

# Risk Mitigation – Scarcity Requires Risk-Driven Choices

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*Thinking  
Through  
Testing*

# What is 'Scarcity'?

- ❖ Limited Resources vs. Unlimited (changing) Wants
- ❖ Lack of supply in face of a demand can:
  - ❖ Lead to higher prices
  - ❖ Sometimes mean there just isn't any (to buy)
- ❖ Wants and needs change with time:
  - ❖ Whole industries are formed to supply a demand
  - ❖ Competition drives improvements / efficiencies / new sources to modify the supply and demand curves
  - ❖ Invention / Innovation disrupts the traditional, creates new demands
- ❖ Because of scarcity, various economic decisions must be made to allocate resources (efficiently)

## Economics, Supply & Demand, Price Equilibrium

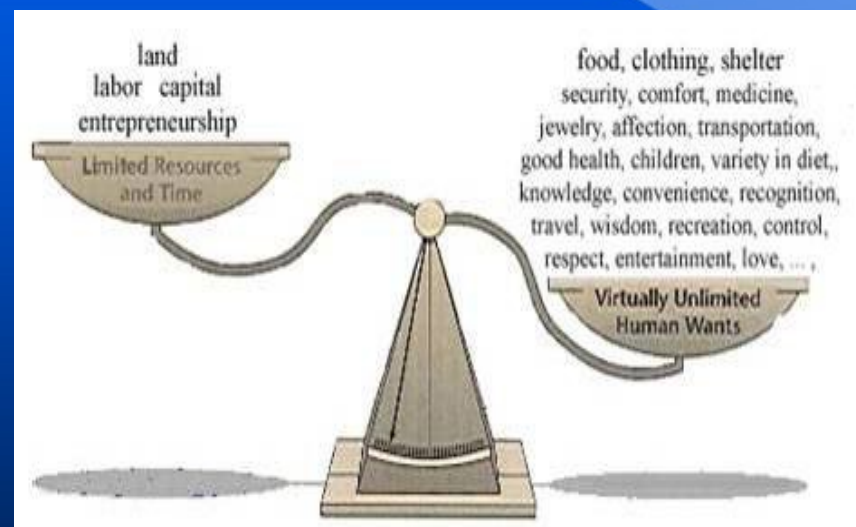


Image credit: <http://sbhshgovapmacro.wordpress.com/what-is-economics/>

# Example of Scarcity

❖ Think of something you just have to have:

- ❖ What would you pay for it?
- ❖ What would you give up?

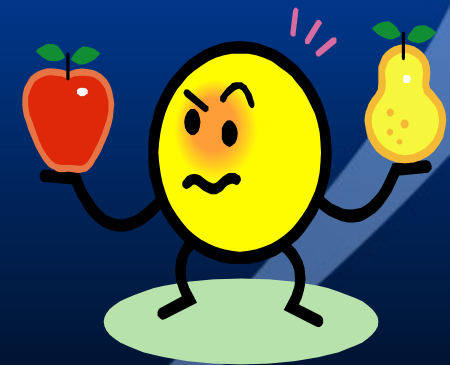


❖ Think about Price? Quality? Form?

- ❖ Off-season, First-of-the-season, Home-grown
- ❖ Alternatives? (eg: frozen or candy good enough?)

❖ Why can't we just make more?

- ❖ Not enough resources for everything
- ❖ We have to make choices



# The Cost Benefit Principle

- ❖ Making a choice involves a trade-off or opportunity cost:
  - ❖ More of a thing can be had only by giving up something else
  - ❖ “There ain't no such thing as a free lunch”
- ❖ Evaluating Cost-Benefits:
  - ❖ Easier:  $(\text{Benefit}_1 - \text{Cost}_1) - (\text{Benefit}_2 - \text{Cost}_2)$
  - ❖ Harder:  $(\sum \text{Benefit}_{1..x} - \sum \text{Cost}_{1..x}) - (\sum \text{Benefit}_{1..y} - \sum \text{Cost}_{1..y})$
- ❖ In making these decisions,
  - ❖ (Eg: investing today for benefits tomorrow)
  - ❖ We consider all the costs and benefits of our options
  - ❖ And then choose...rationally...right?

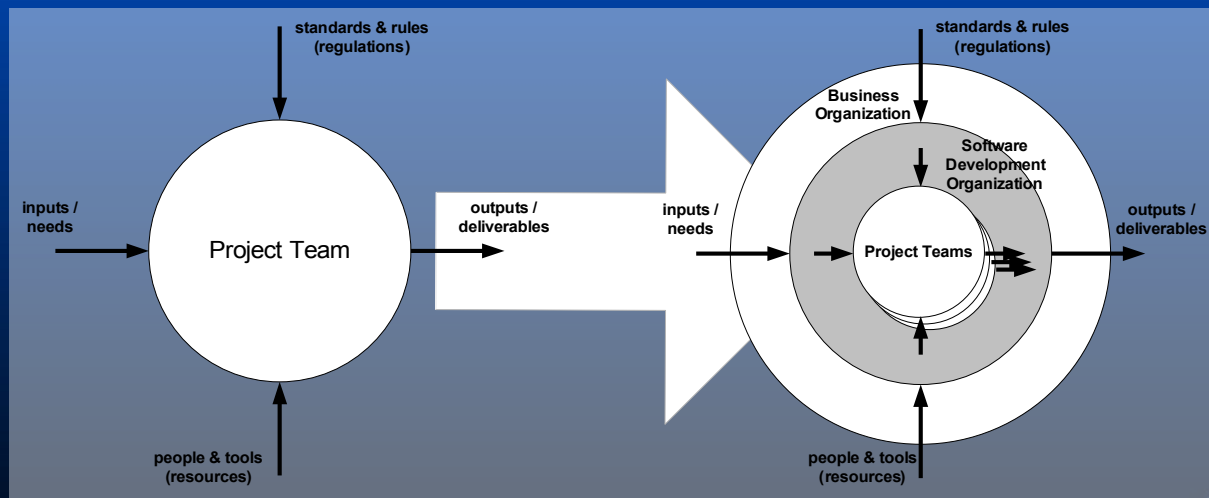
TANSTAAFL!



...Right?

# Scarcity & Your Project

- ❖ In practice, decisions are often made:
  - ❖ With imperfect or incomplete information
  - ❖ Using “Rules of Thumb” instead of calculating optimal solutions for the specific scenario
- ❖ Becomes more complex – your project team does not operate in isolation; it is part of a larger “ecosystem” with competing needs & similar uncertainties (or risks):



Adapted from: <http://thinktesting.com/articles/visibility-of-value>

# Offset Uncertainty w/ Risk Mgmt

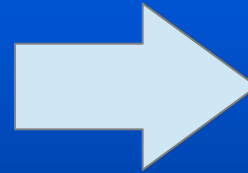
- ❖ Risk in software can be defined as the combination of:
  - ❖ The Likelihood of a problem occurring and
  - ❖ The Impact of the problem if it were to occur
  - ❖ Where a “problem” is any outcome that may seriously threaten the short OR long term success of a (software) project, product, or business.



- ❖ Managing risk involves:
  - ❖ Identifying potential direct and indirect risks
  - ❖ Judging the Likelihood and potential Impact
  - ❖ Defining mitigation strategies to avoid/transfer, minimize/control, or accept/defer the risk
  - ❖ Monitoring/updating the risk

Better information  
Better options  
Better decisions!

## ❖ Uncertainty & Risks, Scarcity & Constraints



Knowing your  
Risk Tolerance  
Leads to “Risky  
Decisions”  
That are  
OK with you

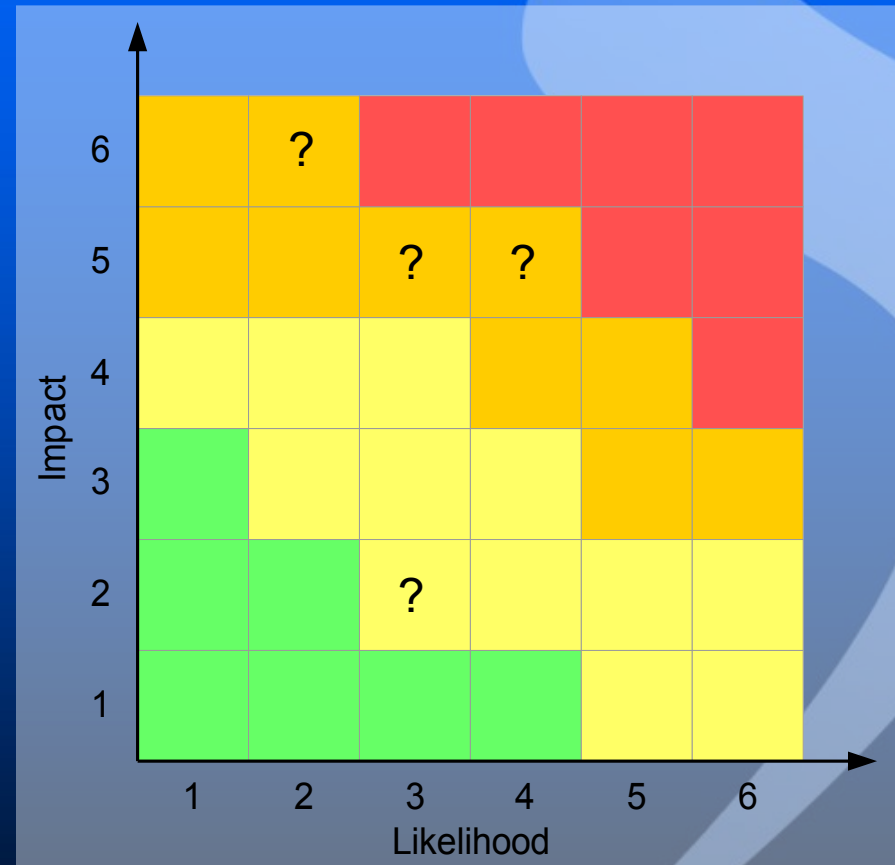
- ❖ Which are the constraints?
- ❖ Why are there constraints?
- ❖ Attempts to remove uncertainty

- ❖ Risk Management reduces uncertainty
- ❖ Understanding scarcity guides intelligent investment in risk mitigation in context of your Risk Tolerance



# How Hot is Hot?

- ❖ Categorize and quantify your risks to help with planning
- ❖ Is one attribute more important than another to you?
- ❖ Example attributes and scales:
  - ❖ Likelihood:
    - ❖ (1-2) Unlikely
    - ❖ (3-4) Reasonable to Expect
    - ❖ (5) Very Likely
    - ❖ (6) Virtually Guaranteed
  - ❖ Impact:
    - ❖ (1-2) Inconvenient
    - ❖ (3-4) Significant
    - ❖ (5) Severe
    - ❖ (6) Critical

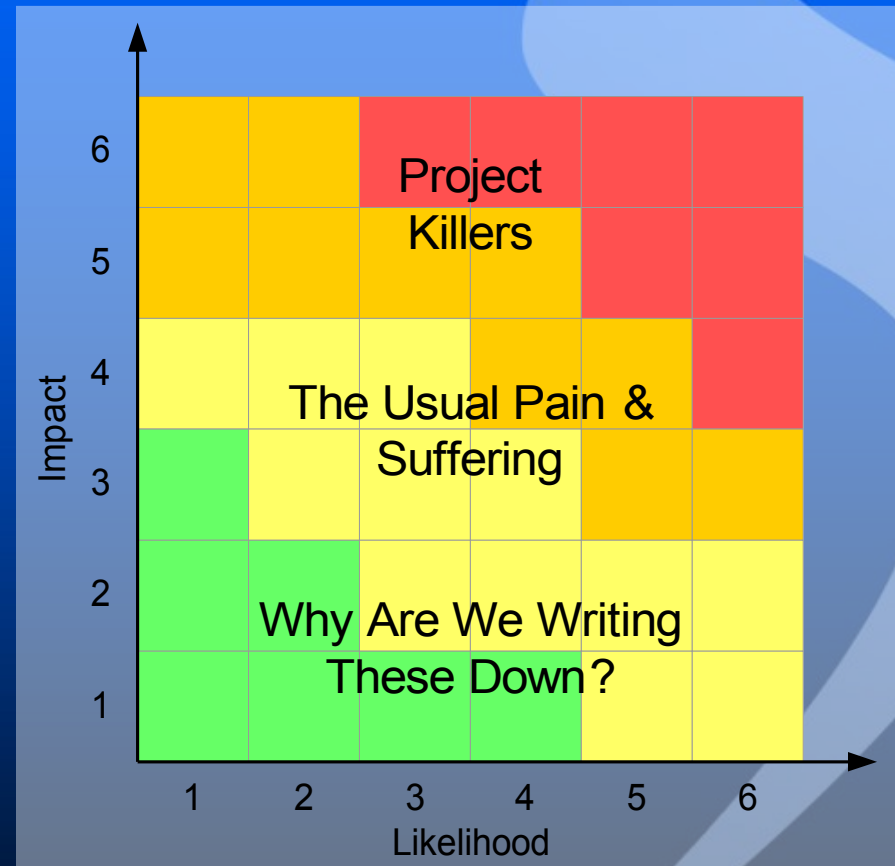


Your Risk Tolerance will guide how  
“hot” to make this grid



# Analyze Your Identified Risks

- ❖ Your analysis should result in a useful / usable ranking
- ❖ Prioritize to be able to concentrate your efforts
- ❖ In your Risk Registry:
  - ❖ Record what happened last time that might happen this time
  - ❖ Track your decisions about risks even if it is to do nothing
  - ❖ Capture the manner and form risks you have identified actually manifest

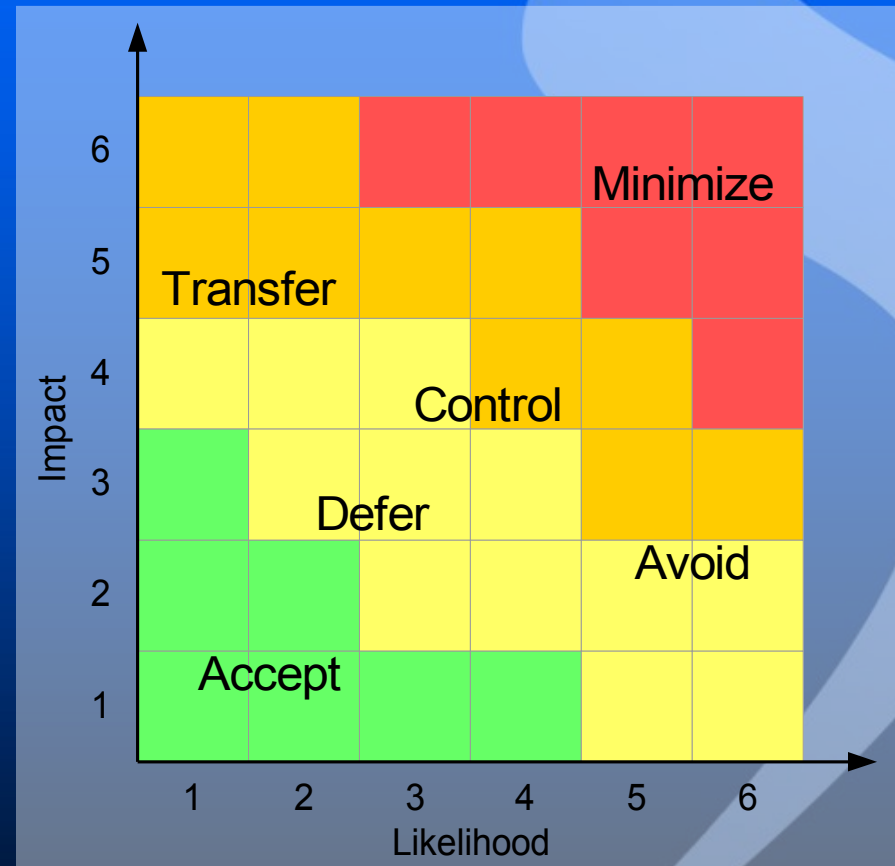


Read: <http://thinktesting.com/articles/risk-clustering/>

# Risk Mitigation

- ❖ Mitigation Strategies can be defined around the following intentions:
  - ❖ Minimize, Control, Transfer, Avoid, Defer, Accept
- ❖ Weave/braid a mitigation strategy, combining multiple mitigation intentions for a stronger effect than one on its own
- ❖ Tackle multiple risks with a single mitigation strategy to maximize value

Example Primary Mitigation Intentions

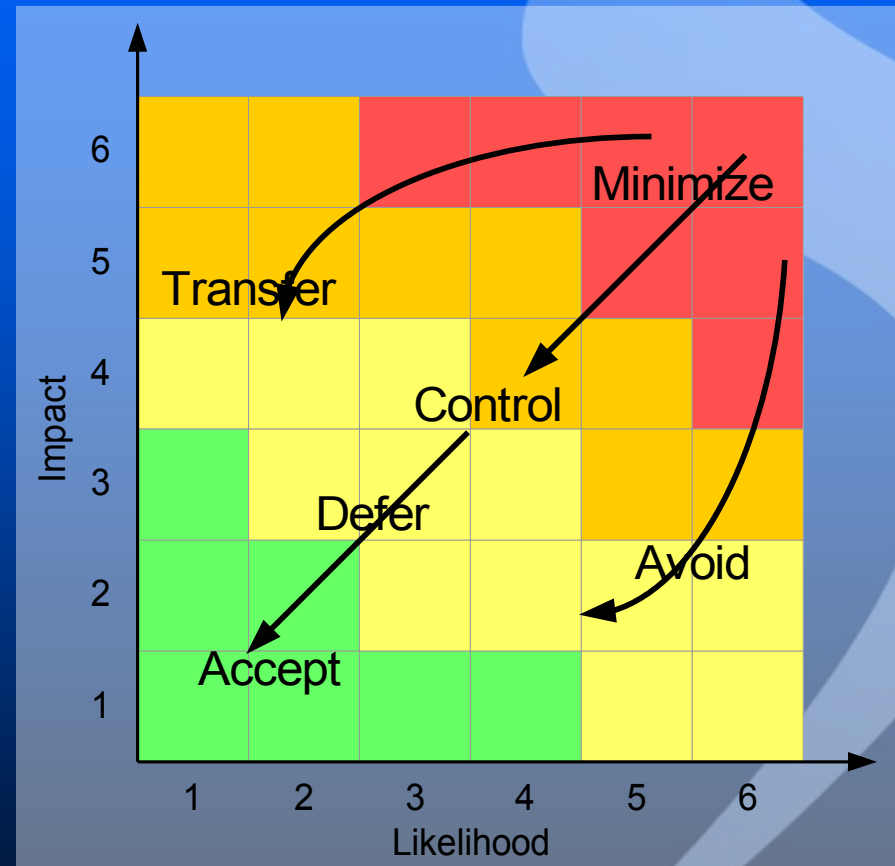


Use Risk Registry to see before/after effects of mitigating risks. Compare cost-benefits of different approaches/options

# Risk Mitigation or Migration?

- ❖ Resources are scarce!  
Spend them wisely/rationally:
  - ❖ Biggest bang for the buck (!4\$)
- ❖ Failure can come from:
  - ❖ A single blow: for each risk, make sure the project won't fail
  - ❖ A thousand cuts: for each group of risks, reduce the Total Risk Profile, make sure the project doesn't end up "challenged"
- ❖ Maximize Return On Investment
  - ❖ "ROI" is King (fr/en pun)
  - ❖ Long Live King Max!

## Optimize investments in Risk Registry



Reduce amount of "Rule of Thumb" buffering or hedging for uncertainty/risk with better planning → better decisions

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