We will be starting shortly….

This session will be recorded and available to view after the webinar.

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Problem Solving Techniques for Business Analysts

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SOFT ED

Presentation Abstract

Problem-solving is applied by every person on the planet, in every job, and in everyone's day-to-day environment. But how does it apply in our work as business analysts? Best practices in the industry will be presented with creative ways to approaching this core competency. Business analysts must be effective at defining and understanding the true underlying problems so that the best-fit solution alternatives can be proposed. Connections to root cause analysis, decision making, negotiating, and other core competencies are made.

Expected Outcomes

As an attendee, you can expect to:

- *Get a quick overview of the various approaches to solving a problem.*
- *Gain awareness of some basic techniques to identify the problem and to verify understanding.*
- *Examine the various data gathering tools to uncover the root of the problem.*
- *Pick up some hints and tips on how to identify and evaluate possible solutions by determining what is desirable, possible, and viable.*

What is a Problem?

Think of any problem. Examine products or processes at work or at home

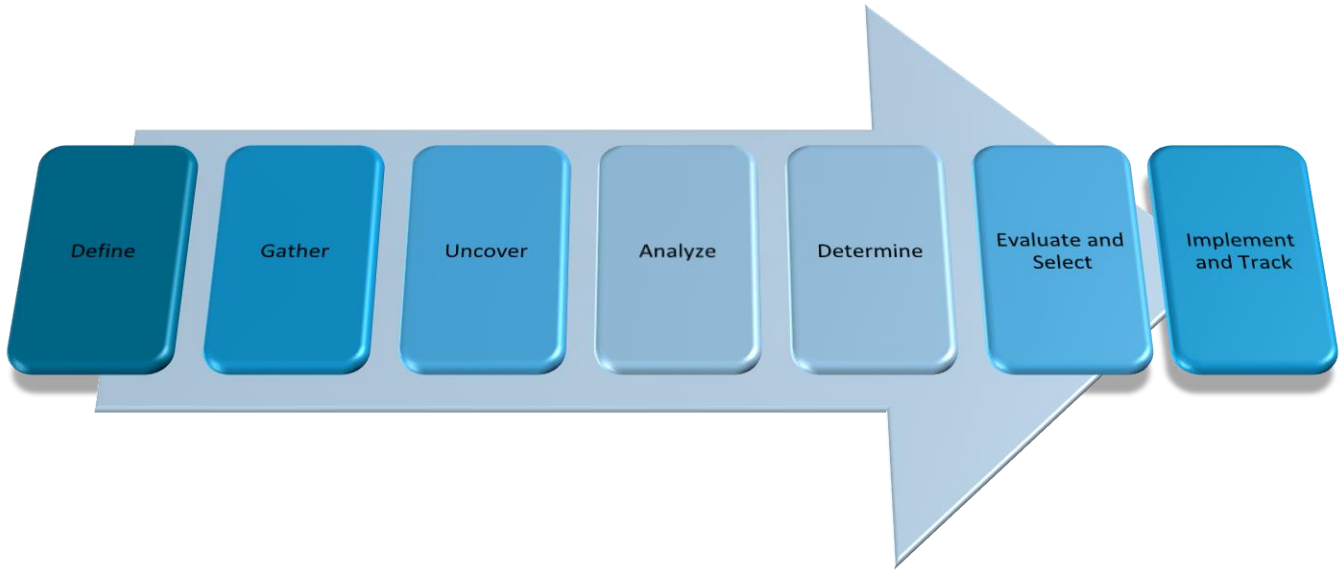
Here are a few hints:

- Can’t sell something
- Can’t find something
- Something always seems to break
- Something is not working anymore
- Something is not working as expected

Problem Solving Approach

7 Step Model

1. Define the problem: Write a problem statement
2. Gather data
3. Uncover root cause and
4. Refine and analyze the defined problem
5. Determine possible solutions
6. Evaluate and select the solution
7. Implement and track to ensure it solves the problem



Business Analysis is based on this simple approach to problem solving

1) Define the Problem: Write a Problem Statement

The problem of <*statement of problem*>

affects <*people, organizations or customer groups*>.

The impact of this is <*poor decision, cost overrun, erroneous information, etc.*>.

A successful solution would be <*describe the solution envisioned or initial solution ideas if possible, it may be refined as more possibilities are introduced*> .

Do we all have the same understanding of the problem (the need)?

Problem Statement Example 1

"The problem of not being able to sell my house affects me, the real estate agent and my family. The impact of this is that improvements needed in my new home must be put on hold and the time and expense in maintaining a second home is impacting my quality of life. A successful solution would be to identify why there are so many showings with no offers and make the necessary adjustments so my family can enjoy the summer with a new deck and landscaping while my real estate agent has a happy second quarter."

Problem Statement Example 2

"The problem of slow response for buying books of stamps at the ATM affects our ATM banking customers and tellers at the local branches. The impact of this is that transactions are held up at the ATM because of the slow response time and Customers may walk away or enter the bank to complain. A successful solution would be to improve the response time by 20% and allow customers to order more than one book of stamps at a time."

2) Gather Data

- ❑When was it discovered and how?
- ❑What are the events before, during and after the problem?
- ❑When does the problem occur?
- ❑How often and for how long?
- ❑Were any resources involved?
- ❑Who has authority to correct it?
- ❑Any similarities to past problems, any trends?
- ❑Do different people experience the problem differently?
- ❑Who might have this problem, but doesn't? Why not?
- ❑How did things work before we had the problem?
- ❑Consider: Who? What? When? Where? Why? How? (W5H)

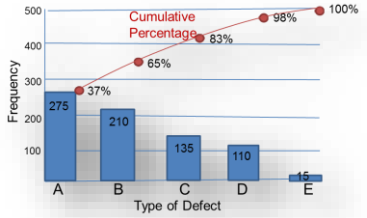
BA defines the current state and scope of the problem impact and the initial needs

Some Tools for Data Gathering

- Checklist
- Check-sheet
- Pareto Chart
- Control Charts
- Scatter(plot) Diagram

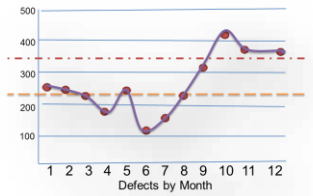
Track performance of a process

Track information over time



Track frequency and impact of errors 80% of impact in 20% of errors

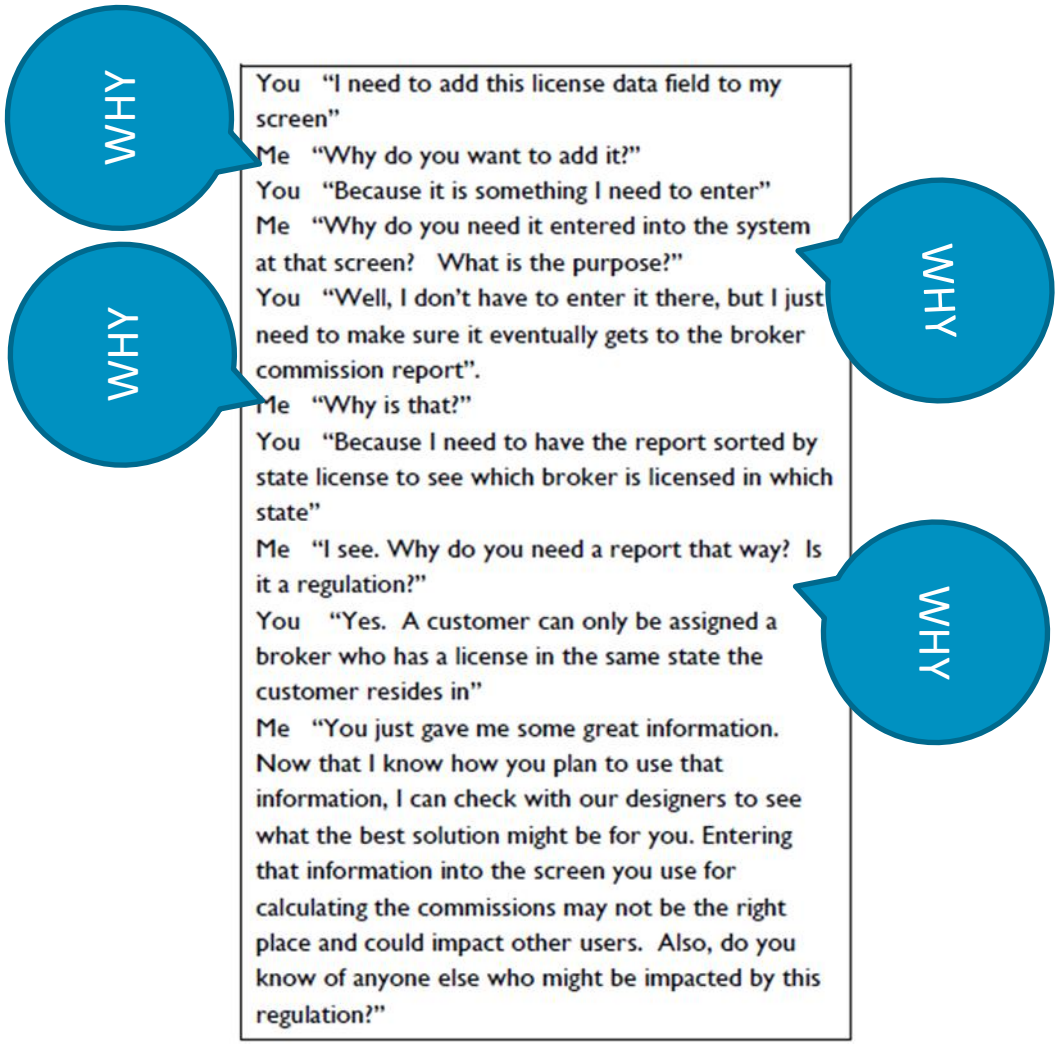
Tracks process predictability against a control lines (upper/lower limits)



Tracks data from two variables to determine if a correlation exists

BA Technique: Use during observations or apply for a period in current state analysis

3) Uncover Root Cause and 4) Analyze

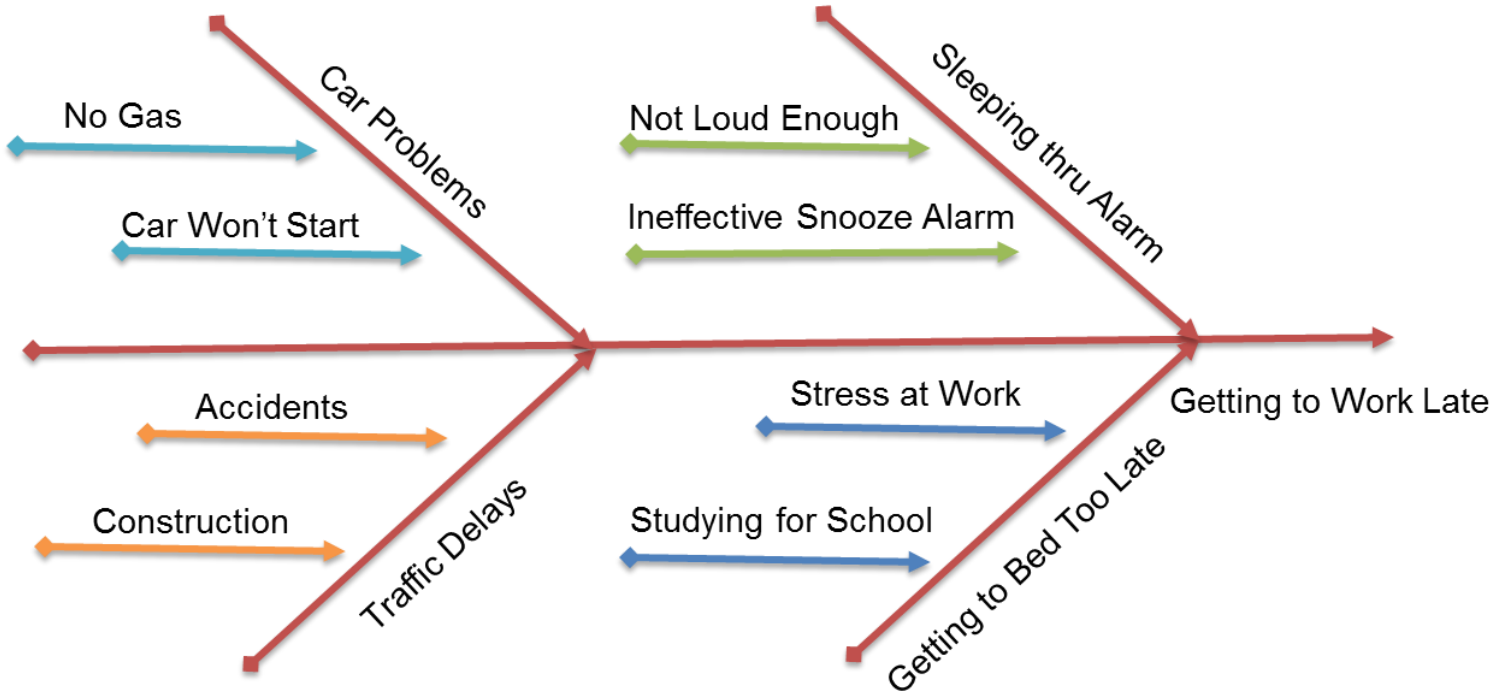


- Application and Benefits
  - Used to systematically analyze problems, possible causes, and their relationships
  - Particularly useful when there is a broad range of possible causes
  - Also helps identify areas in which additional data gathering would be useful
- Some Techniques
  - 5 Whys
  - Fishbone or Ishikawa Diagram

BA Technique: Use probing questions during elicitation

The Fishbone Diagram – Why is this happening?

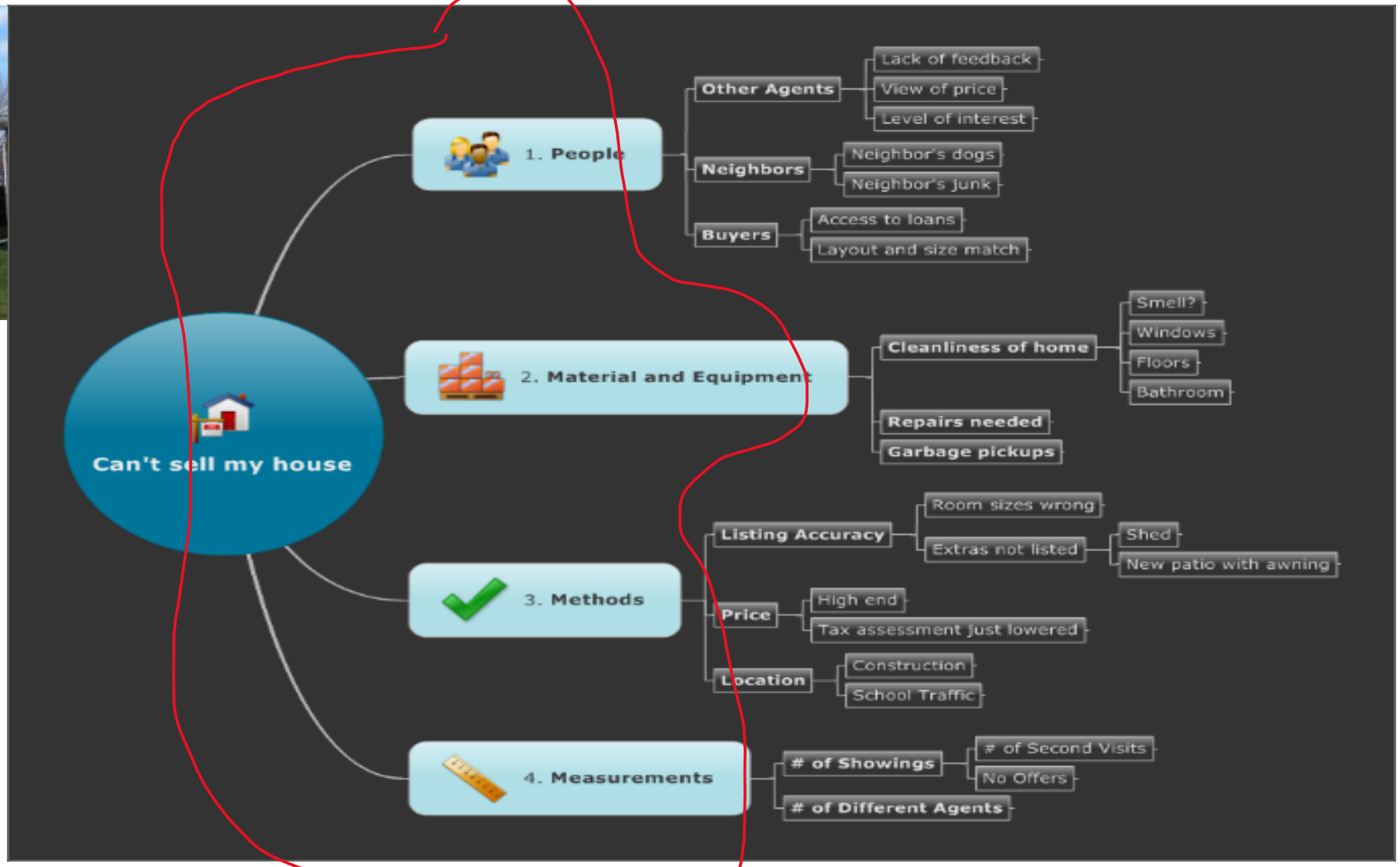
- a.k.a Root Cause Analysis, Cause and Effect, Ishikawa Diagram
- Organized approach for possible causes of the “effect”
- Use categories on separate branches
- Brainstorm causes within each category
- Gather data to validate (use tools presented earlier)



BA Technique: Use probing questions during elicitation

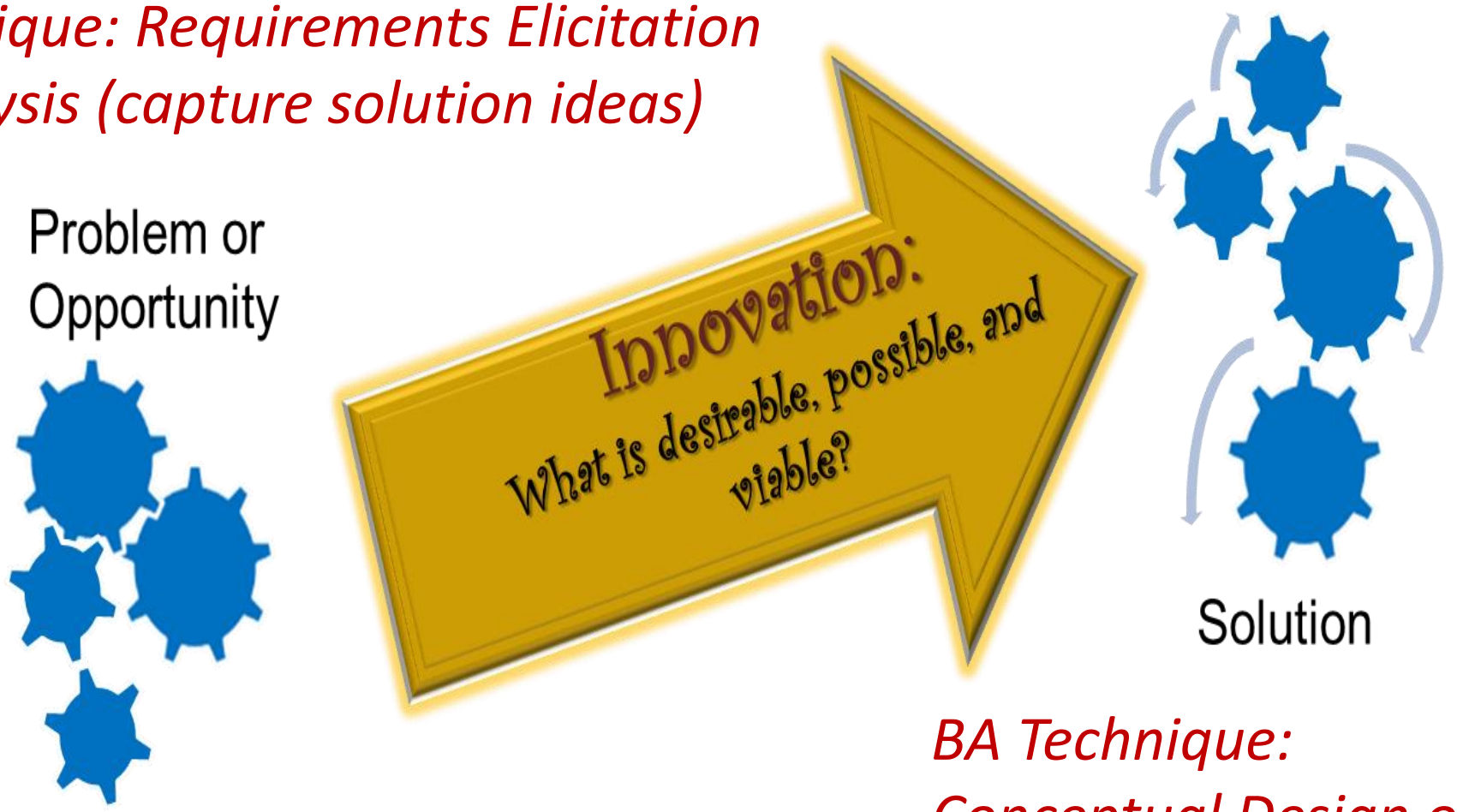
Using Classifications for Analysis

BA Technique: Can classify questions to ask when assessing root cause



5) Determine Possible Solutions

BA Technique: Requirements Elicitation and Analysis (capture solution ideas)



BA Technique: Conceptual Design of Solution(s) (Future State)

Brainstorm

- Create a long list of solution options (suspend judgement)
- Invite stakeholders that may have solutions
- Eliminate those not feasible
- Consider:
  - Has anyone else faced this problem and solved it a particular way?
  - Can you imagine yourself in the end state?
  - Have you looked at the problem from all perspectives?
  - Are there obstacles to solving the problem?

6) Evaluate and Select Solution

- ❑Determine how you will judge the remaining options
- ❑Verify they are feasible
- ❑Can some be combined in different ways
- ❑What is the probability this option will solve the problem?
- ❑What will be the impact upstream/downstream?
- ❑What will be the time, cost and resource impact?
- ❑If more time, money or resources are needed, can we get it?
- ❑Does this option introduce any new risks?

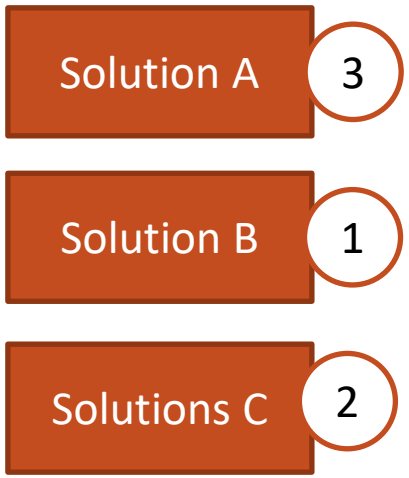
Solution A

Solution B

Solutions C

BA Technique:
Analyze against requirements and determine gaps (current vs. future state)

Rank and Select Solutions



- Feature Scoring
- Morphological Box
- SWOT Analysis
- Decision Tree
- Value Analysis

BA Technique:

Use agreed upon criteria to select a solution – avoids politics

Feature Scoring

- Apply priorities or weights to features or requirements
  R1: “Can search based on key words” Weight=2 out of 3
- Rank features or requirements and assess extent a solution or product meets that feature (rating)
  Product A Rating=1, Product B Rating=3, Product C Rating=5
- Multiply weight by rating to calculate a score
  Product A Score=2, Product B Score=6, Product C Score=10
- Total scores for each solution option and collaborate to a decision

Morphological Box

- Works with parameters (can be high level features, components, dimensions, service efficiencies, strategies, or other decision criteria)
- Good for initial, high-level assessments or for executive summaries
- Helps to produce other options by displaying and discussing in a group

	Build	Buy	Work-around
Cost	Highest: 1.2-1.5m	Medium: 500k-800k	Lowest: 50k
Fit with strategy	100% -fully customizable to strategy	75% fit, but two critical features not addressed	Fits with current business model but not for long term strategy
Quality Impact	Quality checks fully integrated in with six sigma initiative	1% defect industry standard with this product (50% improvement)	Will not improve quality issues

By laying these parameters out, can we produce a different combination of options?

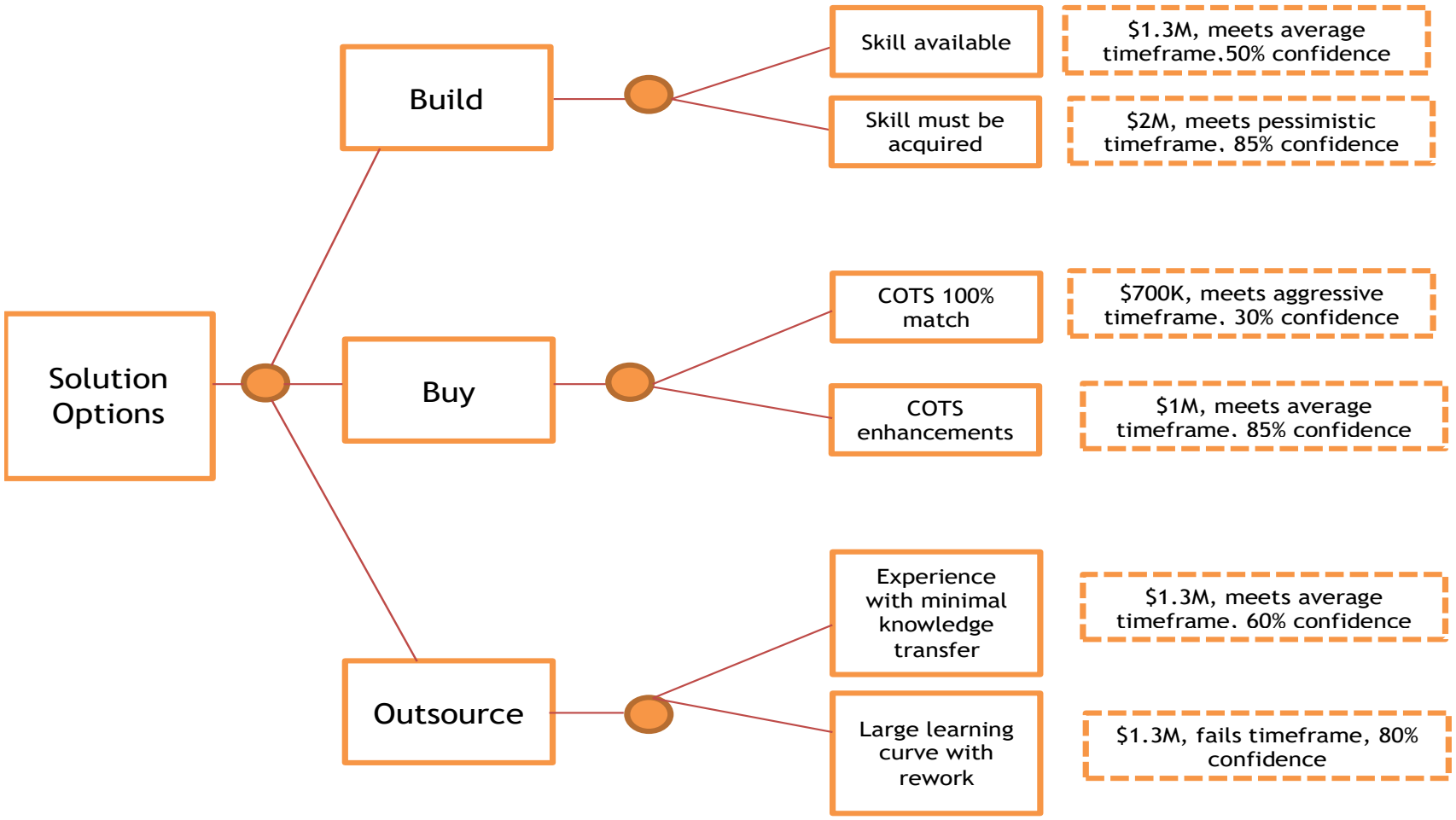
SWOT Example

Selling Gina's house (vs. Renting)

STRENGTHS	OPPORTUNITIES
Remodeled 5 years ago Mortgage is paid off Nice supporting neighbors Family Support	Newly paved streets 4 homes recently sold within 2 months. School just down the street
WEAKNESSES	**THREATS**
Basement not empty and needs some repair 1 ½ car garage others in neighborhood are 2+ Older furnace and infrastructure	Two other homes recently came up on the market Economy has set sell prices low, especially with amount of short sales Less access to mortgages
INTERNAL	**EXTERNAL**

What ideas might you get if you look at these in different combinations?

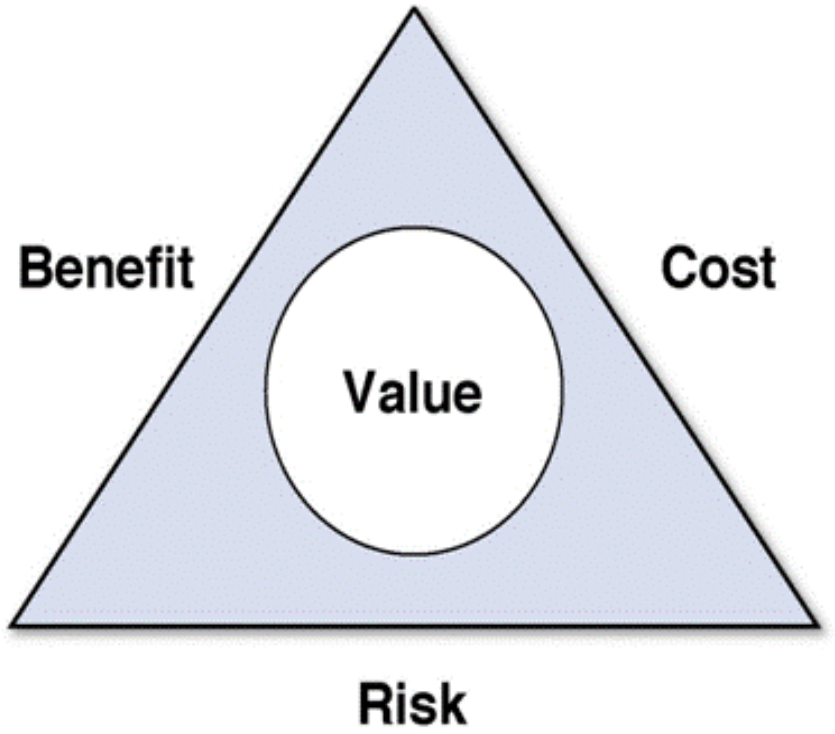
Decision Tree



This example shows a decision tree based on the comparison of three solution options and tradeoffs.

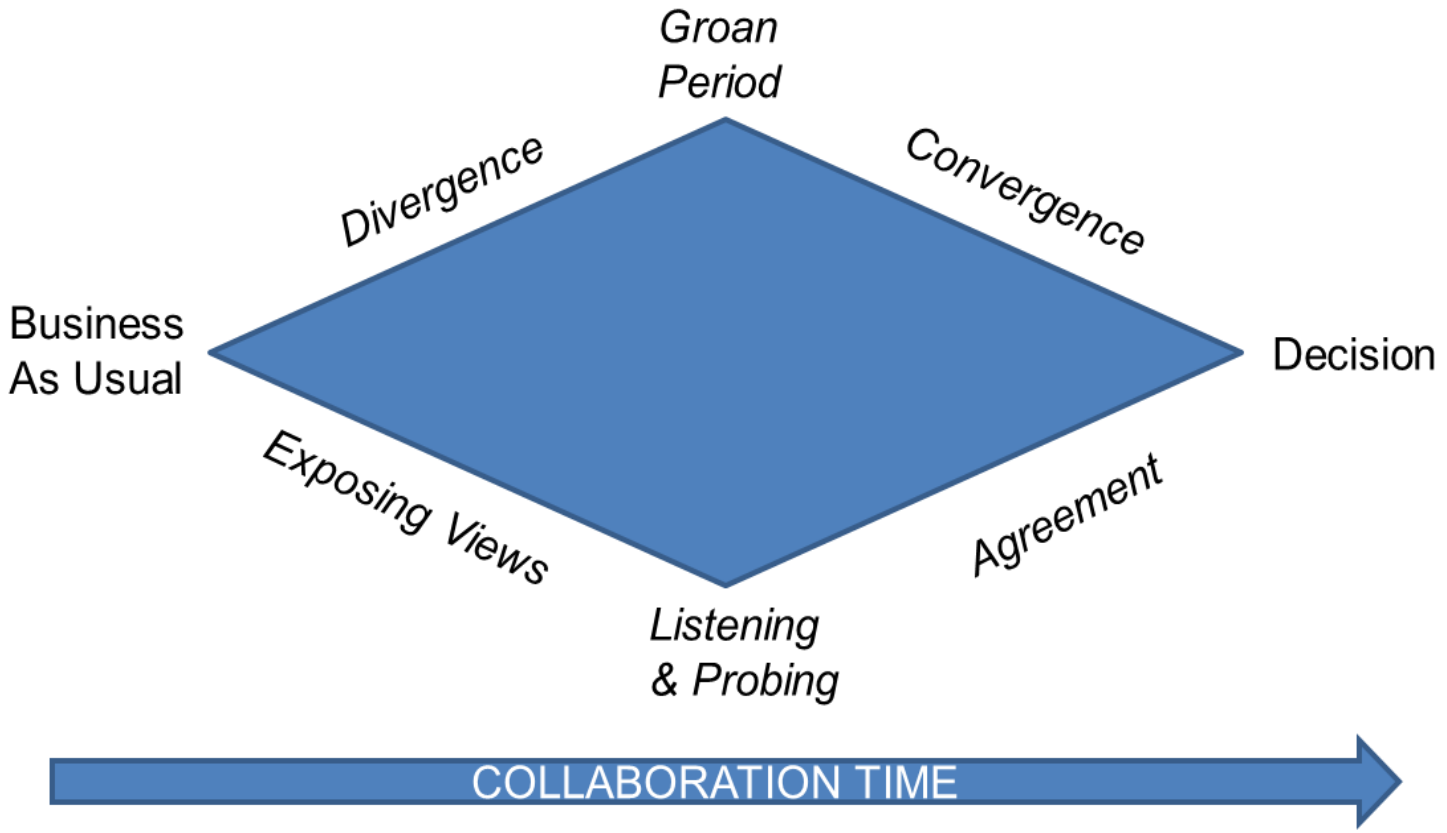
Value Analysis for Each Option (for use in implementation and tracking value)

- Risk mitigation costs
- Total cost of ownership
- Stakeholder value propositions
- Benefits calculations
- Metrics to track and evaluate continued value



Collaborating to Solution Decisions

BA Technique: Facilitate stakeholders to an agreed upon decision



Adapted from Facilitator's Guide to Participatory Decision Making by Sam Kaner

What About Intuition?

- How Our Brain Works
- Based on Experience
- Subconsciously Aware of Facts and Makes Connections
- Recognizes the Signs
- Makes Lots of Assumptions
- Difficult to Obtain Buy-in

My final thoughts!

- Problem solving is an important competency for the BA
- Take the time to analyze the problem and perform root cause analysis
- Always provide more than one solution option
- Use agreed upon criteria to select a solution
- When given solutions instead of the problem or requirements, probe with root cause analysis questions.
- Assist stakeholders in making solution decisions
- Be a value manager – track the solution's continued value – did it solve and continually solve the problem.

Resources

- Business Analysis Body of Knowledge V3, by the International Institute of Business Analysis (www.iiba.org)
  - Underlying Competencies 9.1.4
- http://www.mindtools.com
- *Memory Jogger II*, Goal/QPC, 1994
- *101 Creative Problem-Solving Techniques* by James M. Higgins, The New Management, 2006
- *Problem Solving Memory Jogger,* 2nd edition, Goal/QPC, 2011
- Consider the Vroom-Yetton-Jag Decision Model (See http://mindtools.com/pages/article/newTED_91.htm)

Thank you for joining us today. Questions?

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Appendix

You won’t leave without some additional tools to use!

Practice: Data Gathering

- Pick a few scenarios listed below or use your own problem statement to determine which of the tools and techniques would be best for data gathering.

Scenarios

a. Constantly getting a flat tire
b. Occasionally getting bad indigestion
c. Product defects suddenly increased by 50 %
d. The orders I am entering are all getting rejected
e. I can't keep up with the number of orders I have to enter, I am getting further and further behind.

Tools and Techniques

Checklist
Check-sheet
Pareto Chart
Control Charts
Scatter(plot) Diagram
5 Whys
Fishbone diagram
Observation
User Task Analysis
Interviews