

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

Item	Score (S) out of 5 or 10 based on agreed criteria	Weight (W) out of 5 or 10 based on relative importance	Product $P = (S) \times (W)$	Ranking
1				
2				
3				

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!