Innovation and Creativity
Jan 27
Jan 27, 2015

• HW Presentation
• Lecture on Creativity
• Exercise
• Lecture (if time) on innovation
• HW for next week
What drives your “A hah” Process

• Association?
• Necessity?
• Blank Time - Showers, commutes?
• Explaining the problem to others?
• Hearing a great talk on a subject?
• Random?
Can this be structured?
Can you organize the generation of new ideas?

• Clarify the problem
  – *What are you trying to solve?*

• Study
  – patent literature,
  – published scientific literature
  – Talk with friends, lay people, potential customers, suppliers

• Benchmark related products
  – Look for what they solve
  – What they *don’t* solve

• Brainstorm

• Explore systematically

• Choose most likely paths

• Keep track of paths *not* chosen
Brainstorming

• Use an Eclectic Group – your group!
• Led by a Facilitator
  – Introduce the need clearly
  – No “bad ideas” no judgement
  – Include even apparently infeasible ideas
  – Go around table and generate the maximum number of new ideas
  – Announce them
  – Post them
  – Categorize them
  – Pareto them
Generating solution concepts

• Break into constituent problems
• Make analogies
• Wish and wonder to the extremities
• Related stimuli
  – each generates his/her own and then shares
• Set quantitative targets for number of new ideas
• Display ideas and observe on wall
Pruning and Classification

• Prune the idea matrix of unpromising directions
• Look for distinguishable approaches and combine ideas
• Refinement of ideas of selected branches
• Pareto (list in order of priority) through matrix
# Voting and Decision Making

- Kepner Tregoe Matrix

<table>
<thead>
<tr>
<th>Item</th>
<th>Score (S) out of 5 or 10 based on agreed criteria</th>
<th>Weight (W) out of 5 or 10 based on relative importance</th>
<th>Product P = (S) (W)</th>
<th>Ranking</th>
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<tbody>
<tr>
<td>1</td>
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Voting and Decision Making

• For n people to choose the best of m alternatives
  1
  2
  3
  4
  5
  6
  m

Each selects their 1,2 and 3 choice
Brainstorming Exercise

• A quiet way to remove leaves from the driveway
• A simple methodology for stabilizing a hillside
• A new way of saving energy for the home
• A way of making the maximum use of the freeways to lower congestion
• A methodology to evaluate the best choice of political candidates
• Your example
Despite all this

• Continue your market research!