Valuing Alternative Futures:
The use of qualitative probability theory to weigh the consequences of different actions.

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Dr. Judith A. Hale

HPT, as ISPI defines it, is based on five principles, that is, 1) focus on value, 2) be systemic in nature, 3) add value, 4) collaborate, and 5) be systematic. The concepts covered in this session support all five principles. The use of qualitative probability theory requires partnering (collaboration), provides methods of identifying assumptions on which future performance is based (the systemic part), follows an algorithm (the systematic part), and promotes serious discussion about just what is and will be of value and to whom (the results and adding value parts). The intent of the session is to give participants a common platform to engage their clients in the process of identifying assumptions, weighing the risk of those assumptions materializing or not, and valuing choices based on the probability of possible outcomes.

Benefits: The benefits are participants will receive a set of tools and decision models that encourage logical thinking, discipline, and consideration of organizational realities that, in turn, will help them:

♦ Save time.
♦ Avoid unnecessary costs.
♦ Increase their confidence.
♦ Be perceived as having business smarts.

Presentation design plan
1. Introductions.
2. Determine expectations.
3. Review the objectives and explain how the topic relates to ISPI’s goals.
4. Explain how the session is organized.
5. Present:
   ♦ Decision theory.
   ♦ Cost Benefit assumptions.
   ♦ Steady versus change.
   ♦ Probability theory and its relationship to different future states (mutually exclusive, independent, and conditional).
   ♦ Explain the tools, how they are used, and their benefits.
   ♦ Give examples.
6. Q & A.

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How decisions get made

◆ A decision presumes there are alternatives which are actually considered.
◆ The alternative that is selected is one with the greatest want satisfying power
  ❖ Called “utility” in decision theory.
◆ The measure of success is satisfaction.
◆ The success of the choice is assumed because of its want satisfying power and the other alternatives are quickly dismissed.

Assumed Worth or Value

◆ The worth of a solution (initiative) is measured in terms of the potential return:

\[
\text{ROI} = \frac{\text{Value}}{\text{Cost}} \times \text{want satisfying power}
\]
Performance Tool #1

The following are generic sample tools that can be used to help clients:
1. Surface their assumptive base about what they see happening and not happening in the future.
2. Discuss the probability of their assumptions coming to pass.
3. Discuss the risks (positive and negative) of their assumptions coming and not coming to pass.

In use, the tables would have actual examples based on the real situation.

<table>
<thead>
<tr>
<th>Now</th>
<th>Action Set #1 Do nothing Assumptions</th>
<th>Action Set #2 Do A Assumptions</th>
<th>Action Set #3 Do B Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavior X</td>
<td>Behavior X</td>
<td>Avoid behavior X</td>
<td>Avoid behavior X</td>
</tr>
<tr>
<td>Behavior Y</td>
<td>Behavior Y</td>
<td>Reduce behavior Y</td>
<td>Keep behavior Y</td>
</tr>
<tr>
<td>Behavior Z</td>
<td>Behavior Z</td>
<td>Keep behavior Z</td>
<td>Reduce behavior Z</td>
</tr>
<tr>
<td>Have cost M</td>
<td>Have cost M</td>
<td>Reduce cost M</td>
<td>Avoid cost M</td>
</tr>
<tr>
<td>Add cost N</td>
<td></td>
<td>Avoid cost N</td>
<td>Avoid cost N</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Add cost O</td>
<td>Add cost O</td>
</tr>
</tbody>
</table>

This tool is used to do a cost benefit analysis. It helps clients see the cost and benefits associated with different alternatives.

Assumed Steady State

◆ Sponsors remain engaged & committed.
◆ External environmental pressures & constraints are predictable.
  ❖ Customer behavior & expectations.
  ❖ Competitor behavior.
  ❖ Technology advances.
◆ Internal environmental dynamics are predictable.
  ❖ Turnover, labor relations, etc.
Understand probability

◆ Probability is an estimate of certainty:
  ✔ 0 (uncertain) to 1 (certain).
◆ Objective probability is based on long-run frequencies of occurrence.
◆ Subjective or qualitative probability is a reflection of personal preference and confidence in an occurrence based on available evidence.

Understand probability

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**Identify Alternative Futures**

P. Players do or do not remain the same.
E. Economic environment does or does not change.
T. Advances in technology do or do not come about faster than anticipated.
C. New competitors do or do not emerge.
M. Critical mass does or doesn’t happen.

See Tools #2, #3, #4

**Alternative Future Table – Tool #2**

<table>
<thead>
<tr>
<th>Alternative future #1</th>
<th>How probable is this future state?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Growth stays the same.</td>
<td>Very, maybe, unlikely?</td>
</tr>
<tr>
<td>2. Turnover stays the same.</td>
<td></td>
</tr>
<tr>
<td>3. No new technology emerges to replace the current technology.</td>
<td></td>
</tr>
<tr>
<td>4. Customers’ economic behavior stays the same.</td>
<td></td>
</tr>
<tr>
<td>5. Internal champions stay engaged.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Alternative future #2</th>
<th>How probable is this future state?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Growth does not stay the same.</td>
<td>Very, maybe, unlikely?</td>
</tr>
<tr>
<td>2. Turnover stays the same.</td>
<td></td>
</tr>
<tr>
<td>3. A new technology emerges to replace the current technology.</td>
<td></td>
</tr>
<tr>
<td>4. Customers’ economic behavior does not stay the same.</td>
<td></td>
</tr>
<tr>
<td>5. Internal champions move on.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Alternative future #3</th>
<th>How probable is this future state?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Very, maybe, unlikely?</td>
</tr>
</tbody>
</table>

This tool helps you guide client’s discussion about their beliefs related to the predictability of external and internal factors. It allows you to introduce different scenarios and talk about the probability of them happening.

Tool #3 guides you in a discussion about how probable it is that things will change.
## Tool #3 – Surface your own assumptive base

<table>
<thead>
<tr>
<th>Today</th>
<th>The Future</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Key stakeholders and people of influence.</strong> You had to get their support to launch your program. You identified them and enrolled them.</td>
<td><strong>They will leave</strong> or move to different positions. Where will they be in three years? Five years? How will you orient &amp; enroll their replacements so the new leaders can continue to support the behaviors and practices your program depends on?</td>
</tr>
<tr>
<td><strong>The promise.</strong> Your program was funded on the promise it will produce positive business results. The promise may or may not be in economical terms but it should be measurable.</td>
<td><strong>As time passes, an understanding of the promise will get distorted.</strong> What will you do to assure a continued understanding of the promise and what was agreed to as evidence of success? How will you continue to report progress, impact, or results?</td>
</tr>
<tr>
<td><strong>Competition for attention.</strong> Keep your initiative or program on management’s agenda.</td>
<td><strong>New initiatives will compete</strong> with your program for attention and space on the agenda. How many initiatives were there over the last three years? There will that many or more in the next three. How will you identify them early so your program can be linked or seen as an enabler, and not pushed off the agenda?</td>
</tr>
<tr>
<td><strong>Organizational structure and reporting relationships.</strong> Your ability to influence is enhanced or limited by your position power.</td>
<td><strong>You will reorganize.</strong> You will see mergers and takeovers in your industry. Reporting relationships will change. On average, 90% of employees have their workspace relocated at least once a year. How will this affect your ability to sustain attention and accountability for the performance you want to institutionalize? How will this affect your ability to sustain support? How can you prepare management for the impact of such changes on your program?</td>
</tr>
<tr>
<td><strong>Technology.</strong> Your program or initiative was launched on the premise of some technological capability.</td>
<td><strong>New technologies will emerge.</strong> Some will support greater autonomy by units, others will enable greater centralized control. How might future developments in technology affect your program’s long term effectiveness? How will you identify and anticipate those new developments so management is prepared for the impact?</td>
</tr>
<tr>
<td><strong>Tools and Training.</strong> You probably launched your program or initiative with a series of training programs. You may have even developed brochures, set up a help desk, and produced job aids.</td>
<td><strong>New behaviors will atrophy</strong> without reinforcement. People will need tools to help them become confident in the new behaviors. Pay particular attention to tools that guide decisions like how to assign merit pay and select people for jobs. Also consider tools that help managers coach, give feedback, and shift accountability to the appropriate position.</td>
</tr>
<tr>
<td><strong>Ownership.</strong> The goal of most programs is to shift ownership, accountability for the new behaviors and results, to the line</td>
<td><strong>Overtime the responsibility will shift back</strong> to HR or the staff organization. Develop scorecards and other reporting devices that track and publicly communicate</td>
</tr>
</tbody>
</table>
organization. Otherwise you are forever in a policing role.

people’s progress using the new behaviors or new program. Continue to celebrate adoption.

**Sponsorship.** You probably had a sponsor, someone in senior management who championed the change. More than likely that sponsor was rewarded for the successful launch and deployment of the change.

Eventually no one’s bonus will depend on continuing to sponsor the change. Call the question. Ask ‘who has the program’s continued success as part of his or her performance contract? Whose bonus will be affected by the program’s future success or demise?’

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**See the relationship of futures**

- Some futures are mutually exclusive:
  - \( P_1 \) or \( P_2 \) (same players or different players)

- Some futures are independent:
  - \( P_1 \) or \( E_1 \) (same players or different economy)
  - \( P_2 \) and \( E_1 \) (different players & same economy)

- Some futures are conditional.
  - Given \( T_1 \) (advances in technology) what’s the probability of \( C_1 \) (new competitors)?
  - Given \( E_2 \) (weakening economy) what’s the probability of \( C_2 \) (no new competitors)?
### Alternative Future Table – Tool #4

<table>
<thead>
<tr>
<th>Alternative futures</th>
<th>What are the consequences?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. If growth stays/does not stay the same, what are the implications?</td>
<td>Economic, non economic?</td>
</tr>
<tr>
<td>2. If turnover stays/does not stay the same, what are the implications?</td>
<td></td>
</tr>
<tr>
<td>3. If no new technology emerges or if one does emerge what are the implications?</td>
<td></td>
</tr>
<tr>
<td>4. If customers’ economic behavior stays/does not stay the same, what are the implications?</td>
<td></td>
</tr>
<tr>
<td>5. If internal champions stay/do not stay engaged, what are the implications?</td>
<td></td>
</tr>
</tbody>
</table>

### Discuss the relationship

- **Note which futures are mutually exclusive:**
  - Either P₁ or P₂ (players)

- **Note those that are independent:**
  - Either E₁ or E₂ (economy) OR either P₁ and C₁

- **Note those that are conditional:**
  - If P₂ (players) then what about T₁ (technology)?
  - If T₁ (technology) then what about C₁ (new competition)?
Discuss the relationship

◆ Note which futures are mutually exclusive:
  ◆ Either $P_1$ or $P_2$ (players)

◆ Note those that are independent:
  ◆ Either $E_1$ or $E_2$ (economy) OR either $P_1$ and $C_1$

◆ Note those that are conditional:
  ◆ If $P_2$ (players) then what about $T_1$ (technology)?
  ◆ If $T_1$ (technology) then what about $C_1$ (new competition)?
Pay Off Table – Tool #5

<table>
<thead>
<tr>
<th>Alternative futures</th>
<th>Action Set #1</th>
<th>Action Set #2</th>
<th>Action Set #3</th>
<th>Expected Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>Pay off 1,1</td>
<td>Pay off 1,2</td>
<td>Pay off 1,3</td>
<td>Expected value A</td>
</tr>
<tr>
<td>#2</td>
<td>Pay off 2,1</td>
<td>Pay off 2,2</td>
<td>Pay off 2,3</td>
<td>Expected value B</td>
</tr>
<tr>
<td>#3</td>
<td>Pay off 3,1</td>
<td>Pay off 3,2</td>
<td>Pay off 3,3</td>
<td>Expected value C</td>
</tr>
</tbody>
</table>

Possible discussion questions:

1. How probable is Future #1?
2. Given the occurrence of Future #1 and the implementation of Action Set # 1, what is the expected outcome economically and non economically (pay off 1,1)?
3. Given the occurrence of Future #1 and the implementation of Action Set # 2, what is the expected outcome economically and non economically (pay off 1,2)?
4. Given the occurrence of Future #1 and the implementation of Action Set # 3, what is the expected outcome economically and non economically (pay off 1,3)?
5. Repeat the questions for the other futures across each action set.
6. Which future has the highest expected value given all three action sets?

Discuss the relationship

◆ Note which futures are mutually exclusive:
  - Either $P_1$ or $P_2$ (players)

◆ Note those that are independent:
  - Either $E_1$ or $E_2$ (economy) or either $P_1$ and $C_1$

◆ Note those that are conditional:
  - If $P_2$ (players) then what about $T_3$ (technology)?
  - If $T_3$ (technology) then what about $C_4$ (new competition)?
Research and bibliography

- 100+ articles of required reading for course 674 in Organizational Communication, Purdue University graduate School of Communication.

Experience. Judy taught probability theory for fourteen years for the Insurance School of Chicago’s management program. Over that time, she was within the top 10 percent of instructors in terms of student pass rates on national exams. She uses probability theory when helping clients build business cases in support of major initiatives.

Biography: Judith Hale, Ph.D. author of *The Performance Consultant’s Fieldbook, 2nd ED*; *Performance-Based Certification, 2nd ED*; and *Performance-Based Evaluation* has been a consultant to management in the public and private sectors for more than 25 years. She specializes in certification programs, evaluation protocols, and the implementation of major interventions. She was awarded outstanding educator by the Insurance School of Chicago, and the Gilbert and Member for Life Awards from ISPI.