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Selecting a Reliability Method

Decision



Capabilities Constraints

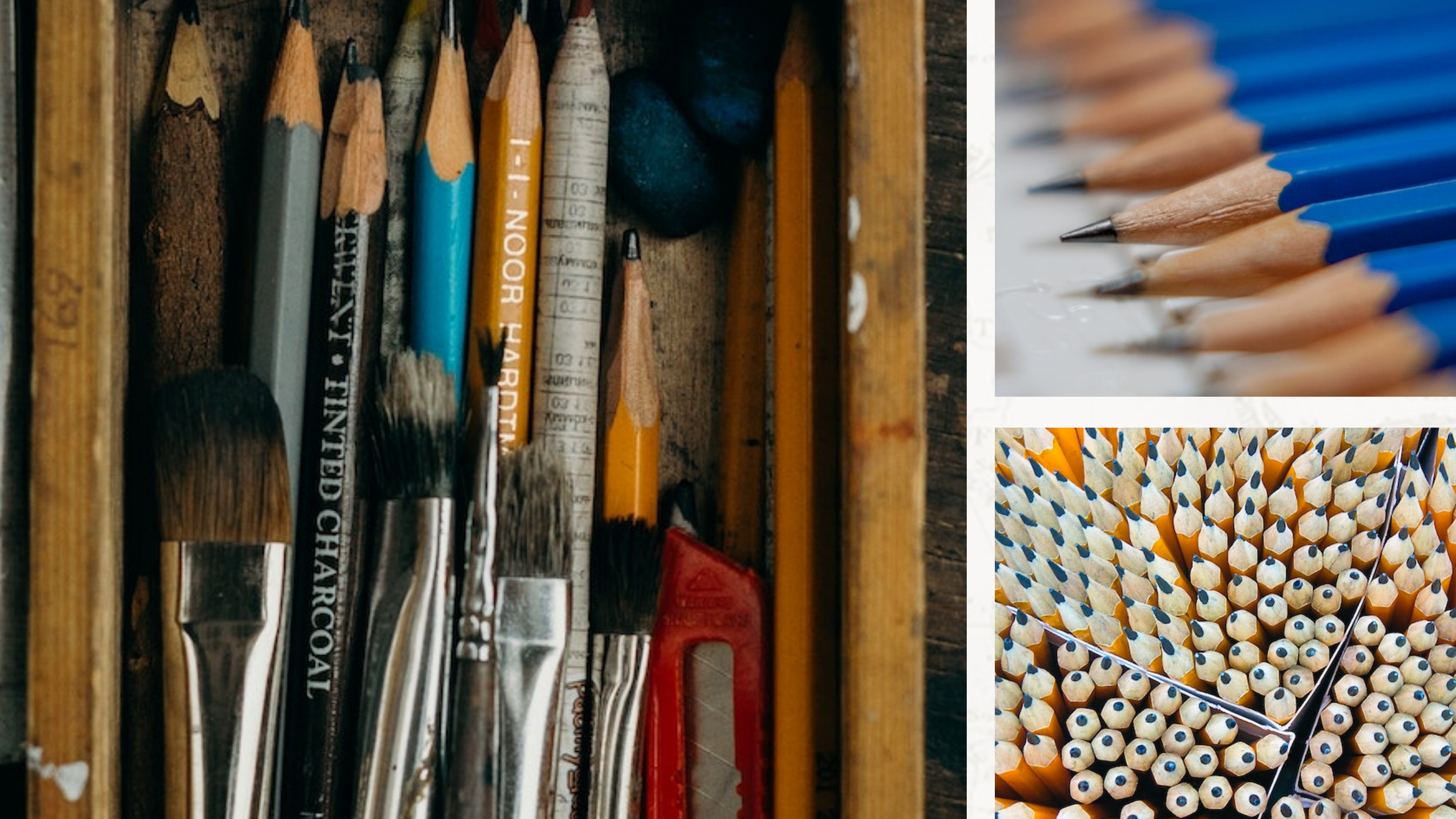




Methods

Do you consider
multiple options?

Decision



The collage consists of three images. The top image is a close-up of various drawing tools, including pencils, brushes, and a ruler, arranged in a wooden case. The middle image shows a row of sharpened pencils, some blue and some natural wood, arranged in a row. The bottom image shows a large pile of sharpened pencils, with a red eraser visible in the foreground.



Identifying Decisions

Decision

Choice, comparison, selection, etc.

Many decisions made

Most may benefit with reliability-
related information



Prioritizing Decisions

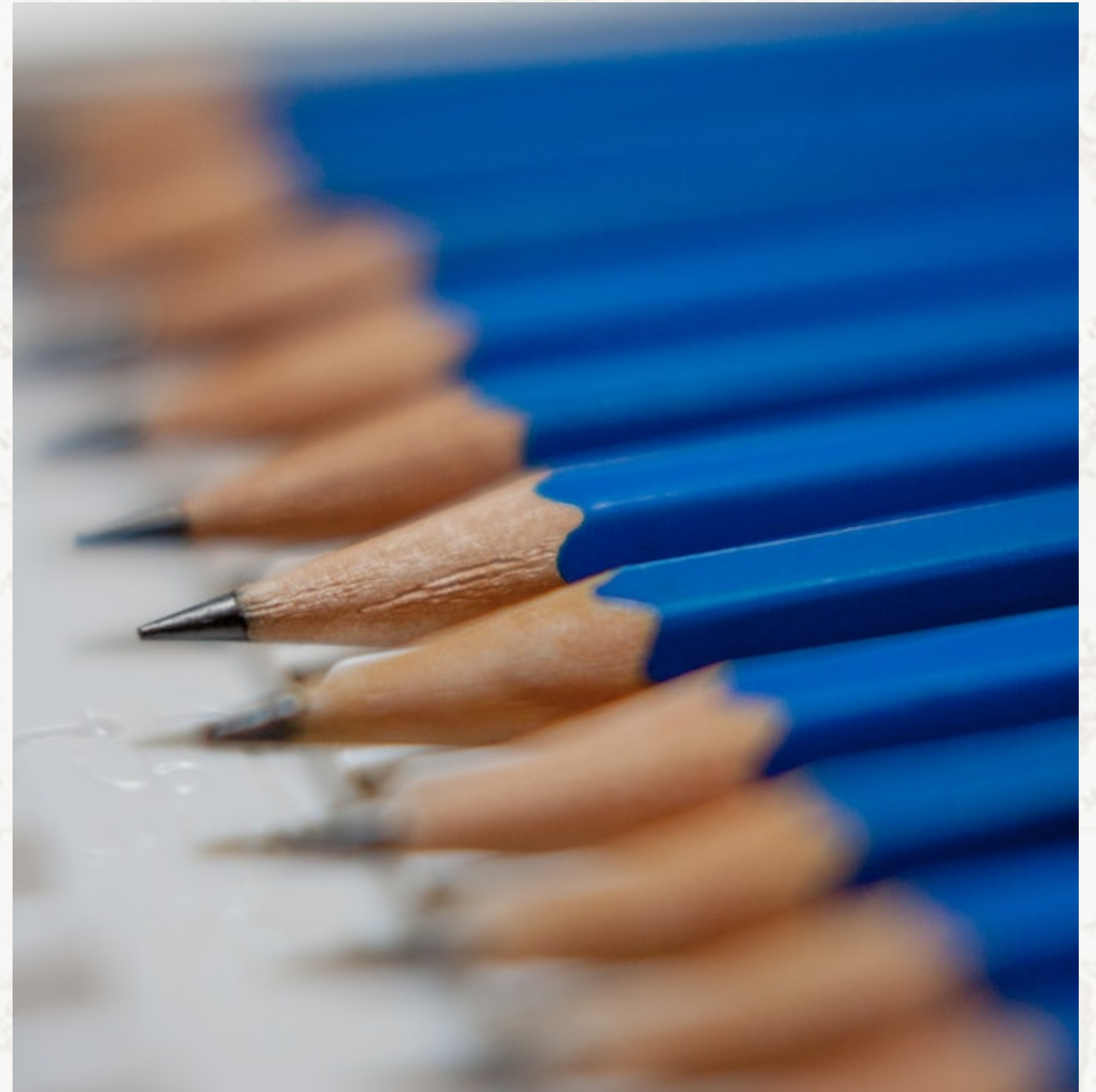
Decision

But, which decisions to expend effort to supply information?

Most important?

Direct requests (requirements)?

As many as possible?



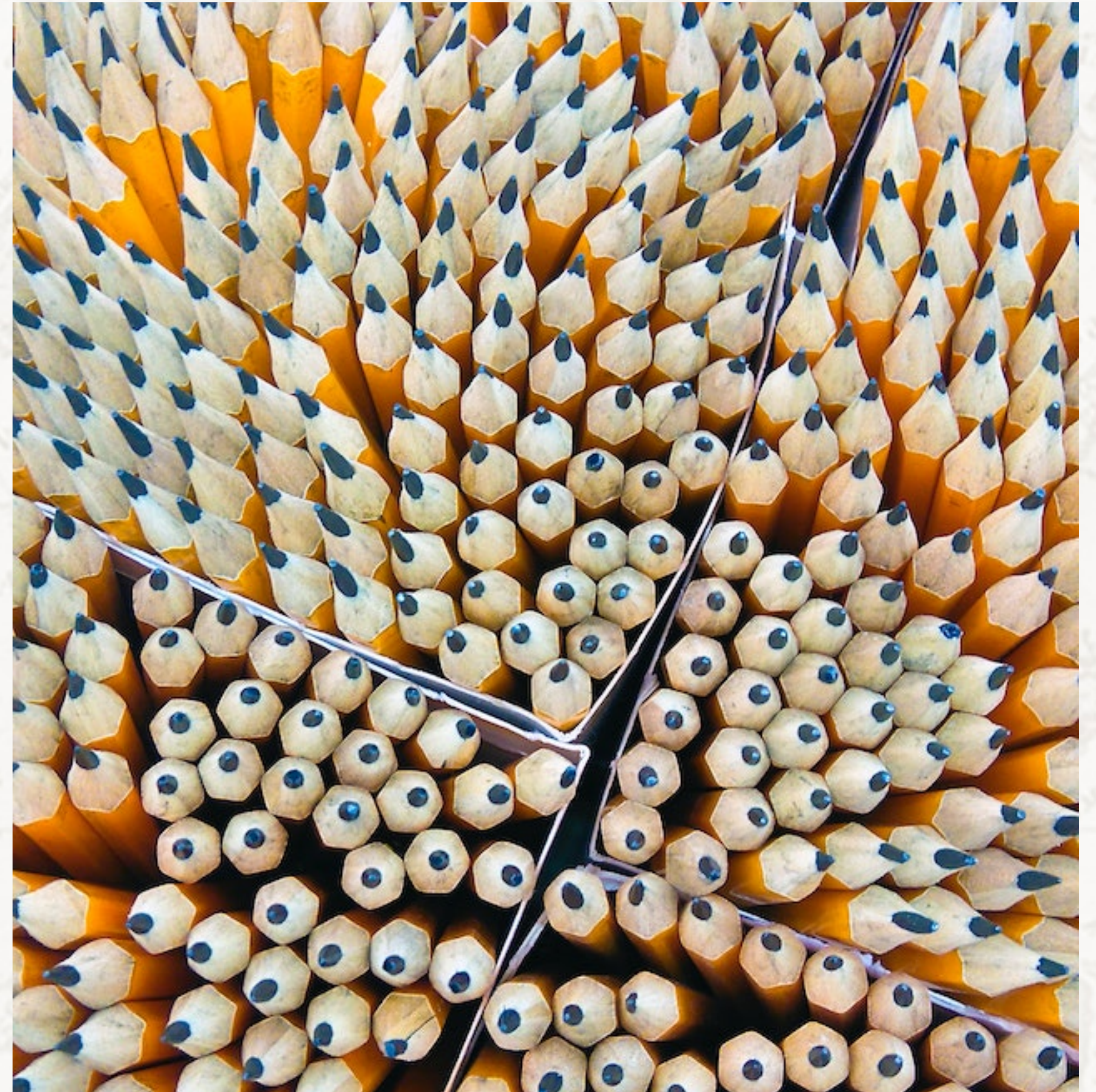
An Example

Decision

Let's say we're exploring a new technology, and one concern is related to its durability in our application.

The team must decide in three months time if it's reliable enough or pursue another solution.

The technology may help solve a power supply start-up problem.



How many decisions

occur during development?

Capabilities & Constraints



Resources & Capabilities

Capabilities & Constraints

Build on the team's and organization's strengths.

Skills, equipment, tools, measurement systems, etc.



Limitations

Capabilities & Constraints

availability of resources

number of samples

budget

timeline

required precision



An Example (continued)

Capabilities & Constraints

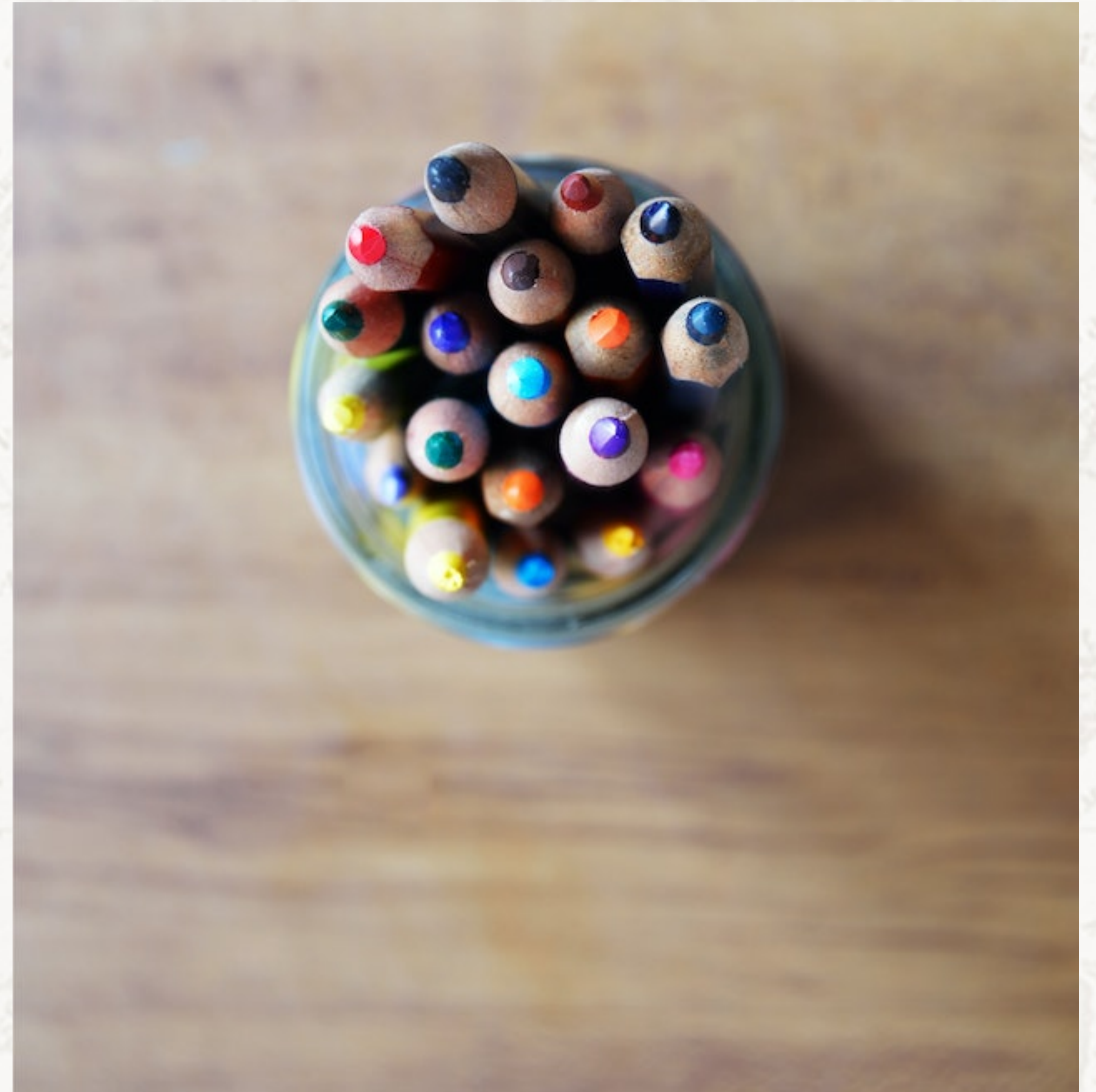
Samples are plentiful and available now

We can evaluate performance in situ in a non-destructive manner

Unsure of the capability of the measurement system

Not sure of the dominant failure mechanism or models for time to failure for this new technology.

This technology is only used during the once-a-day power-up process for about 10 minutes.



Is there an obvious

method?

Select a Method



List Potential Methods

Select a Method

What methods could generate time-to-failure information?



Narrow Down

Select a Method

What criteria do we use to narrow down the potential methods?



An Example

Select a Method

Vendor data is not available for our application.

The existing literature does not cover our application.

Creating a PoF model will take too long.

Acceleration depends on knowing the failure mechanism.

So, what can we do that is meaningful?



Do you know our book?

**The Process of
Reliability Engineering**

Additional Comments and Questions

Thanks

see more at AccendoReliability.com