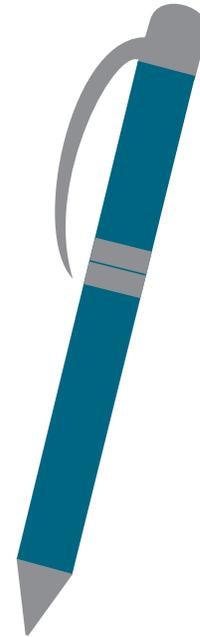
Answerable

Should provide a clear understanding of what the answer for the question will look like.

6 QUESTIONS

by Thomas Davenport

-  1. What is the source of your data?
-  2. If you are reviewing a sampling of your data, how well does the sample data represent the population?
-  3. Does your data distribution include outliers? How did they affect the results?
-  4. What assumptions are behind your analysis? Might certain conditions render your assumptions and your model invalid?
-  5. Why did you decide on that particular analytical approach? What alternatives did you consider?
-  6. How likely is it that the independent variables are actually causing the changes in the dependent variable? Might other analysis establish causality more clearly?



10/10/10 Rule

Helps you think about long term consequences of decisions. How will you feel about it 10 minutes, 10 months and 10 years from now.

Probabilistic Thinking

Trying to estimate the likelihood of an outcome coming to pass as a result of our decision. Includes Bayesian method.

Game Theory

Pick the decision where the maximum advantage of your opponent is minimized.



Second-order Thinking

Helps us think farther ahead about our decisions and think holistically. Requires us to consider subsequent effects on our decisions.

Multiplying by Zero

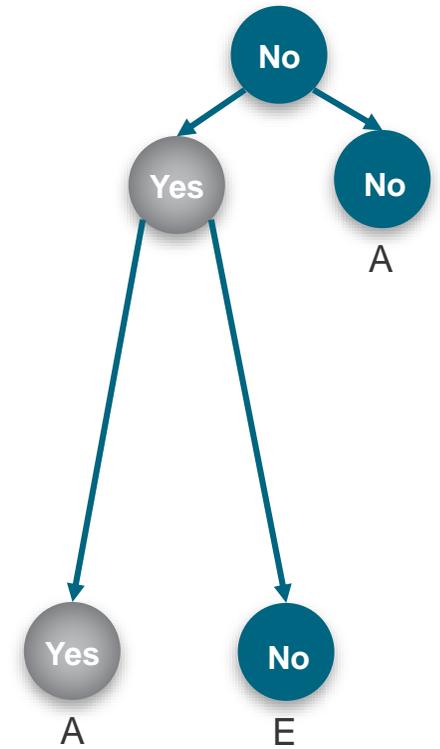
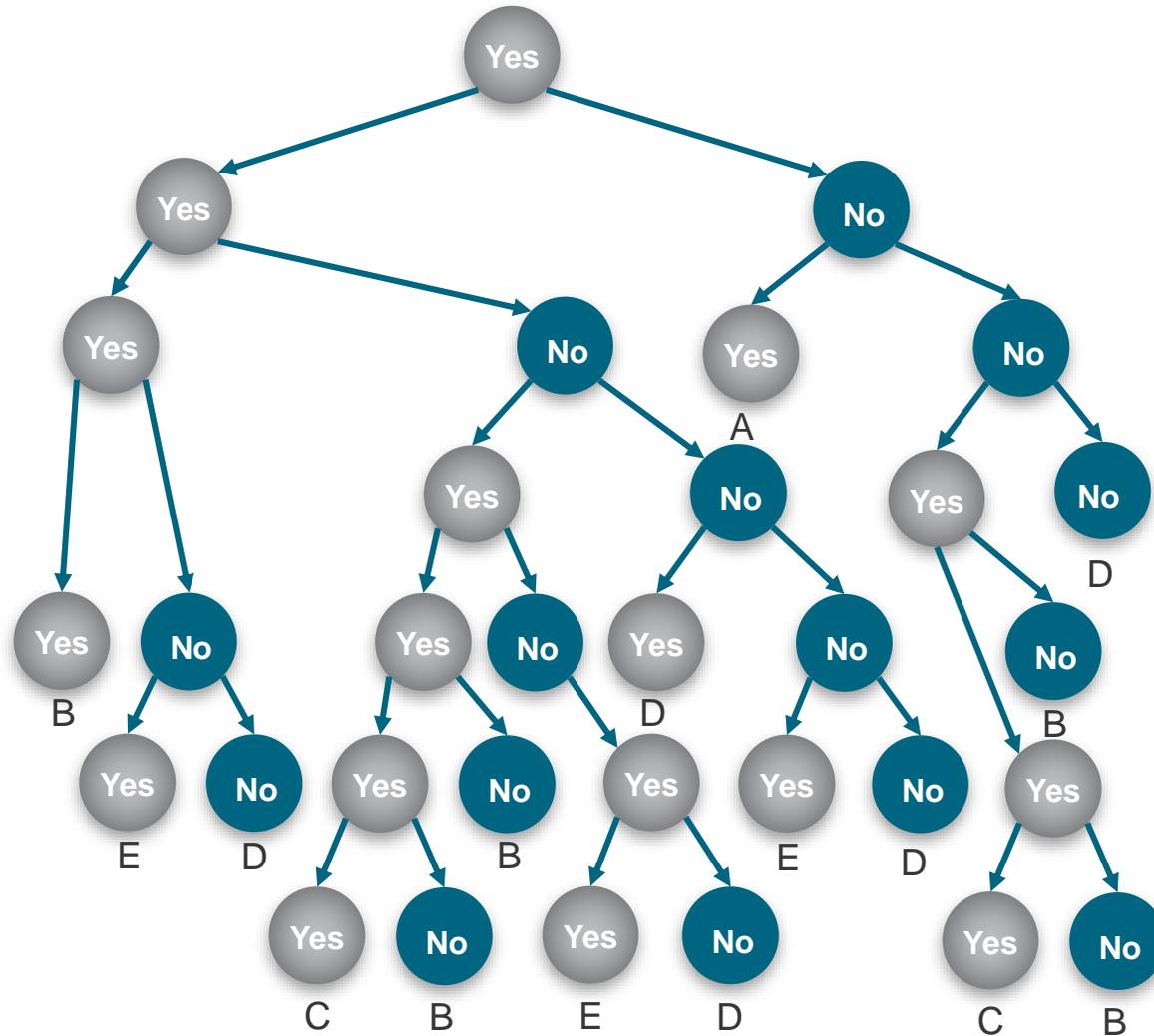
Failure in one area of a system can negate great effort in all other areas. Fixing the zero often has a much greater effect than does trying to enlarge other areas.

Scientific Method

Testing the hypotheses with data and trying to disprove it instead of looking for data to try to prove it.

		Non-Programmed	Programmed
		One-off decision, Not part of a routine	Recurring decision, Routine
Strategic Decisions	Policies, Major impact, Complex	“Investment in a new factory”	“Yearly review of a product portfolio”
Tactical Decisions	Procedures, Impacts sub-groups	“Replacement of selected machines in factory”	“Number of products to produce next month”
Operational Decisions	Execution, small decisions, may be insignificant on its own, but in aggregate is important	“Changing the machine maintenance schedule”	“Scheduling employees for next weeks roster”

- 01** Is the quality of the decision important?
- 02** Is team commitment important for the decision?
- 03** Do you have enough information to make the decision on your own?
- 04** Is the problem well-structured?
- 05** Would the team support your decision if you made it alone?
- 06** Does the team share the organization's goals?
- 07** Is there likely to be conflict amongst the team over the decision?



A = Manager alone B = Manager with team input C = Manager with team read in on situation
 D = Manager and team meet as group E = Manager and team consensus