

Failure is an Option: Learn How to Turn Failure into an Advantage

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Overview

- Introduction to failure and risk taking
- Personal examples
- Calculating risk
- Fail fast
- Learning from failures

School of Thought

- Innovations, discoveries, scientific advancements
 - Generally not accidents or serendipity
 - Usually part of a process of hypothesis generation, investigation and observation
- Doesn't sound as romantic as a eureka! moment, but
 - Most significant discoveries are made via constant experimentation and learning from repeated failures

Fear Factor

- The bigger the risk, the bigger the discovery
 - Early airplane flight
 - Nitroglycerine
- Fear of failure
 - Discourages risk taking
 - Often irrational
 - Creates a counterproductive atmosphere and culture

Young Pyromaniac

- KMnO_4 + glycerine = !@*
- 50% glycerine dud
- The eruption
- The lesson learned
- Imagine if I was caught

Lucky?

- What about when stakes are higher, i.e. doing graduate research?
 - My initial research
 - Expanded thinking
 - Crazy idea
 - My PI's reaction
 - The rebel in me
 - It worked perfectly!
- Benefit of taking the risk
 - Designed my own thesis work
- Downside of taking the risk
 - Could have lost a week of lab work
 - Could have made my PI mad at me

The Fiasco That Wasn't

- What about taking risks in management?
 - Managers have to work through others
 - Can only be successful if you take some risks and “experiment”
- Another example
 - I recently organized a leadership training course to be held for a cross functional group of 25 people in R&D
 - I knew from the beginning that 10-20% of the attendees would absolutely hate it
 - I did it anyway, because I knew I needed to raise the energy and quality of how people interacted with each other
 - Several major complaints about the training...
 - Results were phenomenal—team beat all expectations on their 2009 goals

Strozzi Institute: Rhythm of Action

Career Risks

- Stakes are even higher
- First job out of grad school
- The “merger”
- Along came Inspire
 - A fresh approach to the problems
 - Dry eye
 - Current position
- Same opportunities in big pharma?

Risk/Benefit

- Hopefully now you see the benefit of how taking risks can open up opportunities
 - But how do you really do it?
 - You are sick of hearing about my stories
- Think about a time when you took a “calculated risk...”
 - Now answer this question to yourself
 - Did you actually do a CALCULATION?
 - My guess is that most of you didn’t, even the most analytically driven of you out there

Decision Science

- Why are we so undisciplined with risk taking?
 - I love watching the show, Deal or No Deal, because I try to guess what the “banker” is going to offer
 - The contestants almost always use their “gut” or emotions for their decision making
- Better to take a scientific approach to decision making
 - Decision making as a science has evolved
 - Language and methods used to deconstruct the emotional from the factual

Exploring Possibilities

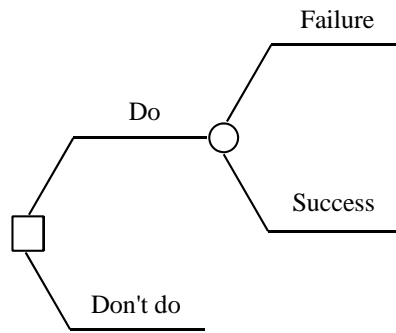
- Avoid the “sucker’s choice” of an either/or situation
- Explore wide range of alternatives
 - 10% probability that x will happen
 - 90% chance that y will happen
- Now you can test competing ideas/possibilities against each other
 - Likely to give bolder options
- Linus Pauling
 - “To have a good idea, you must first have lots of ideas.”

K. Patterson, et al, *Crucial Conversations*

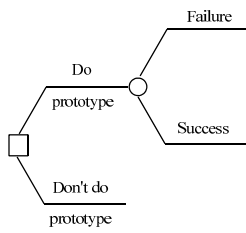
Do The Experiment

- Should I do experiment X?
 - Is this really a Y/N question?
 - Let’s say, experiment X uses \$10K of starting materials, & there is a hard deadline for delivery date, including a high purity requirement
 - You can always find a million ways to talk yourself out of doing an experiment when the stakes are high
 - KC Nicolaou, “Do the experiment!”
 - Don’t make the sucker’s choice
 - Do a “prototype” experiment
 - Willingness to try something in the face of failure is crucial
- Story of azithromycin early development
 - Almost killed project because couldn’t measure plasma drug levels after dosing... failure?

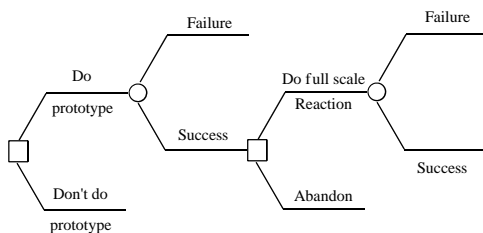
Decision Trees



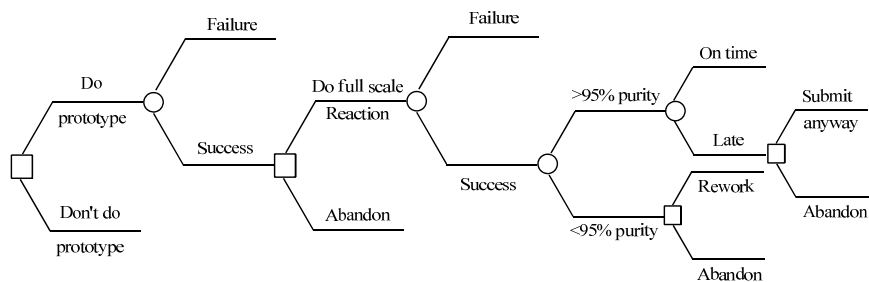
Decision Trees



Decision Trees



Decision Trees



Other Generic Examples

- Should I hire Joe X?
 - What is the probability that Joe X will accept an offer and be a great long term hire?
 - Explore sensitivity around offer range, any “yellow flags” from the interview, etc.
- Should I move off the bench and into a full time management position?
 - What is the probability that I will excel as a manager and have high job satisfaction without doing hands on work?
 - How much time on the job will it take for me to figure out whether this is a good move for me?
 - What are the alternatives? Is this a sucker’s choice?

Fail Fast

- When stakes are high, “Fail Fast” makes sense
 - Pharmaceutical industry has a very high failure rate for projects
 - Preclinical
 - Phase 1
 - Phase 2
 - Phase 3
 - Costs go up exponentially at later stages
- Failing at an earlier stage saves a huge amount of money
 - Seek the truth early
 - Does the drug work?
 - Is it safe enough?
 - Then scale up to prove it statistically in the clinic

Bonabeau, et al, *Harvard Business Review* 2008

Design “Killer Experiments”

- When projects are terminated after many years and millions of dollars of investment, it can have a very negative impact
- In the design field, a small team of “design thinkers” work on rapid iterations of prototypes to see if an idea has merit before huge investment takes place
 - e.g. one of IDEO’s mottos is: “Fail early to succeed sooner.”
- In pharmaceuticals, the same principle applies
 - Project teams need to design experiments that will expose a fatal flaw as fast as possible to avoid finding it later after making a huge investment
 - e.g. Ames test for carcinogenicity has moved way up the development path, since a positive Ames test is generally considered a show stopper.

Tim Brown, *Change by Design*

Failure

- Failure has a negative connotation
- If you made a good decision with all the available information at that time, you should never regret a result
- For example, how would you choose between a 10% chance of getting \$1,000 or a 1% chance of getting \$10,000?
- Just to keep yourself honest, try it on like this:
 - Would you rather have a 1% chance of losing \$10,000 or a 10% chance of losing \$1,000?
- Be aware of the psychology of failure and gambling
 - e.g. “Deal or No Deal?”
- Leaders need to foster an environment and culture where rapid and creative experimentation takes place and to accept failures as learning opportunities
 - Especially when the failures happen early and save resources
- All great companies learn to have rigorous debate around failure and risk

J. Collins, *Good to Great*

Other Applications of Fail Fast

- Management example
 - High potential employee—should you throw a big stretch opportunity at her 5 years earlier than the usual career path?
 - Map out decision trees with a time dimension
- Career example
 - Should you try management now to see if you like it or are good at it?
 - Irrational fear of not being able to go back to the bench once off?
 - Get some data... run the numbers
 - Think of your career as a “prototype”
- Life
 - “One of the greatest impediments to life is the fear of humiliation,” Professor Robert Brooks (Stanford)

“If at First you Don’t Succeed, You’re in Excellent Company,” WSJ April 29, 2008

Learning From Failures

- Best Practices
 - Creating culture where failure is recognized as informational
 - Easier to talk about the failure and learn from it
 - Post mortem
 - Get team together for discussion, closure
 - Safe, no blame atmosphere
 - Failure parties
 - Not to belittle the stakes of the failure
 - Puts a positive cultural feeling about it so people will be willing to continue to take calculated risks
 - Don’t let sunk costs keep a stinker alive
 - Call someone on the spot for using sunk costs as justification for continuing a project—it is bad reasoning
 - Encourage regular dialogue about risk tolerance, exploring possibilities and probabilities
 - Work these skills like muscles in the gym, and you will find yourself ahead of your peers in terms of scientific achievement, effectiveness as a manager and the trajectory of your career.

THANK YOU

Questions?

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