Cost as an Independent Variable (CAIV)

Problem
How to identify best value?

Difficulty
Easy to use

CAIV is a proactive means for determining "best value."

- It is a structured, disciplined process that balances cost, performance, schedule, and risk to arrive at the "best value" solution.
- It addresses "Total Ownership Cost" which includes the following costs:
  - Development
  - Acquisition
  - Ownership (direct & indirect)

CAIV requires

- A detailed specification
- An affordability estimate
- Multiple options that meet the need
- Accurate life cycle cost models

- Capability needed
- Options to meet need
- Cost models

→ **CAIV process** →

Prioritization of options

1. Obtain specification for the needed capability.
2. Aggregate all system costs (e.g., direct and indirect, acquisition and operational).
3. Identify multiple options that meet the need.
4. Price out the multiple options.
5. Compare and prioritize the multiple options to find the best value proposition. It is typically the "knee" of the cost/performance curve.

CAIV can prevent having to make statements such as:
"The last 50% of the cost bought only 1% better performance"

CAIV – Example – Buying a car

How to buy a car

1. Define car requirements (e.g., reliability of R, can carry P passengers)
2. Define car lifecycle budget (can spend up to D dollars over life of car)
3. Find cars meeting (R,P) and less than D in cost (e.g., used/new, high mileage/low mileage, different brands) – this is the "trade space"
4. Graph the trade space results: (R,P) versus D
5. From the graph, identify the "natural" breakpoints where more money only buys marginal improvement – this is the "knee" of the curve

Options

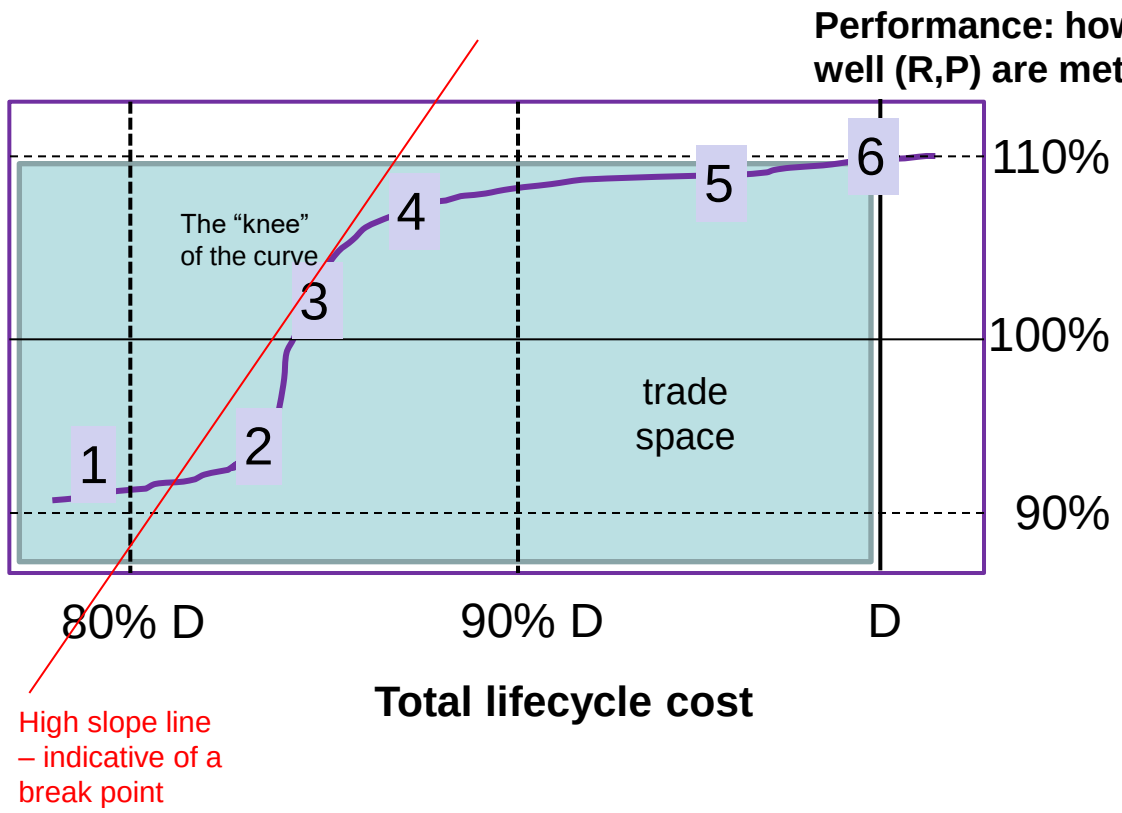
1. 15 year old car – high mileage
2. 15 year old car – low mileage
3. 5 year old car
4. 3 year old car
5. new car
6. new car – luxury brand

Analysis

- Graph has a "break point" at (3), which is 105% of (R,P) and 85% of D.
- The best value occurs at a cost of less than D.

Conclusion

- Can spend the allowable budget (D), but will obtain better value by spending less (e.g., 85% of D).



CAIV – Notes

Slide 1

1. CAIV is used to the determine the ”best value” proposition which can mean spending *less* than the budget allocated.
2. Requirements for CAIV
   - There are multiple solutions available to meet the original need.
   - Processes are in place to accurately determine total ownership cost.
   - You are permitted to spend less than budgeted amount.

Slide 2

1. CAIV applies to household purchases (those that are worth the investment of effort; perhaps a car, boat, house, or vacation)
2. Drawing the value propositions – as in the example – within the trade space often makes the best value solution jump out
3. The “knee” of the curve should be visually clear – if it is not, then CAIV may not be an appropriate tool.
4. In this case the value of the care-abouts (reliability and passengers) increases very sharply at 85% of the lifecycle cost
5. While more value can be obtained above 85%, the improvements in the care-abouts are minimal