Creativity and Entrepreneurship

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Creativity

- Harvard study of 3000 executives found that creative people display five skills:
  - Associating
  - Questioning
  - Observing
  - Experimenting
  - Networking
- Remember our spectrum of radical versus incremental

- Creativity pushes the boundary toward the radical limit.

Divergent versus Convergent Thinking

- Convergent thinkers tend to focus in to finding the single best answer.
- Divergent thinkers spend more time making associations and exploring multiple solutions.

- Both forms of thinking are required to find solutions, but it is important not to skip the divergent phase and more too quickly to the convergent phase.

Left versus Right Brain Thinking

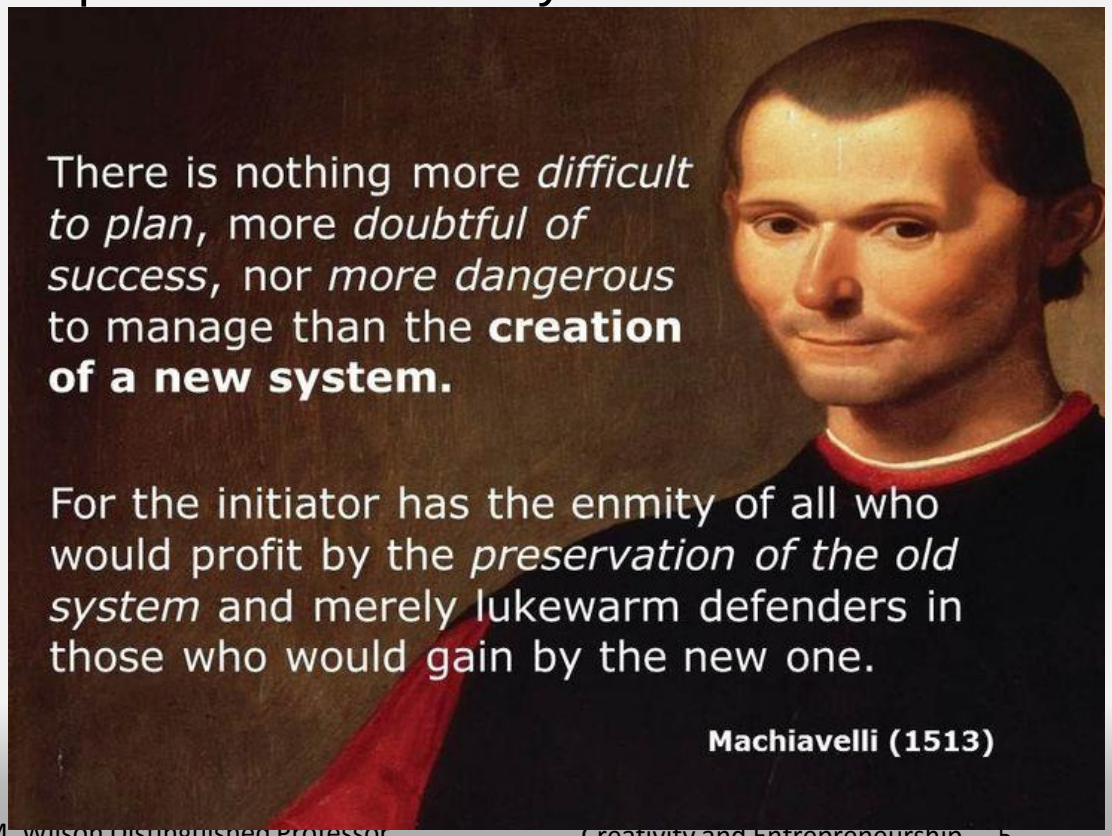
- Roger Sperry, Nobel Prize winner, showed that the brain distributed thinking processes asymmetrically between the two hemispheres.
  - The left hemisphere was more involved in language, calculation, and other kinds of activities seen as logical processing.
  - The right hemisphere is more active in recognizing patterns, seeing associations, and making emotional links.
    - Damage to the right hemisphere can make it difficult for a person to appreciate humor or become moved by art or music.

- Creativity seems to be associated with processing in both hemispheres as the recognition of patterns and associations plays a key role in identifying potential creative solutions, and then focused analysis is needed to bring those associations into specific activities.
  - Gutenberg saw a wine press and came up with the idea for a printing press.
  - Alastair Pilkington saw fat floating on water and came up with the idea of floating glass on water to make float glass –as it is still done today.

New ideas are often threatening

Niccolo Machiavelli wrote “The Prince” in 1513 as a work of political theory and diplomatic guidance. Its amoral approach to analysis and action made it a work to be reviled as well as revered from its publication until present day. It does however, provide a valuable (and many think accurate) insight into human behavior. Today we describe actions that are effective, but of questionable morality as “Machiavellian.”

It can mean devious, cunning, unscrupulous, and other kinds of similar terms.
On the subject of innovation and creativity, Machiavelli made the cynical pronouncement:

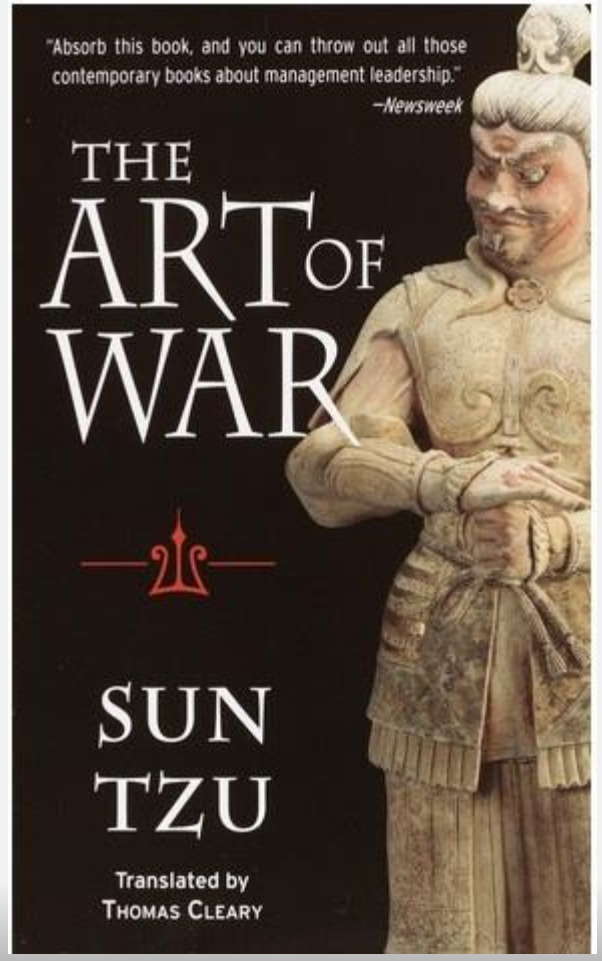


Having an Idea versus Selling that Idea

- The point of this is that having an idea is never enough. Great new ideas are unlikely to be uniformly warmly received. Some, perhaps many, will see the idea as a threat to their interests:
  - "That's not the way we do things here."
  - "We tried that before and it did not work."
  - "That would cannibalize our existing line of products (or services)."
  - "That is too risky."
- Getting an innovation implemented requires communication and salesmanship. That process of communication and salesmanship also helps the innovator to test the idea.
  - Many of your colleagues will line up with joy to criticize your idea.
  - If your idea can withstand the criticism, the possibility of implementation increases.
  - If flaws are found in the idea, then ideas can be generated to mend the flaws. If they cannot be mended, then perhaps it is better to move on to a new idea.
  - Testing your innovation on others is a critical (if often painful) part of the process.

Sun Tzu

- Sun Tzu, author of “The Art of War” is another early Philosopher that is widely read, often quoted, and very controversial.
  - He is popular because he does provide insight into human behavior and strategy.
  - “*If you know the enemy and know yourself, you need not fear the result of a hundred battles.*
  - *If you know yourself but not the enemy, for every victory gained you will also suffer a defeat.*
  - *If you know neither the enemy nor yourself, you will succumb in every battle*.”



- The message to the innovator is that convincing others is rarely easy, but that it is an essential part of the process, since you will need to defend your idea successfully in the face of others who will object. You will need to know exactly what you are talking about to be successful.

Entrepreneurial Awareness

- Some individuals display more awareness of opportunities (some might call them problems) than others.
  - There is some evidence that this is a skill that can be taught.
- Once an opportunity/problem is recognized the prepared mind will often begin to ask the requisite questions to try to zero in on a solution (without neglecting taking time to consider many potential solutions).
  - The text calls these the five whys and a how.

Problems and Solutions

Here are some examples of problems and simple solutions that have been offered:

- Waiting in an elevator is boring
  - Add mirrors to allow grooming checks
  - Run advertisements and news on small LCD TV screens.
- Children are going online and being preyed upon
  - parental controlled safety software.
- Cell phone battery life is limited and charging is annoying
  - –solar chargers, crank phones, external batteries, etc.
- Hospital sanitation –the most important action is hand washing and it is not being done consistently
  - Electronic hand washing monitors, anti-microbial materials, clothing that kills microbes, signs asking patients to remind doctors and nurses to wash.
- Men's undershirts become un-tucked
  - Tommy John markets longer undershirts in a better fitting material

Opportunities need to be *Recognized*.

- People recognize opportunities. Some are good at it. Others?
- Characteristics of those who are better at recognizing opportunity:
  - Prior Experience
    - Many entrepreneurs have prior experience in an industry and are able to spot the market gaps and find solutions that others have missed.
  - Cognitive Factors –**entrepreneurial alertness**
    - A major key factor is market awareness and sensitivity.
  - Social Networks –solo entrepreneurs and network entrepreneurs
    - Strong tie relationships are ones in which there are frequent interaction among persons with common interests.
      - They often tend to see problems in the same way
    - Weak tie relationships are ones in which interactions are more in-frequent and among those with different experiences.
      - Weak ties are shown to lead to more ideas –different perspectives.
  - Creativity – the process of generating new, often unique, and useful, ideas.

Creativity Components

What are the components of the process of creativity?

- Preparation
  - most business ideas stem from previous experience –often at work.
  - Malcolm Gladwell has popularized his “10,000 hour rule” in his book **Outliers**. He contends that those who work on any activity for 10,000 hours are far more likely to be successful than those with less exposure.
- Incubation
  - Pondering or ruminating an idea just below the surface.
- Insight –”Eureka” -”Aha!”
  - Sometimes an idea just hits us out of the blue.
- Evaluation
  - Viability –find the weak spots. Don’t be blinded by a dream
- Elaboration
  - Working out all the details –doing the business plan, business model canvas, or Difference Maker Project plan.

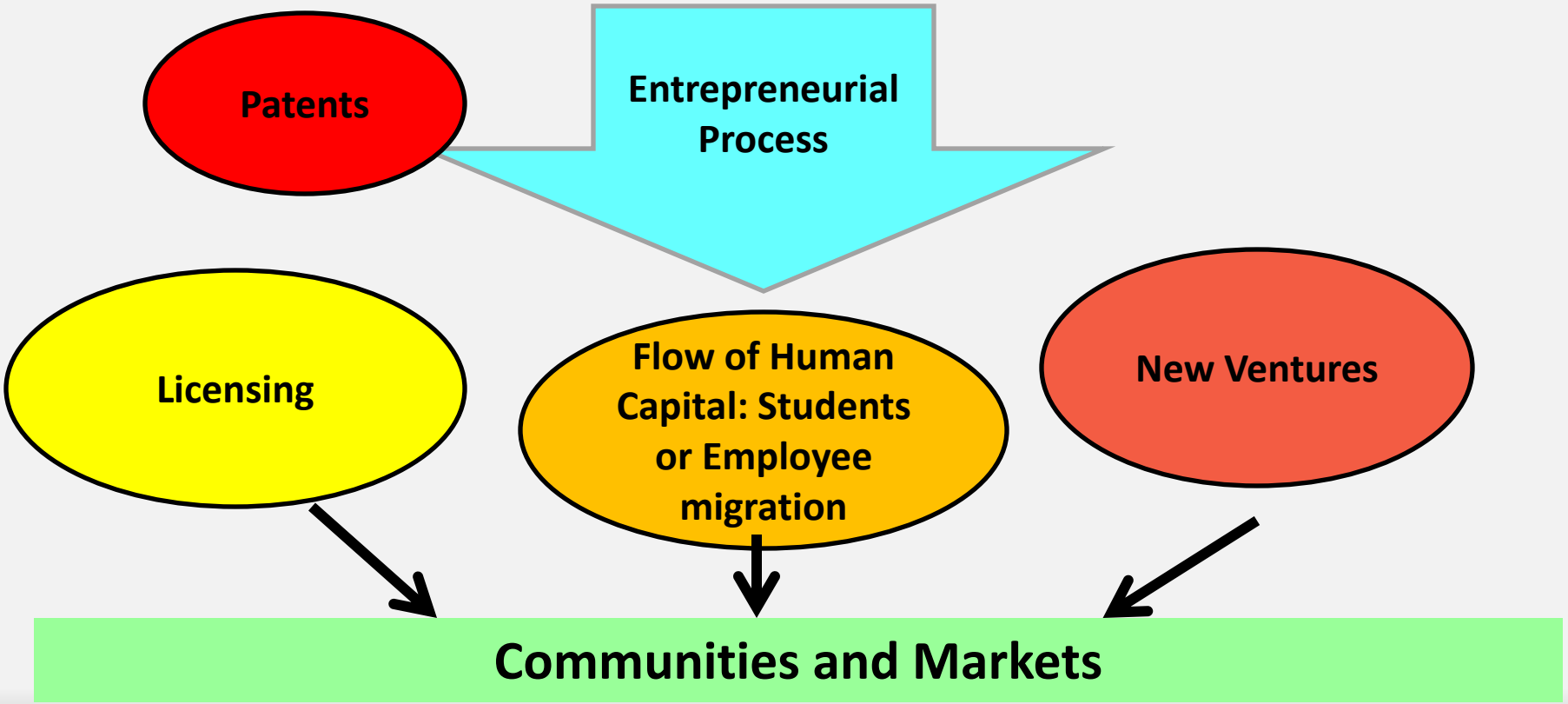
Note that creativity goes beyond the “Aha” moment and requires evaluation and elaboration.

Many of the opportunities we see being exploited today come from technology

- Technological opportunities almost always start with breakthroughs in new technologies. Those breakthrough can come from:
  - University research labs
  - Industry research labs like Bell Labs, Google Labs, IBM Labs, General Electric Labs, Phillips Research Labs,
    - Industrial laboratories are generally seen as sources of incremental innovation rather than radical innovation.
      - http://www.jstor.org/discover/10.2307/1828511?uid=3739696&uid=2129&uid=2&uid=70&uid=4&uid=3739256&sid=21104913961097
    - Over the last three decades, the center of gravity of research has shifted further toward universities and away from industrial laboratories.
    - The biotech industry has been an exception –particularly in the applied research areas.
  - Government research laboratories like FermiLab, Argonne National Laboratories, Sandia, National Institutes of Health, National Institute of Standards and Technology, and others.
- To get to market they need to either be licensed to existing organizations or used to develop new ventures.
- Students who graduate and then go into existing organizations also carry the intellectual property with them into their new positons. This is an important flow of ideas into the marketplace or community.

From Idea to Market or Community Use

Idea Generators: University Research, Corporate Innovation, Individual Invention, Government Labs, Social Innovation, Intellectual Capital



The virtuous value chain

- Research
- Applied Research and Development
- Licensing to new or established ventures

- New venture
- Business plan
- Elevator speech
- Early stage funding from bootstrapping, friends and families, angels, loans, or other sources such as the Small Business Innovation Research (SBIR) program.
  - http://sbir.nih.gov/
- Establish company structure (Corporate, partnership, LLC, sole proprietorship, etc)
- Prototyping the product or service
- Middle stage financing from venture capitalists or others
- Growth of new company
- Exit strategy
  - Acquisition
  - IPO –Initial Purchase Offer for stock
  - Remain a private business

- Licensing to established ventures
- New Product Development process.

Getting an idea adopted.

- As we have seen, ideas are often resisted and more often ignored.
- It requires a systematic effort at every point in the adoption process to bring a creative idea into a widely adopted solution, product, or service.

- There is quite a bit of research on the adoption process that has identified key phases in the process and strategies for dealing with the challenges of each phase.

Crossing the chasm

Crossing the Chasm is closely related to the technology adoption lifecycle where five main segments are recognized: innovators, early adopters, early majority, late majority and laggards.

According to Geoffrey Moore, the marketer should focus on one group of customers at a time, using each group as a base for marketing to the next group. The most difficult step is making the transition between visionaries (early adopters) and pragmatists (early majority). This is the chasm that he refers to. If a successful firm can create a bandwagon effect in which enough momentum builds, then the product becomes a de facto standard.

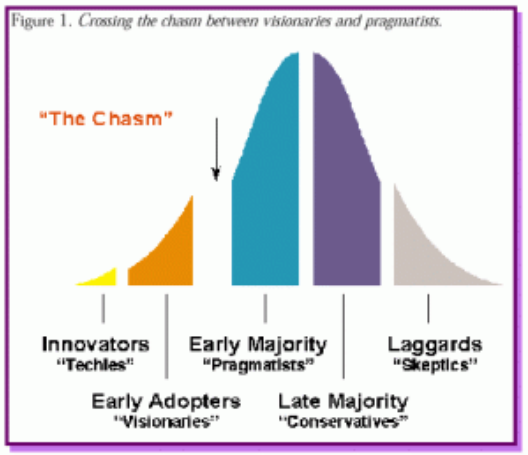
However, Moore's theories are only applicable for disruptive or discontinuous innovations. Adoption of continuous innovations (that do not force a significant change of behavior by the customer) are still best described by the original technology adoption lifecycle. Confusion between continuous and discontinuous innovation is a leading cause of failure for high tech products –

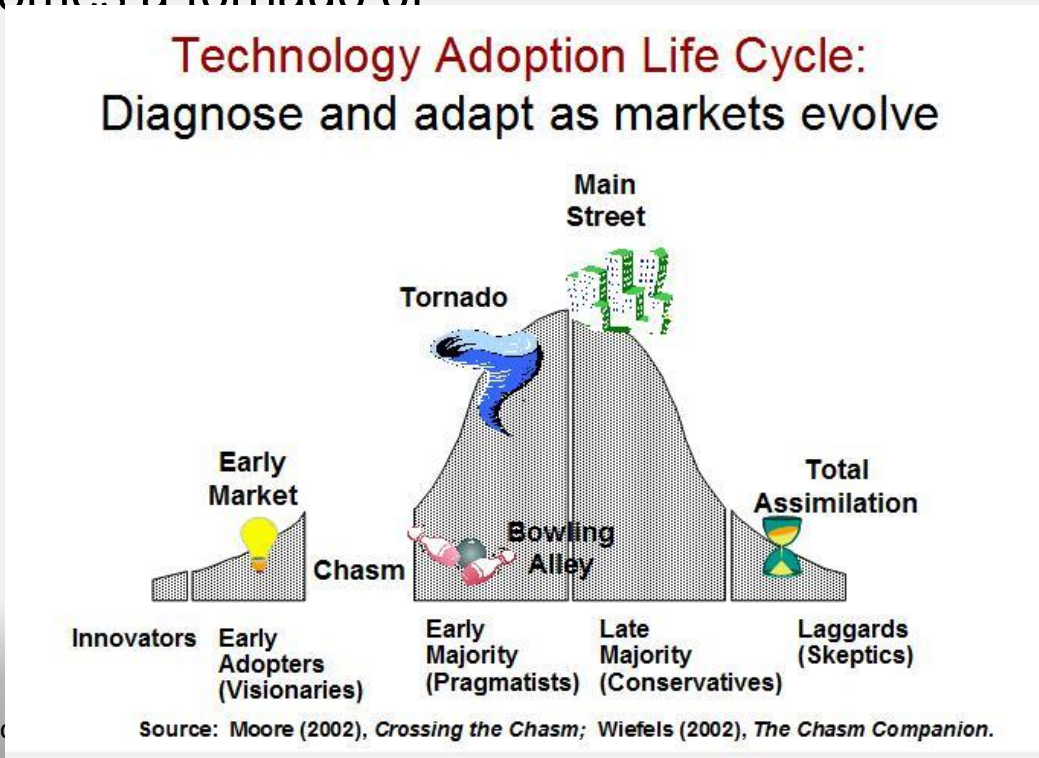
- http://en.wikipedia.org/wiki/Crossing_the_Chasm

Innovators-> early adopters-(the chasm)-> early majority-> late majority -> laggards

Crossing the chasm: some jargon

- Early market – the early adopters
- Chasm –getting from the early adopters to the early majority.
- Bowling Alley –once established in the early majority
- Tornado – as the innovation moves from early majority to late majority it becomes a tornado of adoption.
- Main Street –we made it!
- Total Assimilation
  Now it is old news!





Idea Generation Techniques

According to the excellent text, "*Entrepreneurship: Successfully Launching New Ventures*," by Bruce Barringer and R. Duane Ireland these are some key ways to generate ideas.

- Brainstorming
  - No criticism
  - Freewheeling crazy ideas
  - Fast pace –no pontificating or arguing
  - Leapfrogging
- Focus groups
- Library and internet research
- Other: customer advisory boards, day-in-the-life research
- Create an idea bank on your intranet.

All of these can be useful, but are generally more successful in generating incremental innovations rather than radical innovations or truly new ideas.

Ideation

- How to Run an Ideation Workshop that Actually Leads to Innovation;
  - Mary Barbour; Feb. 11, 2016;
    - http://ozcontent.com/blog/how-to-lead-an-ideation-workshop-that-results-in-innovation/
- Ideation is an effort to take brainstorming to the next level and generate more ideas for radical innovation.
- Ideation tries to focus more sharply than brainstorming and provide some kinds of stimulus to get people thinking.
- Ideation tries to encourage “lateral thinking.”
  - Lateral thinking is an effort to move outside the usual rules and ask “what if” questions about what might be possible if some of the assumed constraints were removed.

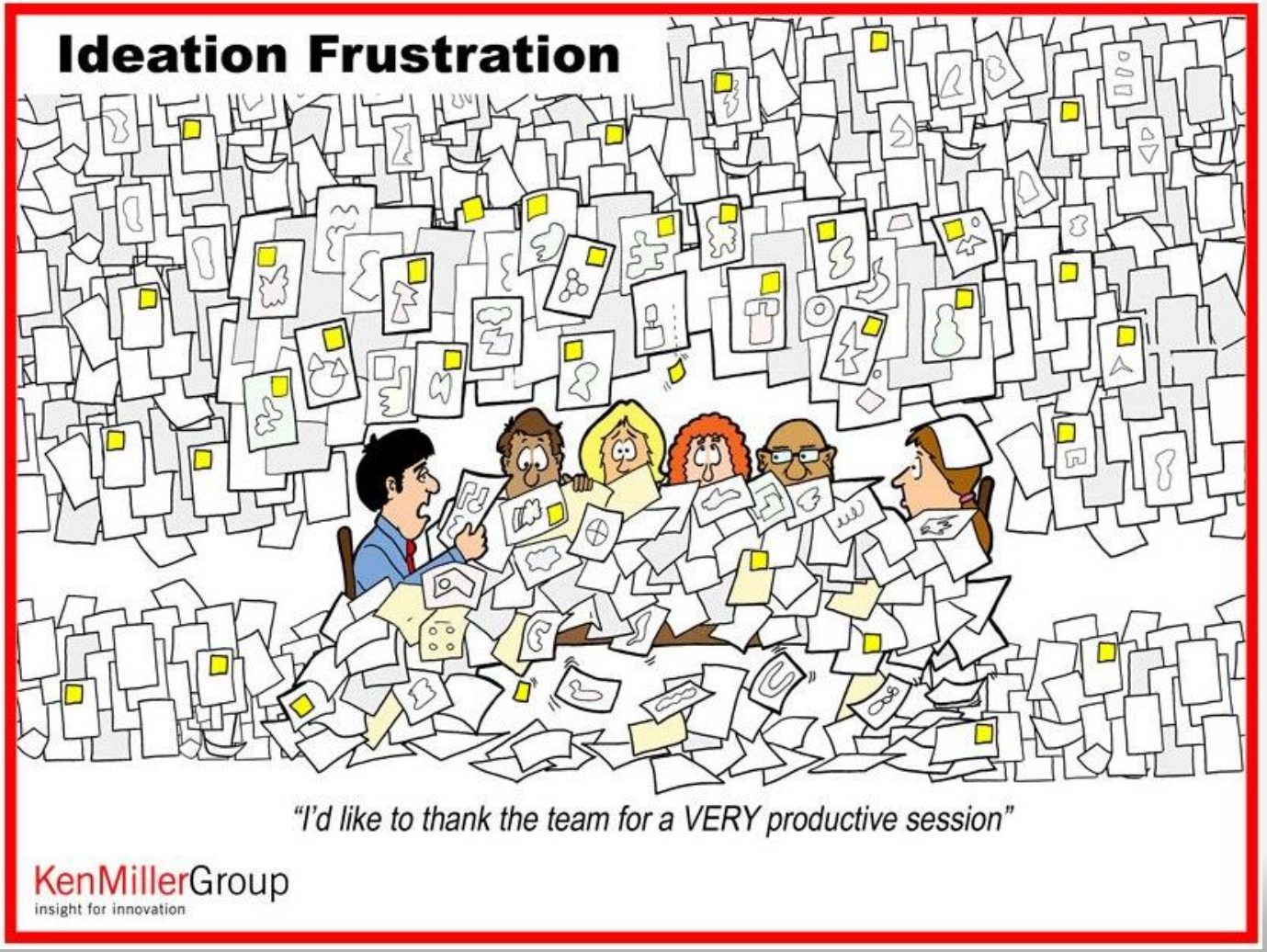
Some techniques for Ideation

- Bryan Mattimore, author of "*Idea Stormers: How to Lead and Inspire Creative Breakthroughs*", has suggested seven important approaches to Ideation
  1. Question Assumptions
     - Do not accept orthodox ways of thinking. Instead ask why "it has always been done this way."
  2. Redefine the opportunity
     - sometimes in crazy ways
  3. Wishing makes it so.
     - Ok, this may work for Walt Disney, but not in the real world. However, by wishing you could do certain things, you may be able to identify alternatives that get closer to reality.
  4. Triggered Brain walking
     - Put several aspects of a problem up on a wall and then have participants walk in rotation and add their comments to each chain-one after another.
  5. Semantic Intuition
     - Pick words related to the challenge and then have participants combine them (sometimes in silly ways).
  6. Picture Prompts
     - Pick images related to the problem at hand and then have individuals think about that and then discuss in groups.
  7. Worst Idea
     - Make a list of the worst ideas. Have fun with it. It relaxes people, and sometimes a truly bad idea can stimulate an insightful idea.

     - http://www.innovationmanagement.se/2013/05/30/the-7-all-time-greatest-ideation-techniques/

Ideation, like brainstorming, can often be frustrating

- Ideation, like brainstorming, is only as good as the group and process that group adopts and implements.



Scott Berkun: Myths of Innovation (www.scottberkun.com)

Scott Berkun (Microsoft programmer/project manager-IE,Windows -Author) takes a much more skeptical view of how innovation occurs.

- The myth of epiphany
  - Innovation occurs from a prepared mind –not a sudden random insight
- We understand the history of innovation
  - He contends we do not.
- There is a proven method
  - Innovation happens in many ways and there is no proven method.
- People love new ideas
  - Many people dislike and resist new ideas. Hostility often has to be overcome.
- The lone inventor
  - Most innovations come from groups working on ideas together and picking apart and refining ideas.
- Good ideas are hard to find
  - There are lots of good ideas, but they are hard to develop.
- Your boss knows more about innovation than you
  - Innovation does not depend upon a hierarchy.
- The best idea wins
  - History is replete with examples of weaker technologies winning over stronger technologies.
    - In video tapes, Betamax was better than VHS but VHS won the market wars.

All WRONG in his opinion!!!

Creating the right climate for creativity

- Bessant and Tidd suggest that creativity needs plenty of SUN:
  - **S**upport and Encourage
  - **U**nderstand and listen to new ideas
  - **N**urture and help them grow.

  - And they need to avoid to much RAIN:

  - **R**eact, Respond and Judge rather than listen
  - **A**ssume by bringing in your preconceptions and biases too quickly
  - **I**nsist on your own viewpoint. Have a closed mind.
  - **N**egative and No -before you have a good idea of what is bieng proposed.

Creating the right environment

- Physical Environment
- Permission to Play and time and space to do it.
- Creative Climate
- Reward and Recognition
- Establish a Process
- Training and Skill Development
- Leadership

Creativity

Inhibitor	Facilitators
Fail to hire creative	Hire creative
Stifling culture	Reward creativity
Pigeonhole people for years	Give employees varied experiences
“Tried it-didn’t work” all ideas already known	Tolerate challenges to established ideas
Hire like minded people	Hire diverse skills, experiences, and viewpoints

Supervisory approaches to creativity

Inhibitor	Facilitators
Pessimistic- judgmental -critical	Be supportive of early ideas
Punish failure	Learn from failure
Force certainty and precision too early	Protect honest mistakes as long as learning occurs
Remain distant and inattentive to employees ideas	Treat employees as equals –non-hierarchical