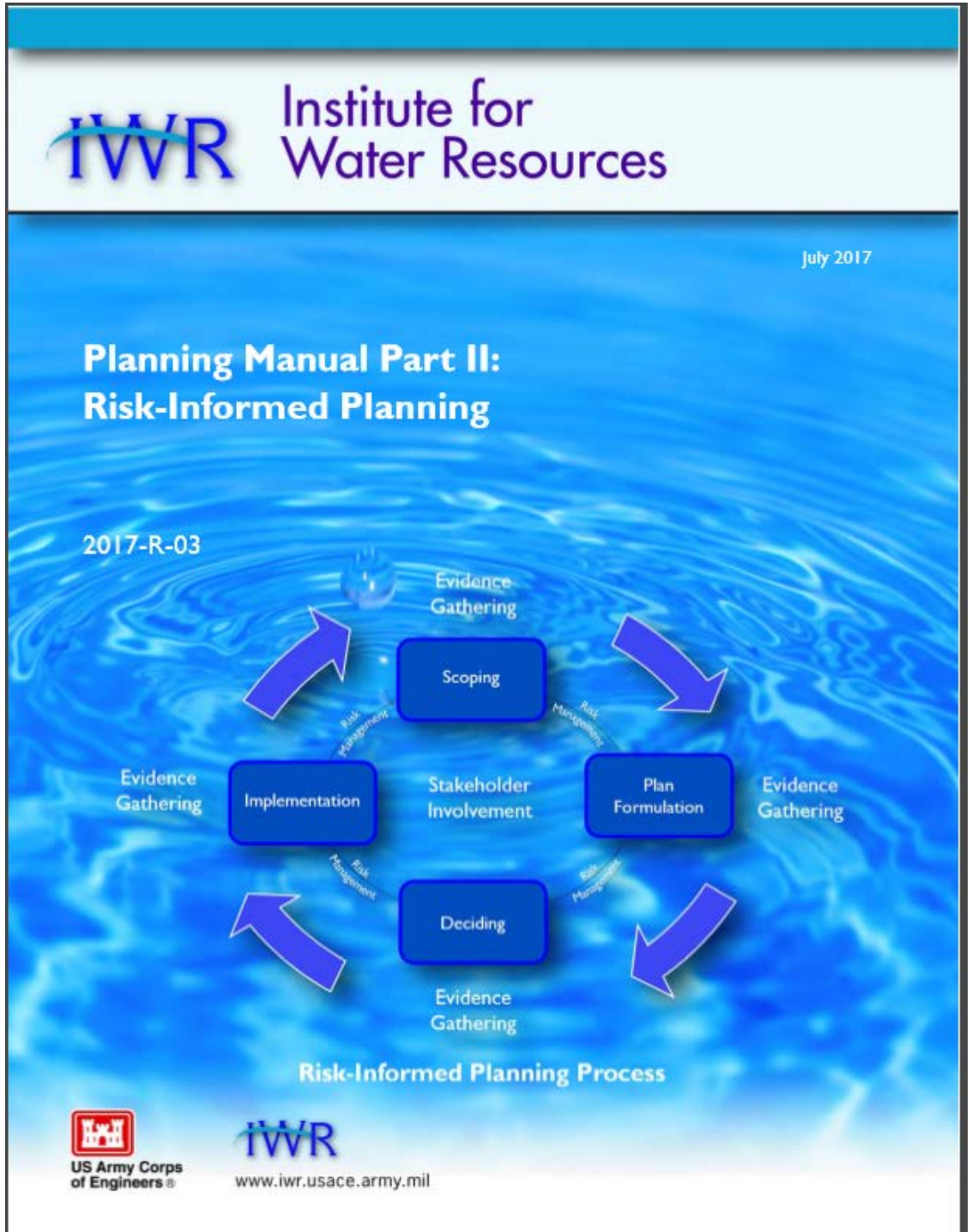

Planning Manual Part II: Risk-Informed Planning

PCOP Rollout Webinar

Charles Yoe
August 17, 2017

7 Risk-Informed Planning Take Aways

1. **There is a new risk-informed planning process figure but the planning steps are unchanged**
2. **Risk-informed planners reduce uncertainty wisely and iteratively**
3. **Everyone is a planner**
4. **Everyone is a risk manager**
5. **There is no such thing as “the number”**
6. **Residual risk and assessing the risk of the TSP are focal points**
7. **Tell effective stories, don’t just dump data**

New Process Figure

Uncertainty Is The Biggest Reason

Evolution Not Revolution

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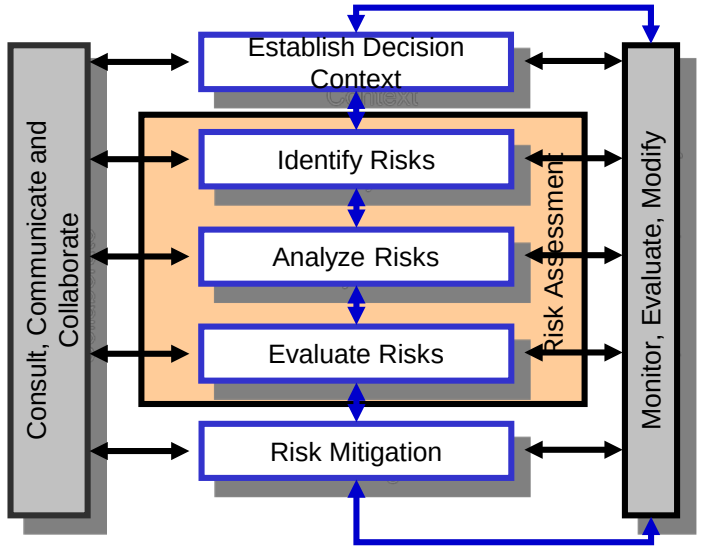

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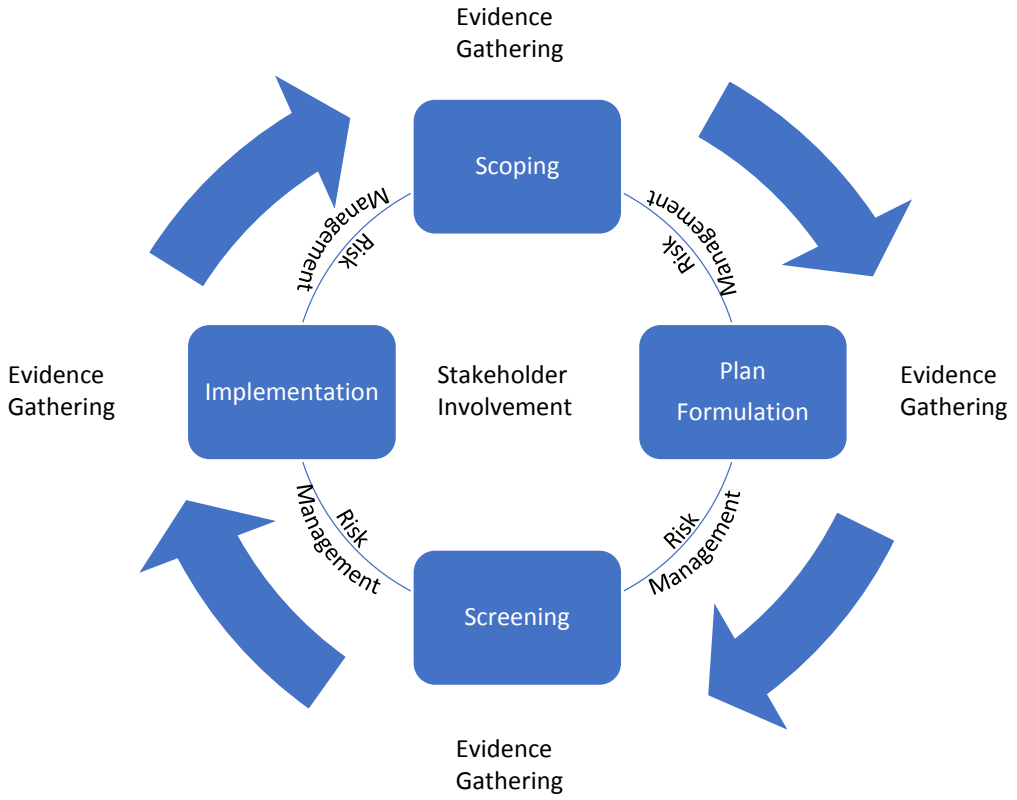
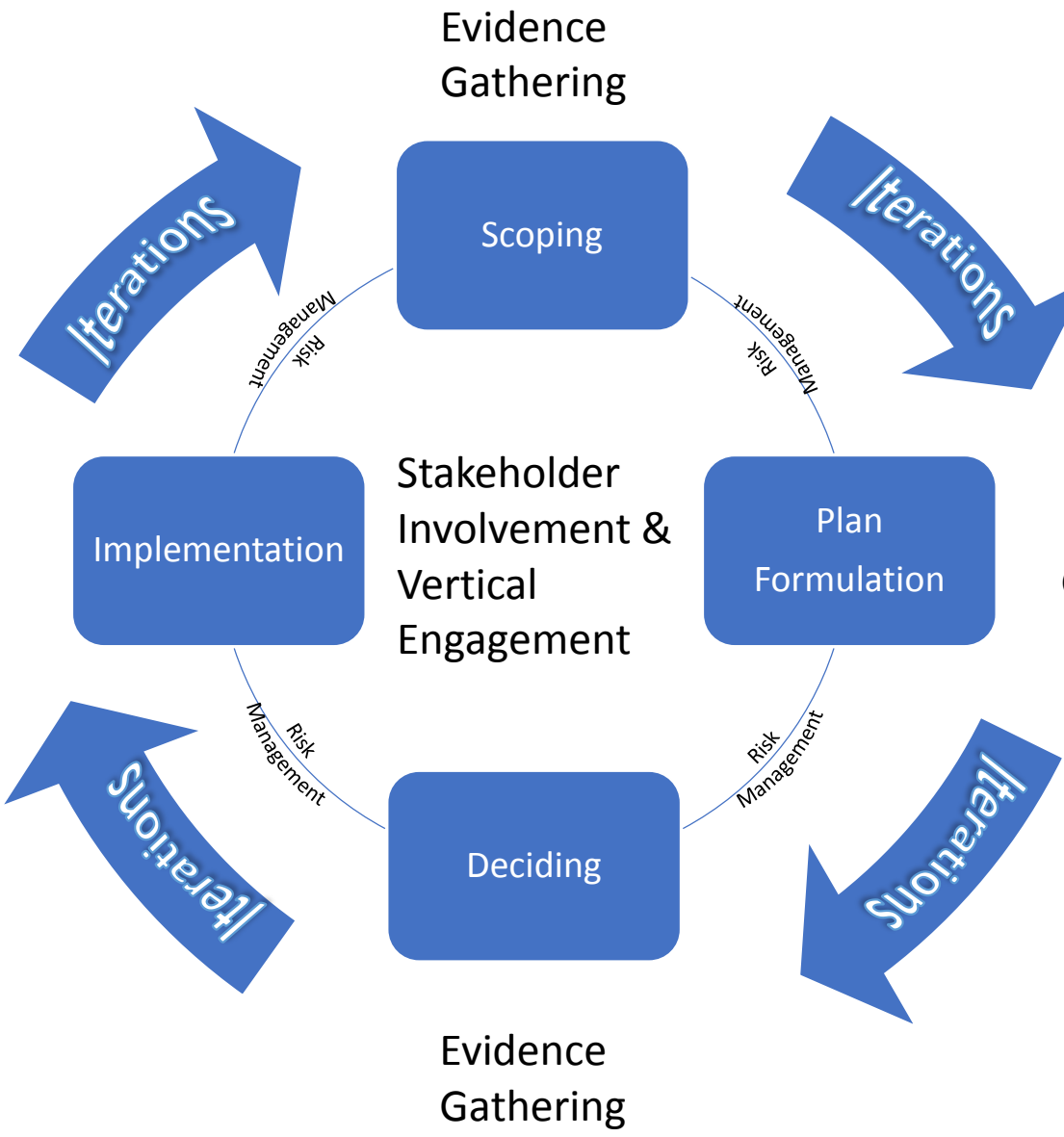
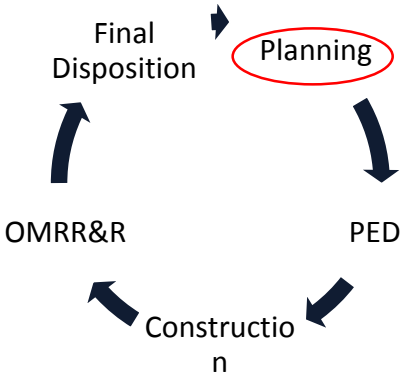


Prior Planning Process + New Risk Management Process = Risk-Informed Planning Process

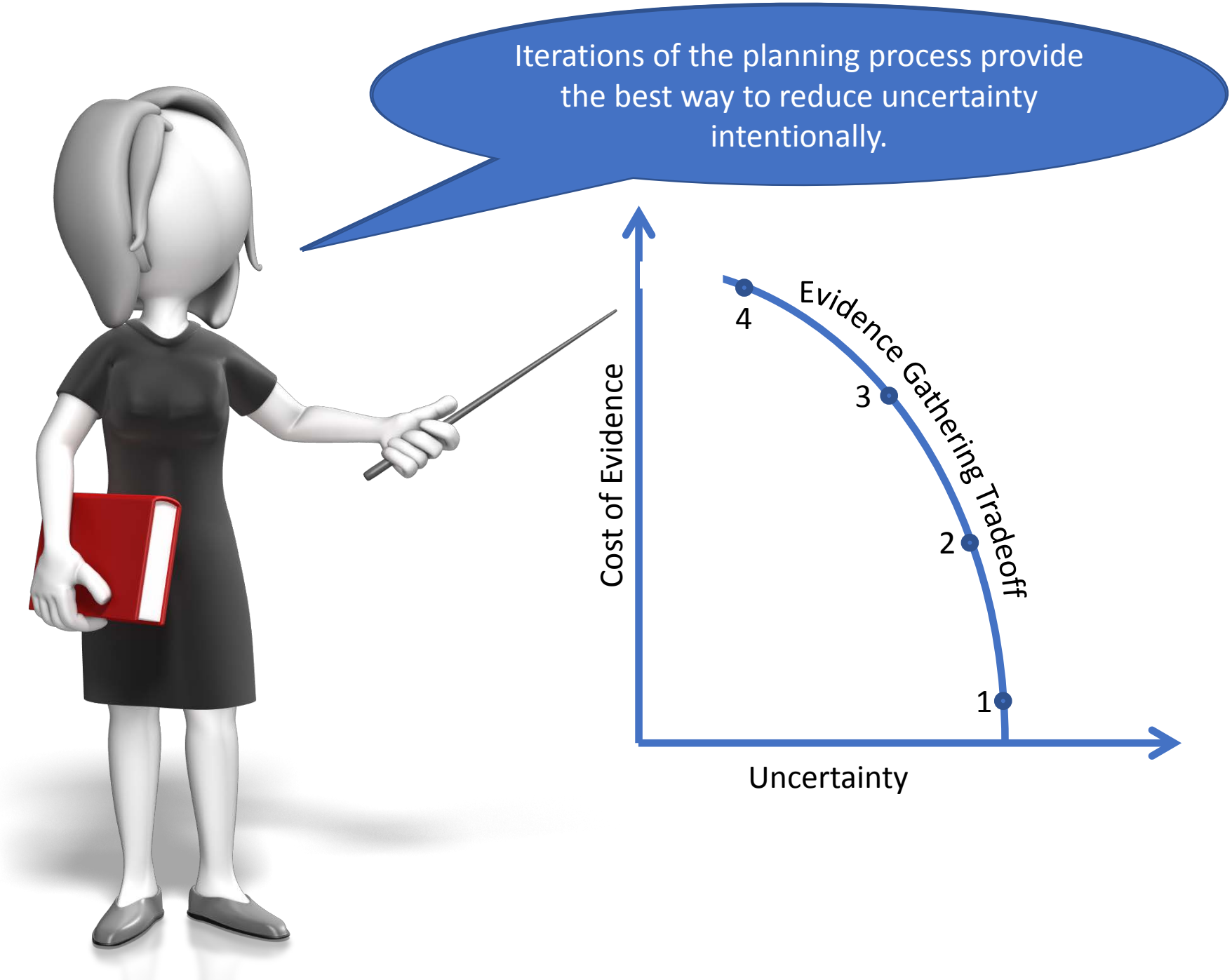
RIP begins the risk management life cycle for a project



It considers risks comprehensively

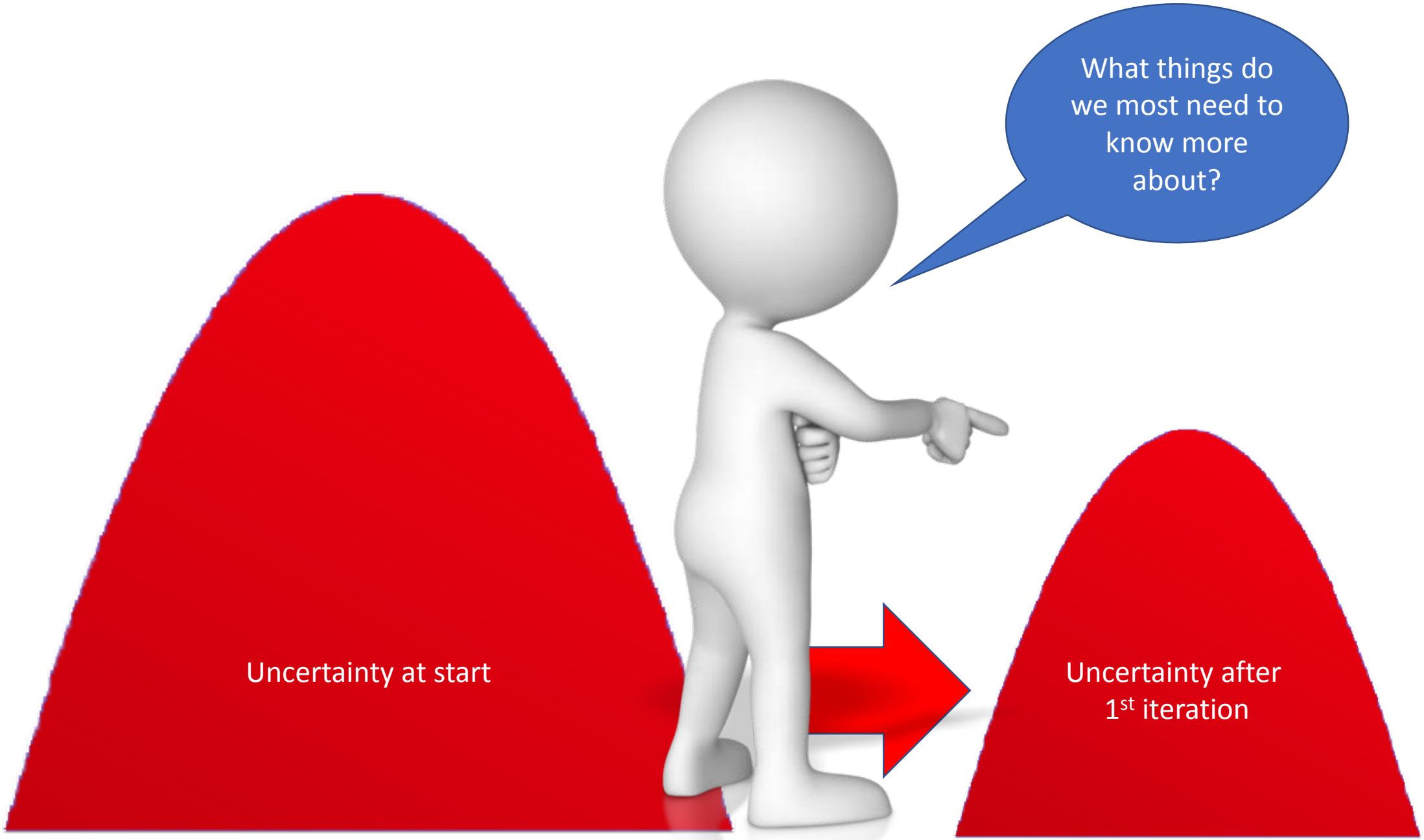


Reducing Uncertainty


Iterations of the planning process provide the best way to reduce uncertainty intentionally.
Cost of Evidence
Evidence Gathering Tradeoff
4
3
2
1
Uncertainty

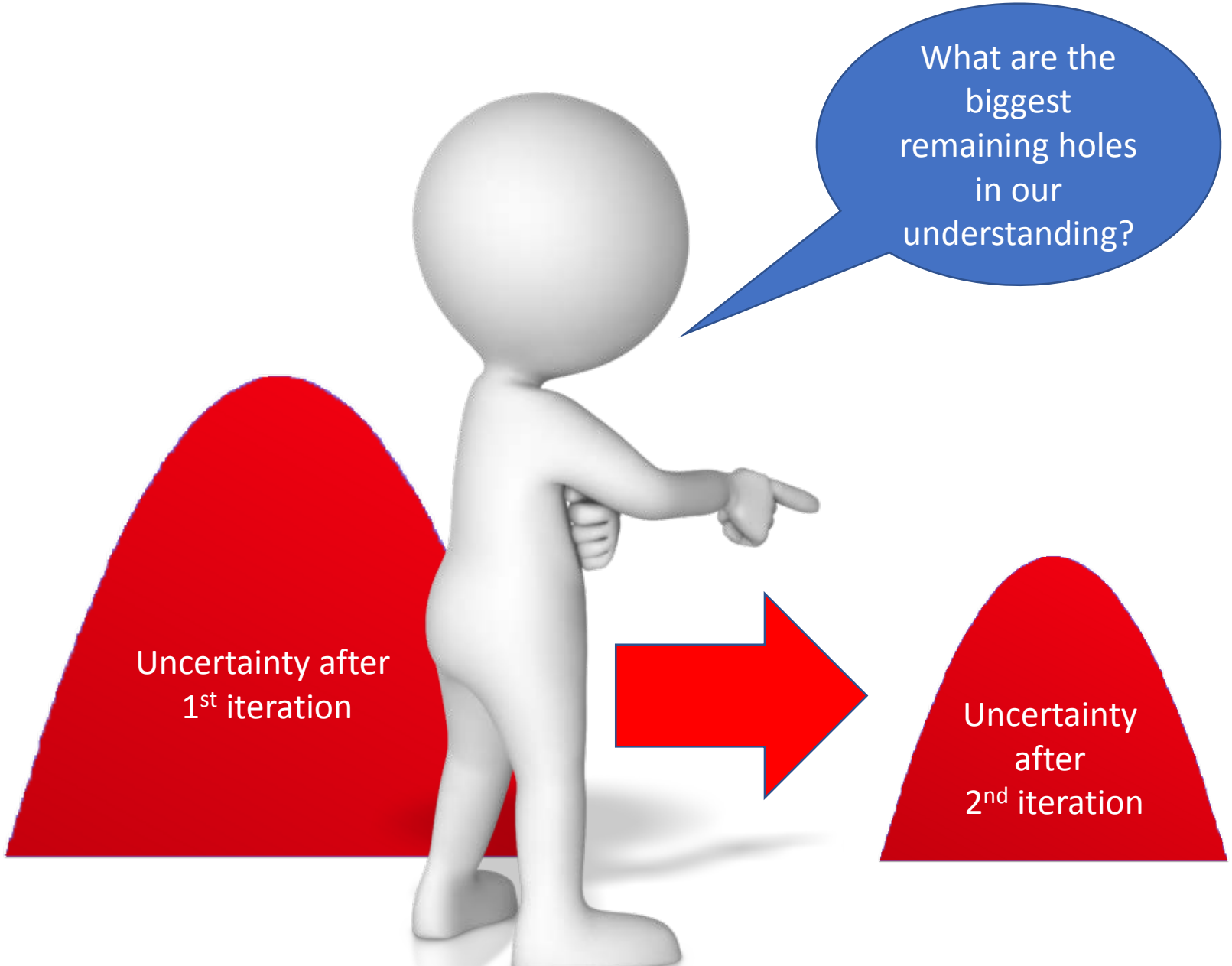
1st Iteration: Knowledge on the Team

Within 30 days


What things do we most need to know more about?
Uncertainty at start
Uncertainty after 1st iteration

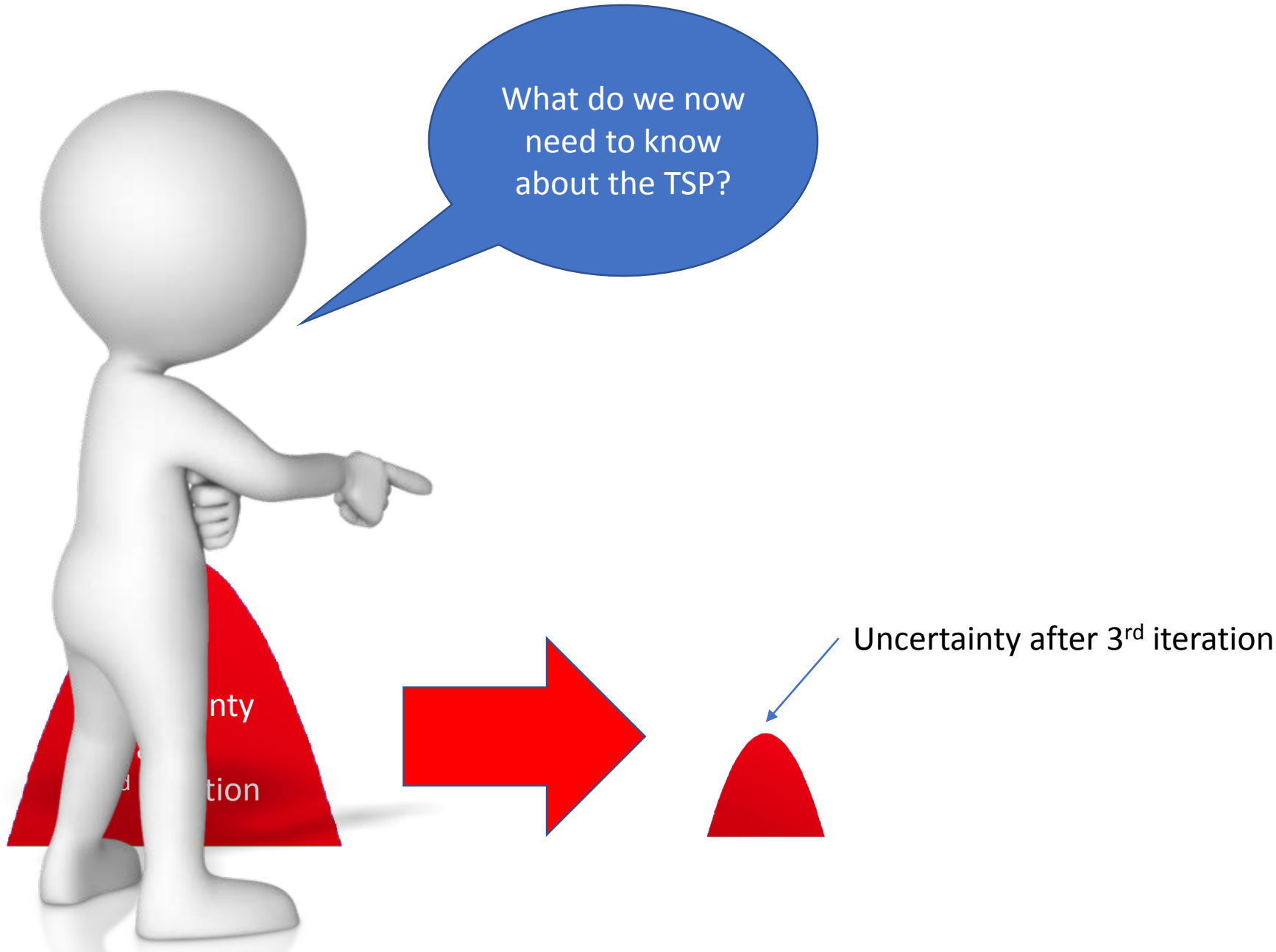
2nd Iteration: What Do Others Know

Within 90 days


What are the biggest remaining holes in our understanding?
Uncertainty after 1st iteration
Uncertainty after 2nd iteration

3rd Iteration: What Must We Learn?

Within a year


What do we now need to know about the TSP?
Uncertainty after 3rd iteration

Do I need a waiver?
Follow this process to a TSP and you will be 3x3x3 compliant or you will have a strong case for why you cannot be.

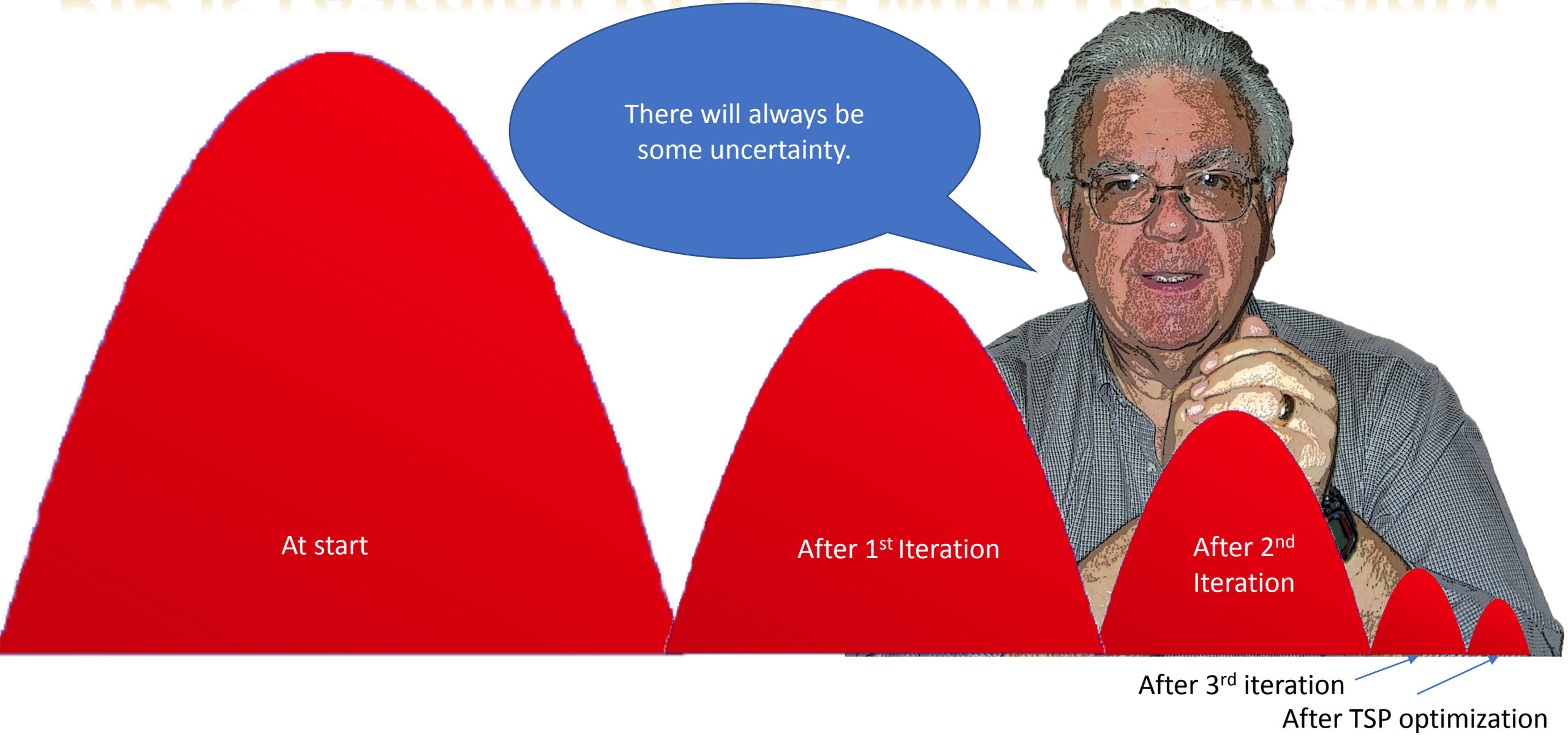
TSP

What should we look out for during PED?

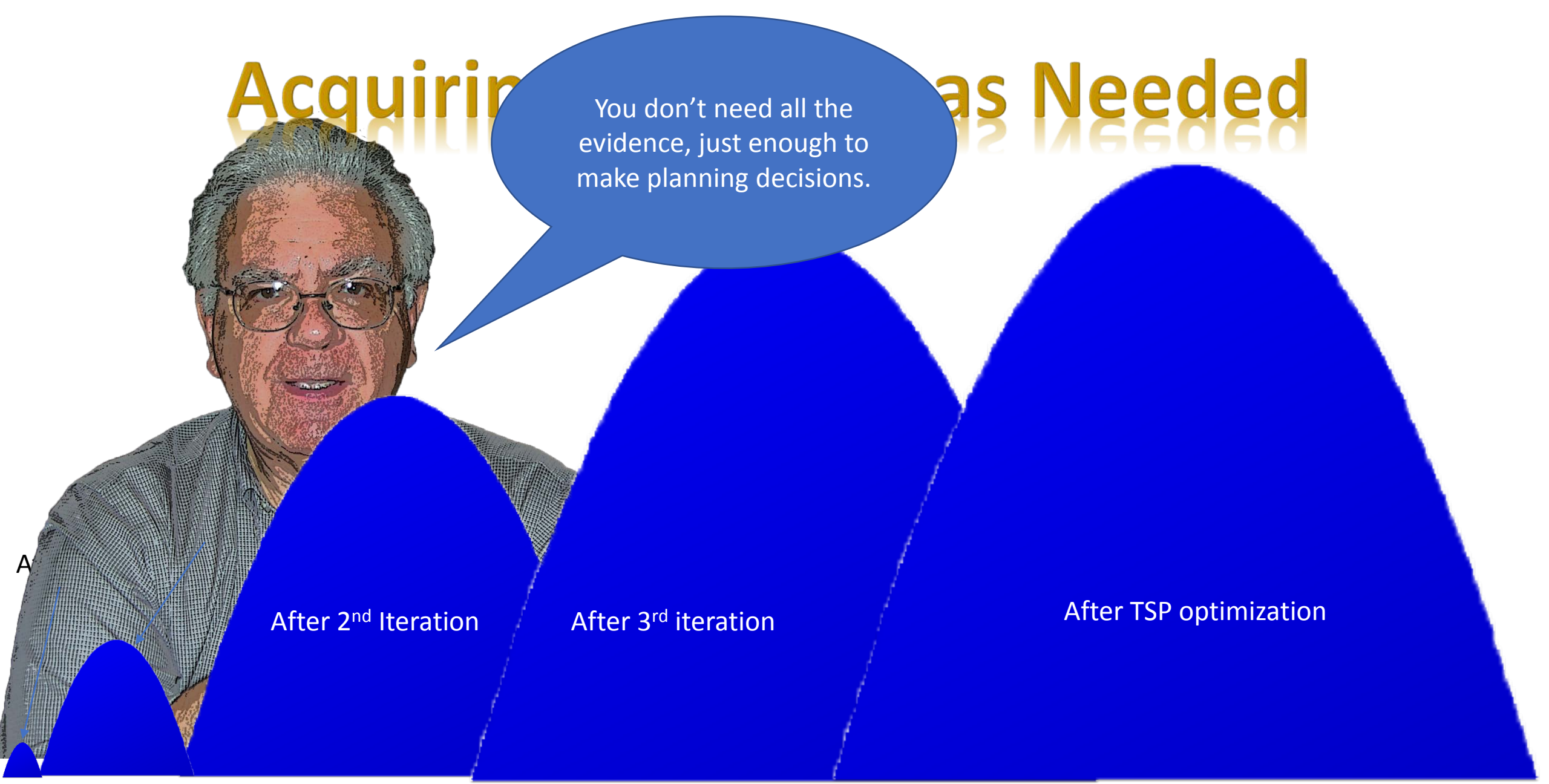
Uncertainty after 3rd iteration

Uncertainty after TSP reasonably maximized

RIP Is Learning to Live With Uncertainty

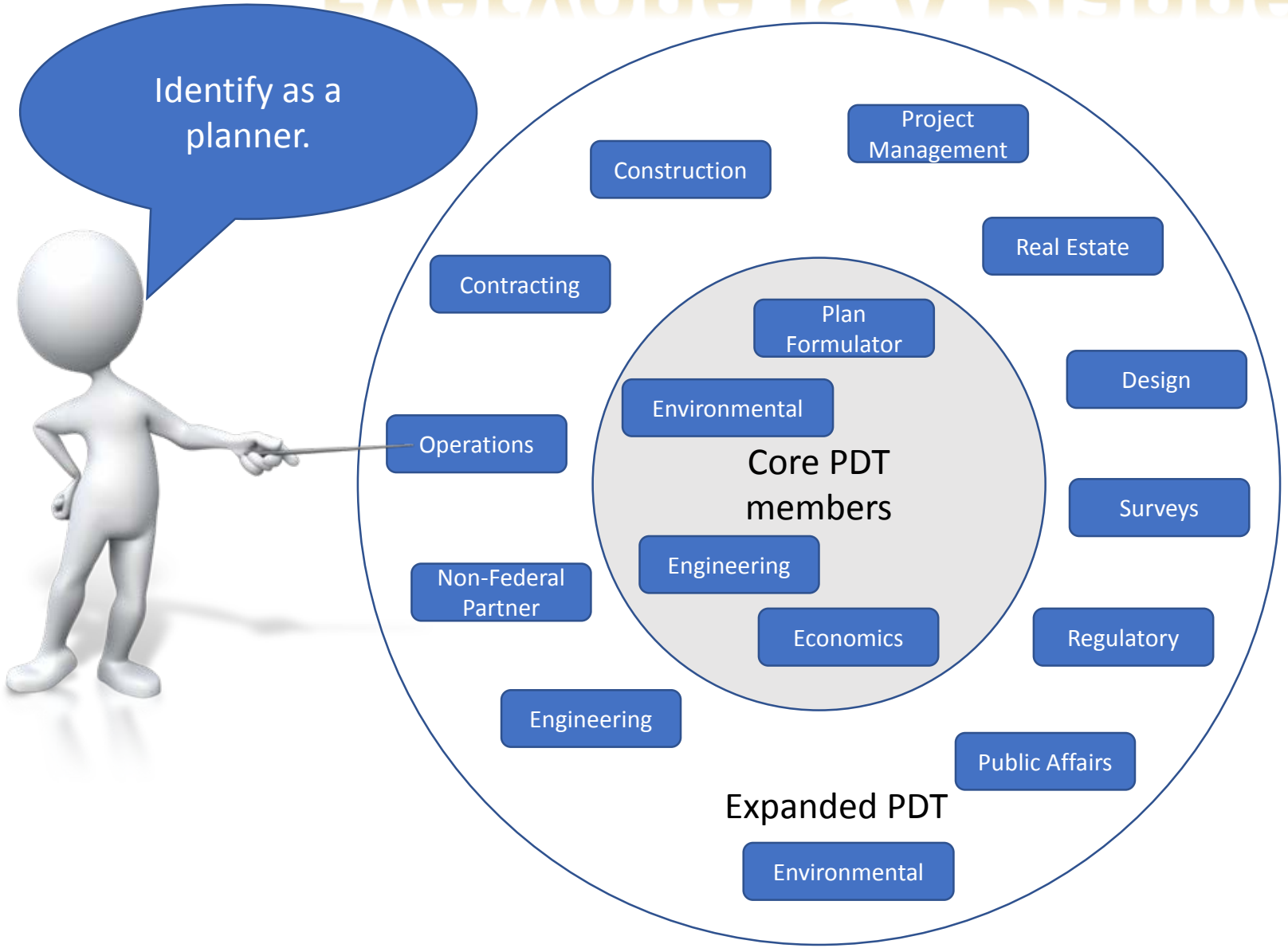


Acquirin as Needed



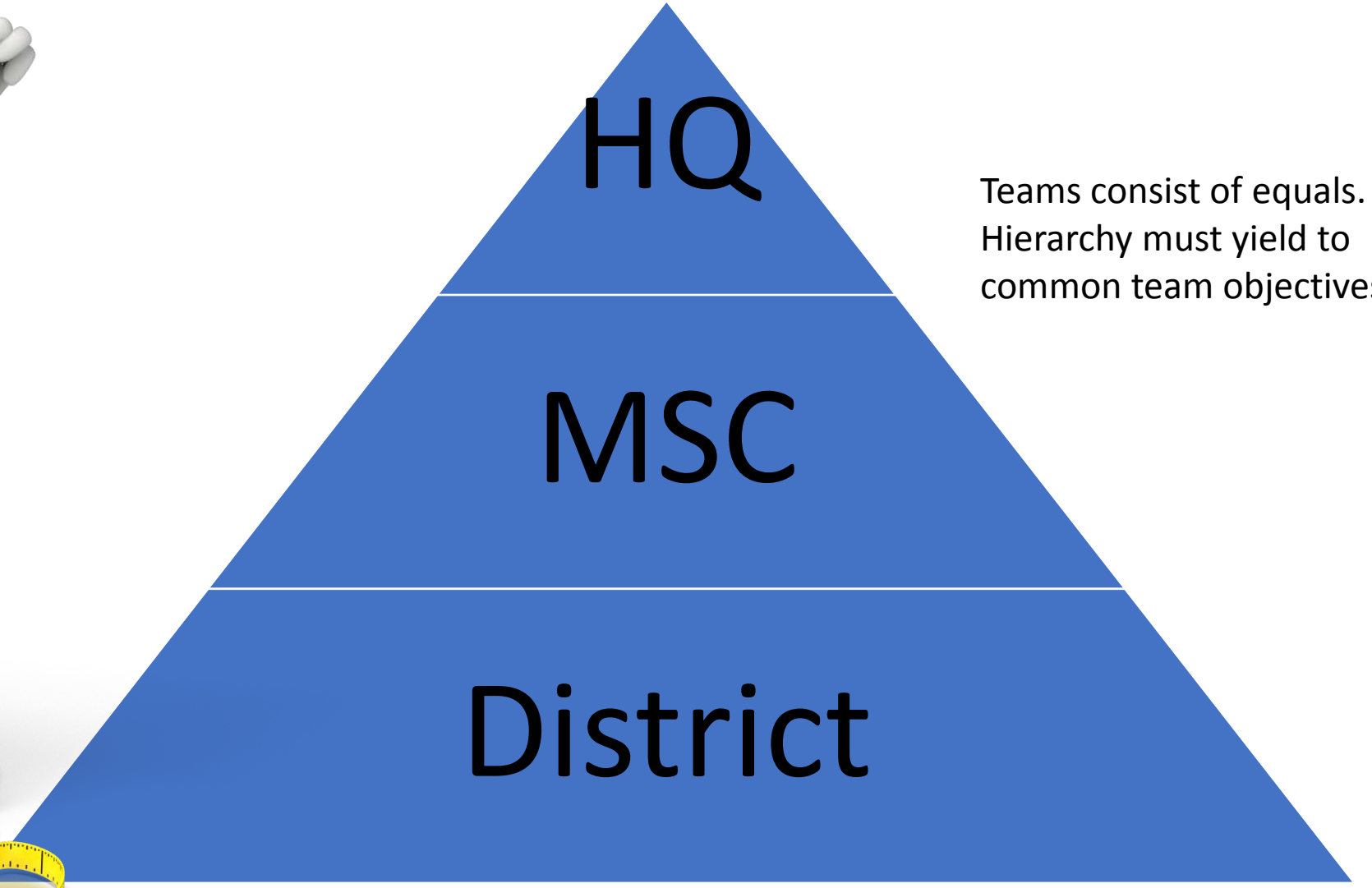
Everyone Is A Planner

Everyone Is A Planner



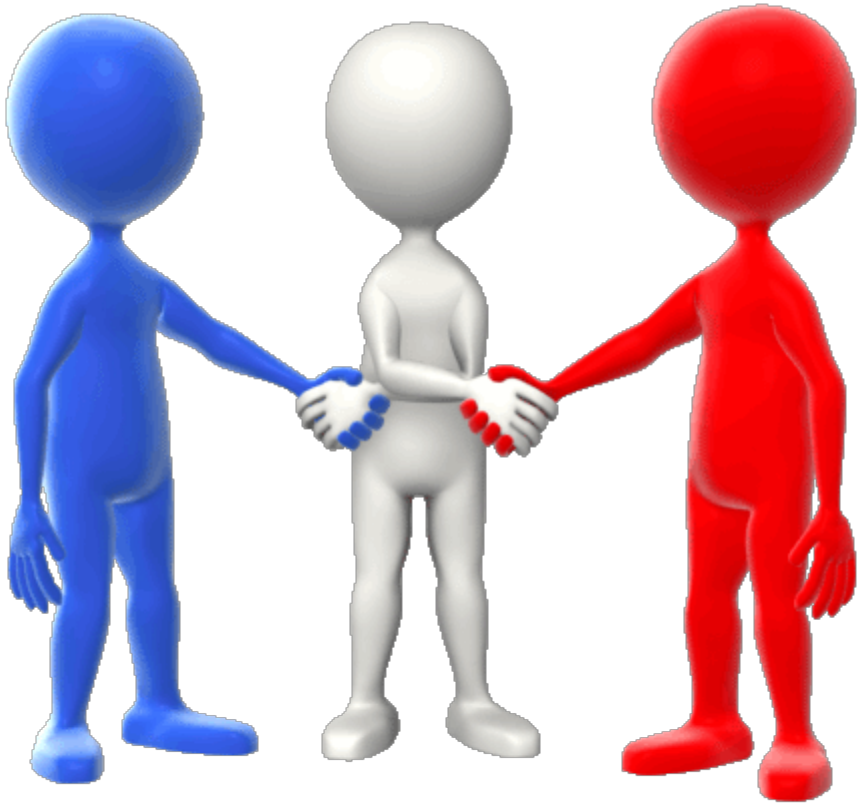
If you identify only with your discipline and define yourself by that skillset, you become obsolete when challenges outside your discipline arise.

The Entire Vertical Team Must Measure Up



Teams consist of equals.
Hierarchy must yield to
common team objectives.

Power Down Decision Making



Vertical Alignment

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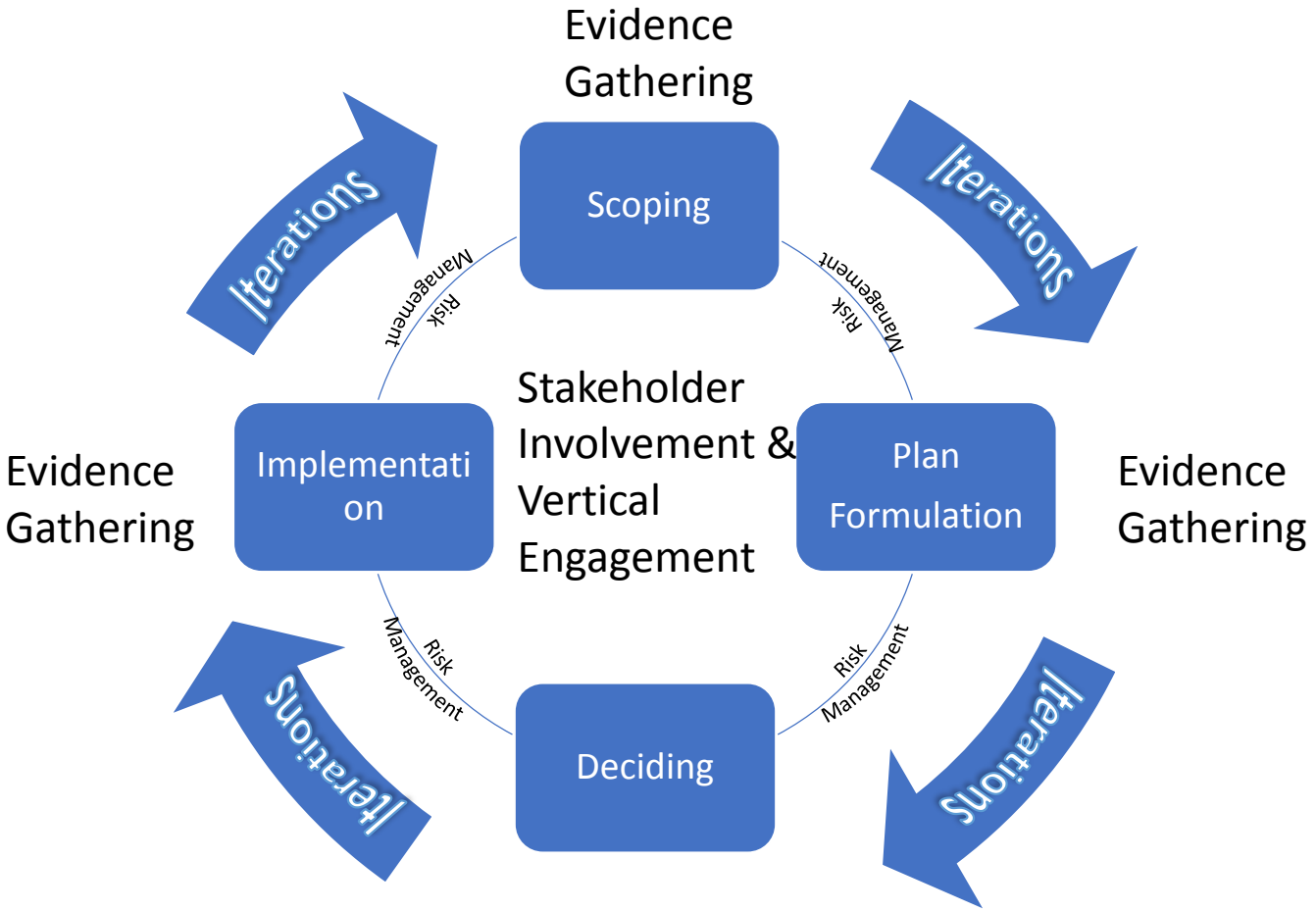

Power Down Decision Making

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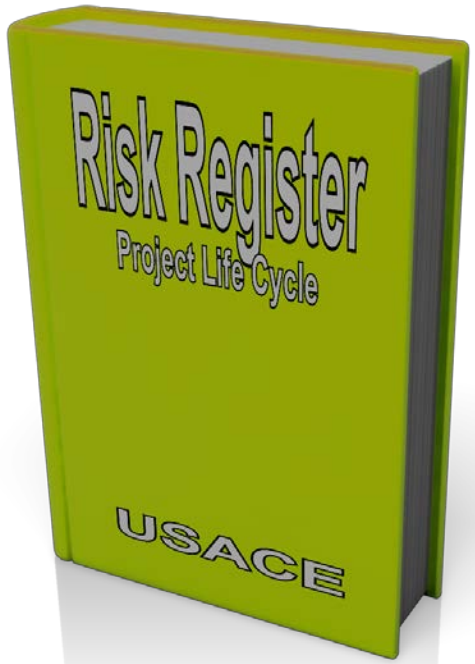
More power for the PDT in making planning decisions



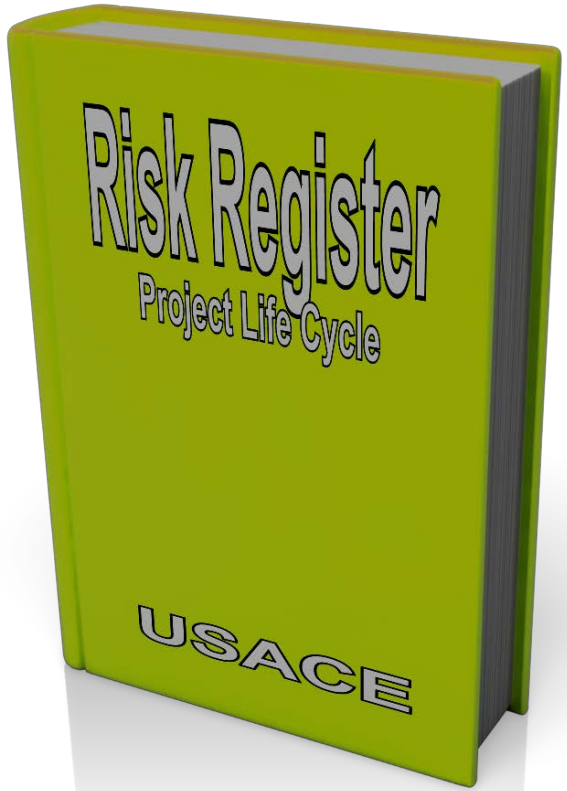
Risk Register is actively used as a management tool.

Team Actively Manages Risk

Risks are monitored and management is modified as needed

Everyone Is A Risk Manager

Risk Register



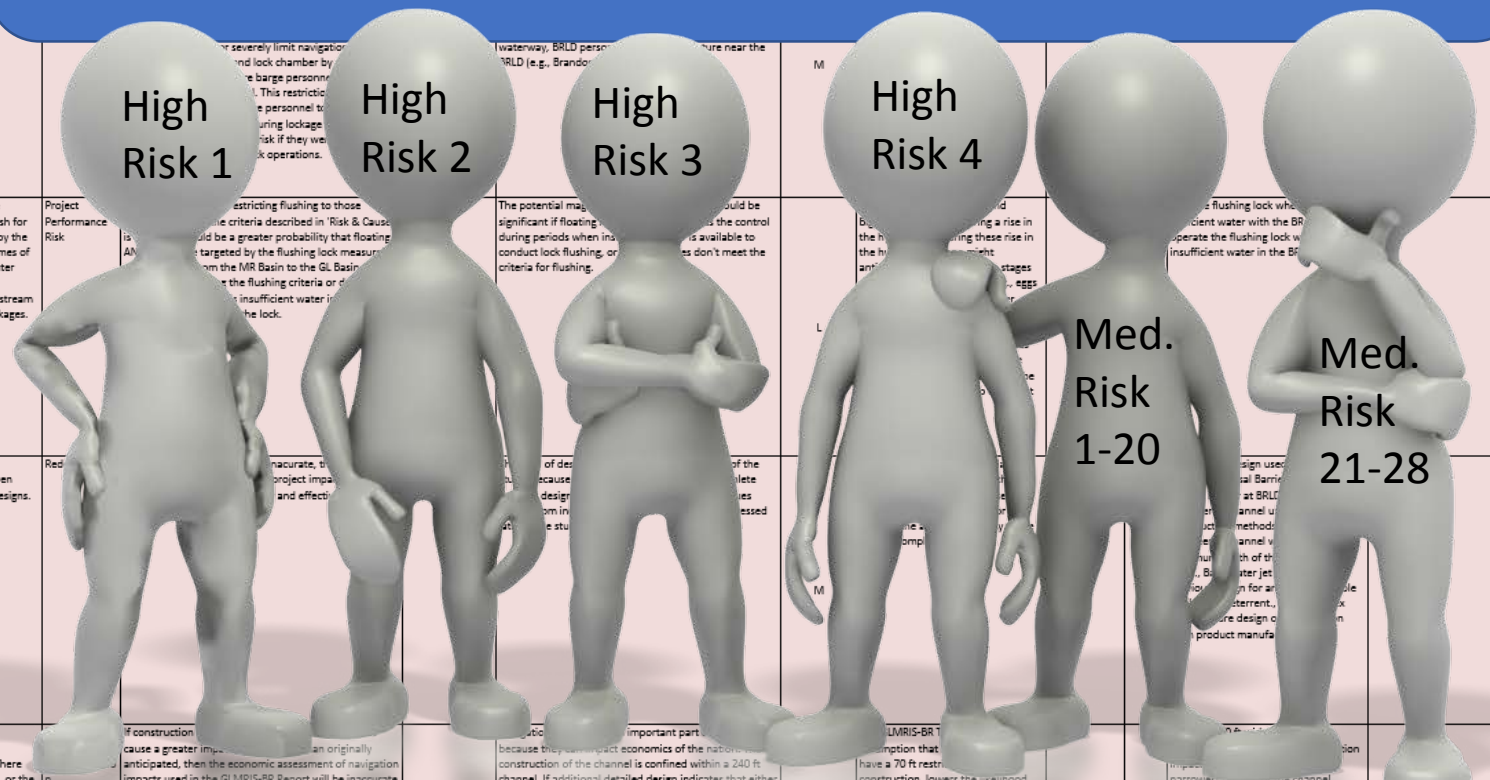
- Risk management tool
- To be used by vertical team
- Someone must own each High and Medium risk
- Actively manage and monitor risks that result from conducting a study that is intentional about uncertainty

Risk Register Sample

Scoping Choice or Event	Risk and its cause	Risk Type	Consequence	Consequence rating	Evidence for Consequence rating	Likelihood rating	Evidence for likelihood rating	Uncertainty rating	Risk Rating	Risk Management Options	Conclusion/ Recommendation	Affected Study Component	Outcome	Notes
Conduct any physical model of the flushing lock concept during preconstruction engineering and design (PED).	The GLMRIS-BR Team has uncertainty in the efficacy and impacts of the flushing lock measure. In general, there are a limited number of measures that are believed capable of affecting the transfer of floati... ANS, and the proposed flushing lock measure... of the few and potentially the most accepta... determined by the findings of the GLMRIS R... (2014)). Based on 3-D modeling the flushing... believed to be implementable; however, im... navigation are expected due to increased ti... needed to flush. Safety impacts are not inti... because vessels would be tied up outside o... during flushing operations.	Poor Planning Decision	The GLMRIS-BR Team may not reduce the risk to the maximum extent possible by excluding other ANS controls that potentially target floating ANS.		If the measure is shown to be ineffective during physical modeling, the GLMRIS-BR Team would likely need to reformulate the proposed alternatives during the PED		Likelihood of the consequence is medium since the team is basing its assumptions off of 3-D numeric			Perform physical modeling of the flushing lock concept prior to the TSP milestone., Tolerate the risk and		Economics, Eng. - General, Eng. - cost, Plan Formulation.		
The GLMRIS-BR Team is continuing with the consideration of an electric barrier as potential measure at BRLD, even though the extent of stray current and other associated issues will not be known until/if a barrier is installed and testing is performed.	The GLMRIS-BR Team recognizes that there ... be stray current issues associated with an e... barrier at BRLD, if recommended. This is ba... stray current issues at the CSSC Electric Bar...		...r severely limit navigation... ...nd lock chamber by... ...e barge personne... ...L. This restricti... ...e personnel to... ...uring lockage... ...isk if they wei... ...k operations.		waterway, BRLD perso... ...BRLD (e.g., Brando...	M						...mics, Eng. - ...al, Eng. - ...chnical, Eng. - ...Eng. - cost, ...nment, Plan ...ulation, Real ...tate.	The GLMRIS-BR Team will continue with the electric barrier as a measure, knowing there could be implementation problems.	It was noted that the risk management option was acceptable.
The GLMRIS-BR T... potential measure, e... how often lock flushing... BR Pool.	...RLD) may have ...ete a 15 minute flush for ...med flushing time by the ...during certain times of ... Due to water ...o those ...following criteria: (1) upstream ...ecutive downbound lockages.	Project Performance Risk	...estricting flushing to those ...e criteria described in 'Risk & Cause ...uld be a greater probability that floating ...e targeted by the flushing lock measur... ...om the MR Basin to the GL Basin ...e the flushing criteria or ... ...insufficient water in ...he lock.		The potential mag... ...uld be significant if floating ...during periods when ins... ...is available to conduct lock flushing, or ...es don't meet the criteria for flushing.	L	...ing a rise in the h... ...ring these rise in the h... ...ght ...stages ...eggs			...e flushing lock wh... ...cient water with the BR ...perate the flushing lock w... ...insufficient water in the BR		Economics, Cultural Resources, Eng. - General, Eng. - Geotechnical, Eng. - H&H, Eng. - cost, Environment, Plan Formulation, Real Estate.		Use of previous design and coordination with current manufacturers was appropriate for thi... level of design. The features - complex noise, water jets - that we are least certain about are relatively low cost in comparison to the engineered channel and electric barrier.
A conceptual level of design was performed for th... echnology Alternatives. Best available data was used includin... revious site investigations and design references from similar projects. No new site investigations were performed.	The risk is that the existing data used and professional assumptions made could be proven incorrect or inaccurate during later detailed designs.	Red...	...naccurate, ti... ...project impa... ...and effecti...		...of des... ...ecause ...design... ...om in... ...e stu...	M	...ompl...			...sign used... ...al Barrie... ...at BRLD... ...annel u... ...methods... ...annel w... ...ch of th... ...ater jet ...n for ar... ...terrent., ...re design o... ...product manufa...		Eng. - General, Eng. - cost.		
Construction assumptions for the Technology Alternatives were made to minimize impacts to navigation.	Assumptions were made to limit impacts to navigation and were based on construction engineering knowledge and similar projects. There ...		If construction ... cause a greater imp... ...an originally anticipated, then the economic assessment of navigation ...		...tio... ...important part ... because they ... economics of the nation... construction of the channel is confined within a 240 ft ...		...LMRIS-BR T... ...mption that ... have a 70 ft restr... ...construction...			...ion		Economics, Eng. - General, Eng. - cost.		

4 High risk decisions
28 Medium risk decisions
19 Low risk decisions

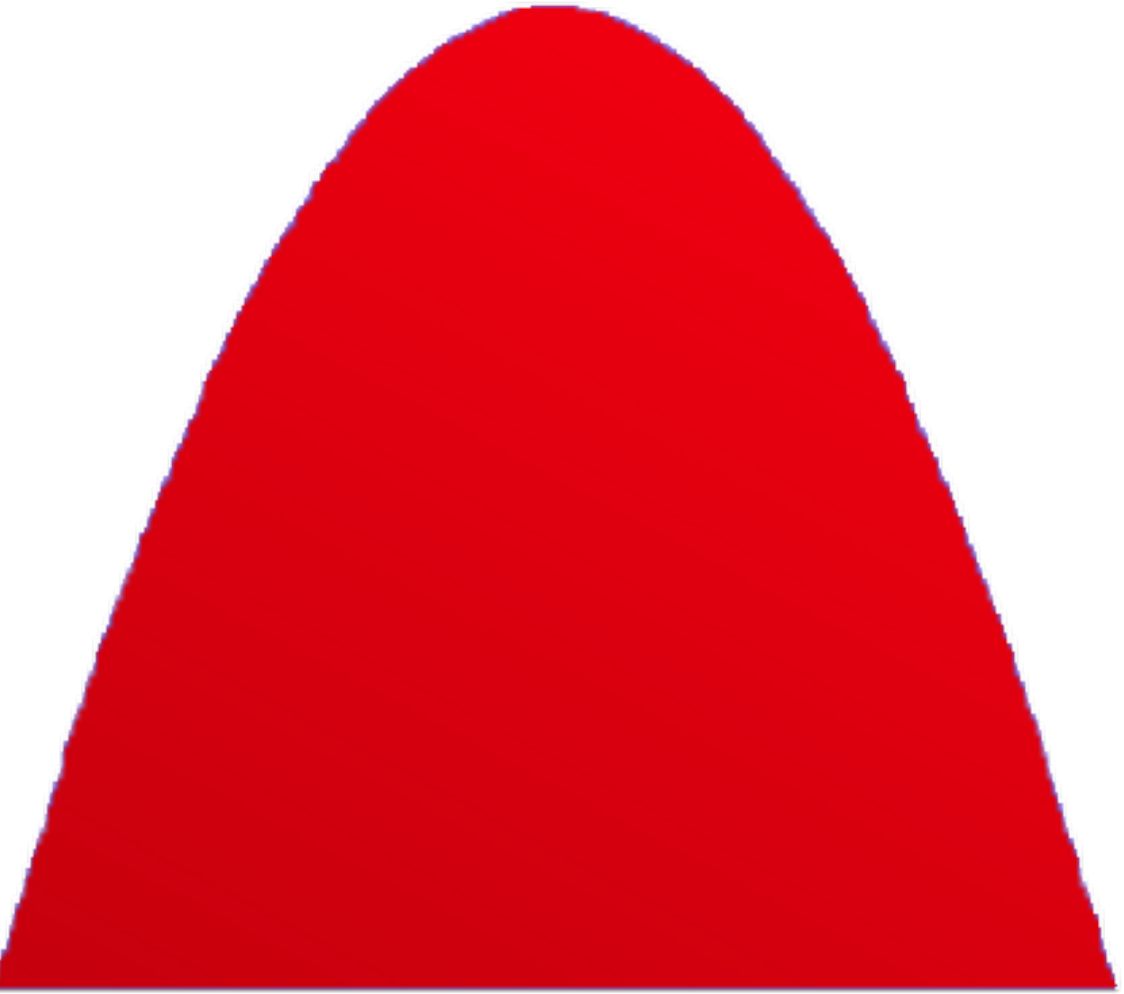
Ever risk has an owner



Risk Level
Risk Register

Hope is not a risk management strategy. Everyone is a risk manager.

There Is No Such Thing As “The Number”

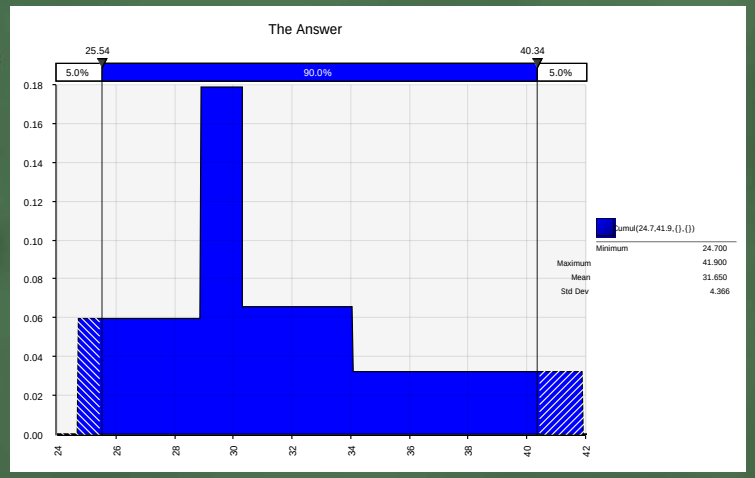


Uncertainty means there are some things we are not going to know for sure.

Yes. We will improve that estimate once we refine the TSP.

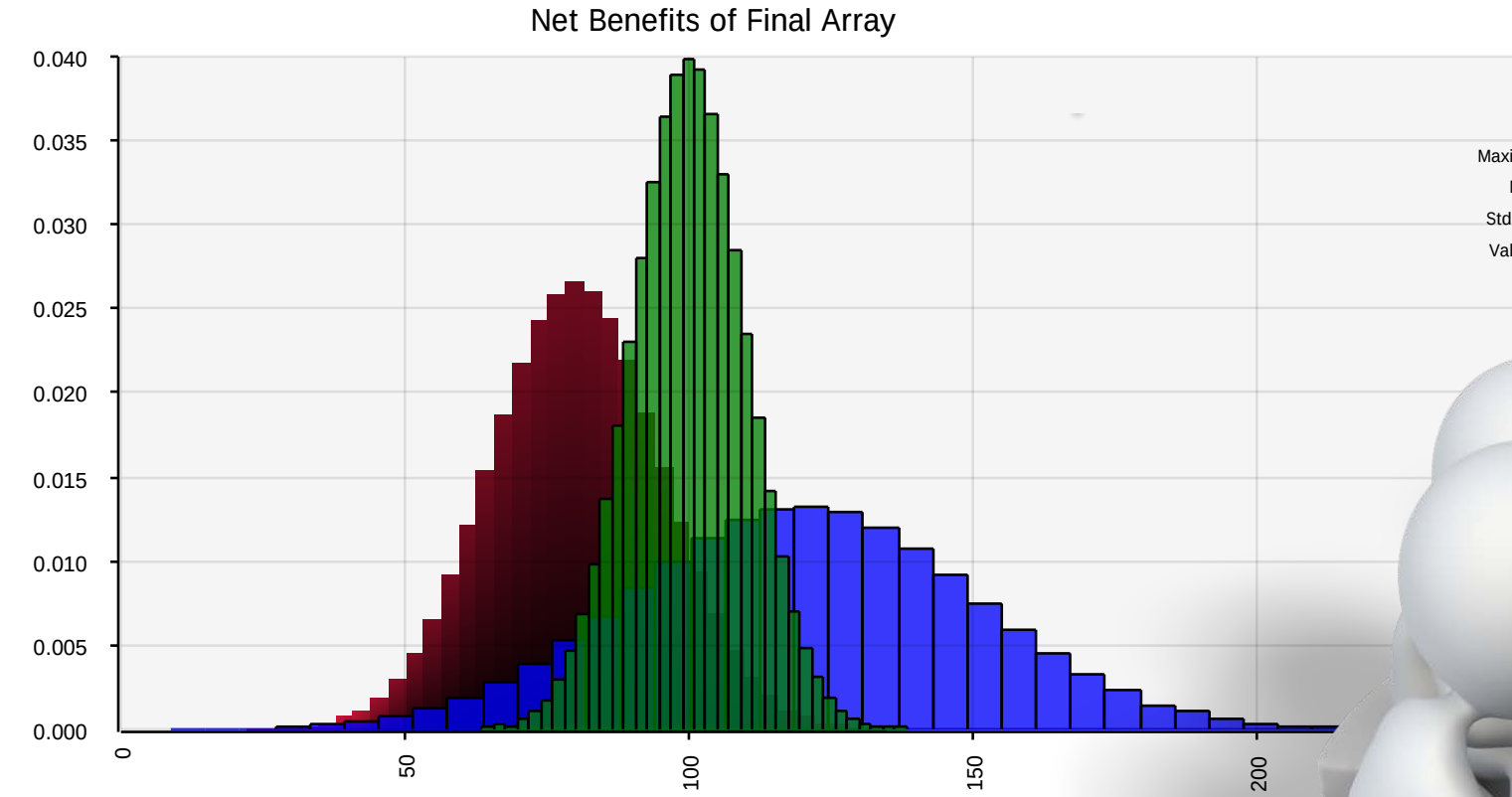
	1st Q	Median	3rd Q	Max.
24.7	28.9	30.3	34.1	41.9

Project Cost



So costs will be between $25 and 42 million?

By reporting a single number, we hide our ignorance and keep our bosses ignorant of the limitations of our models and data. We need to be honest with them so they can openly account for uncertainty.



Decision making is different with uncertainty

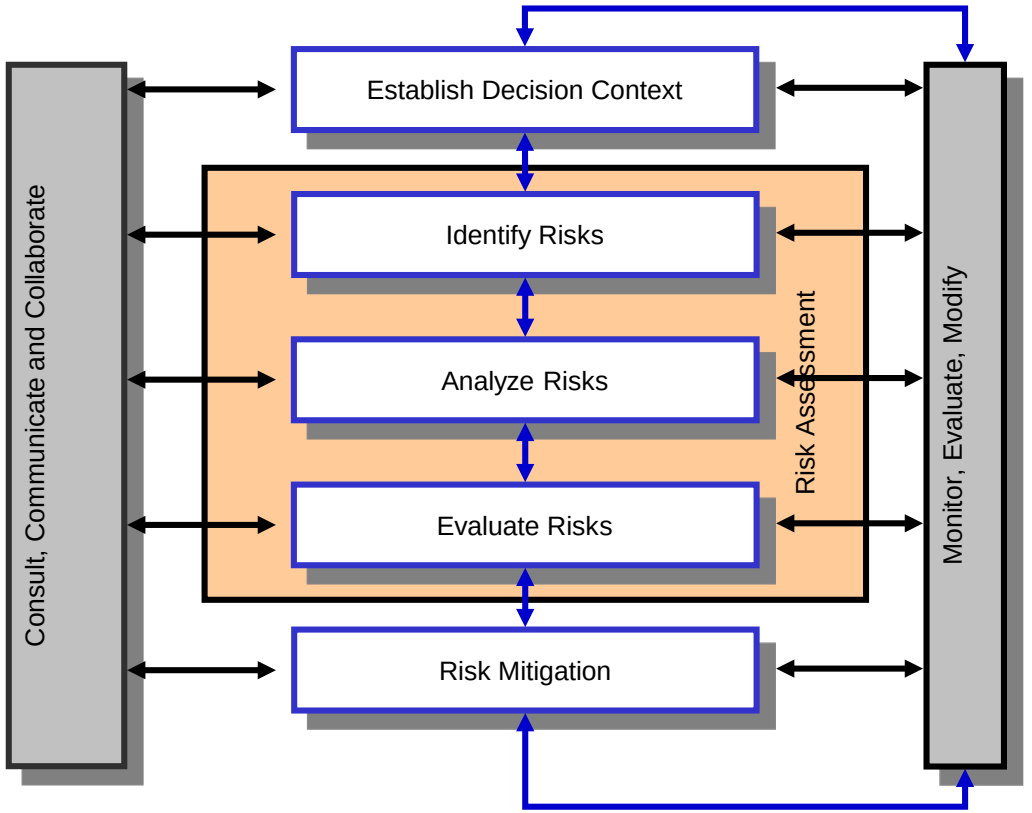
Residual Risk and TSP Risk Assessment

Carefully assess and describe the risk that remains with the TSP in place.

Residual Risk

TSP Risk Assessment

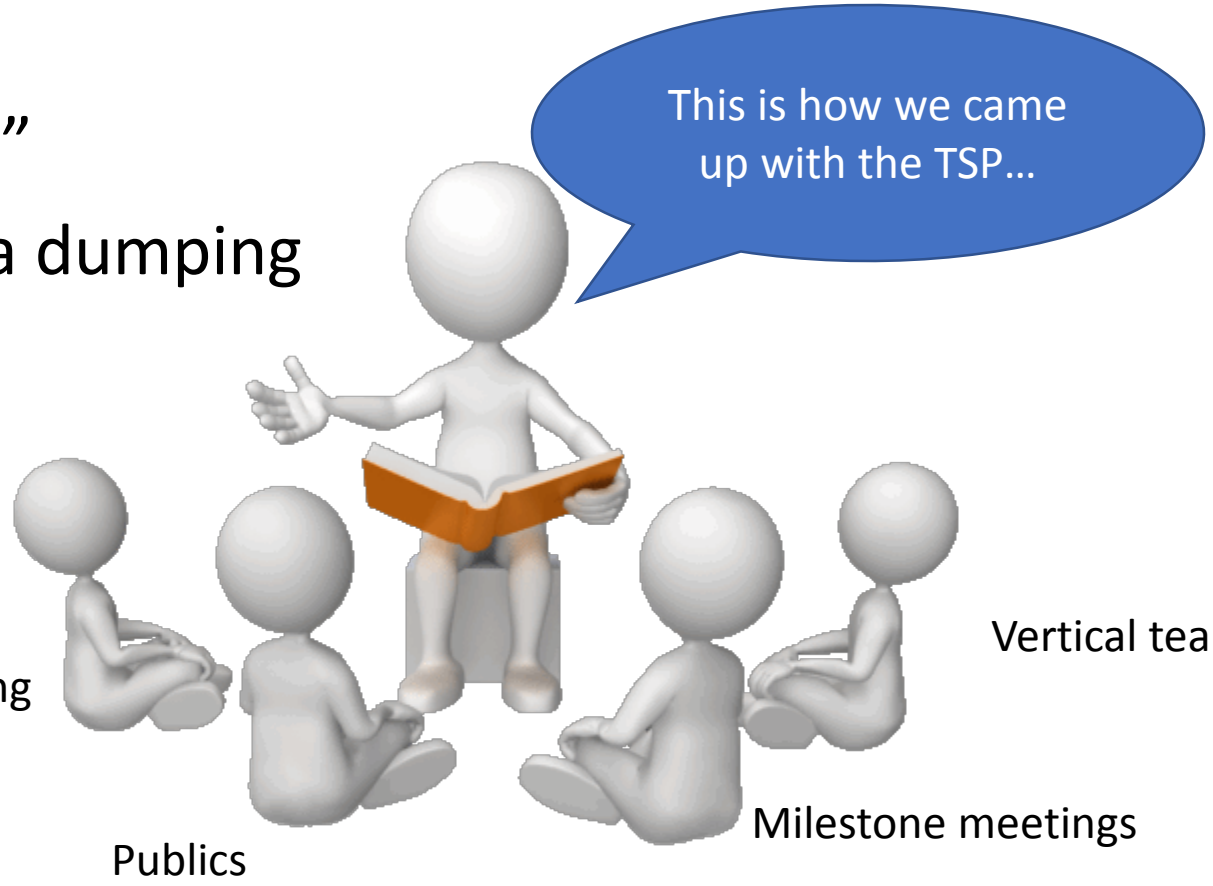
- Conduct at least a qualitative assessment of the TSP
  - What can go wrong?
  - How can it happen?
  - What are the consequences?
  - How likely is it?
  - Carry risks forward to PED.



Tell Stories

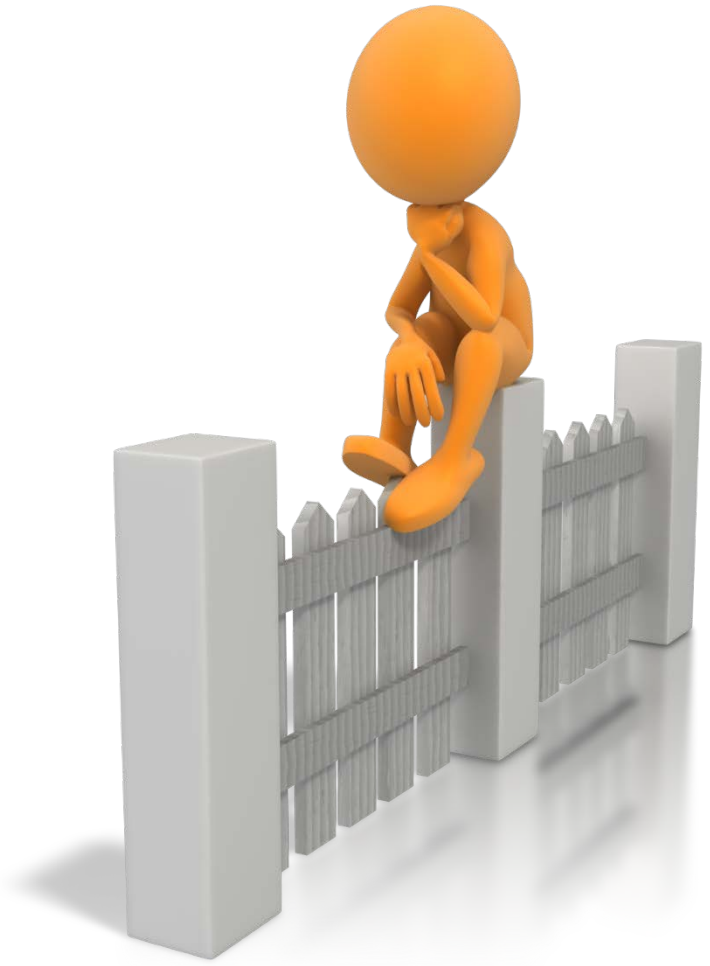
Tell Stories

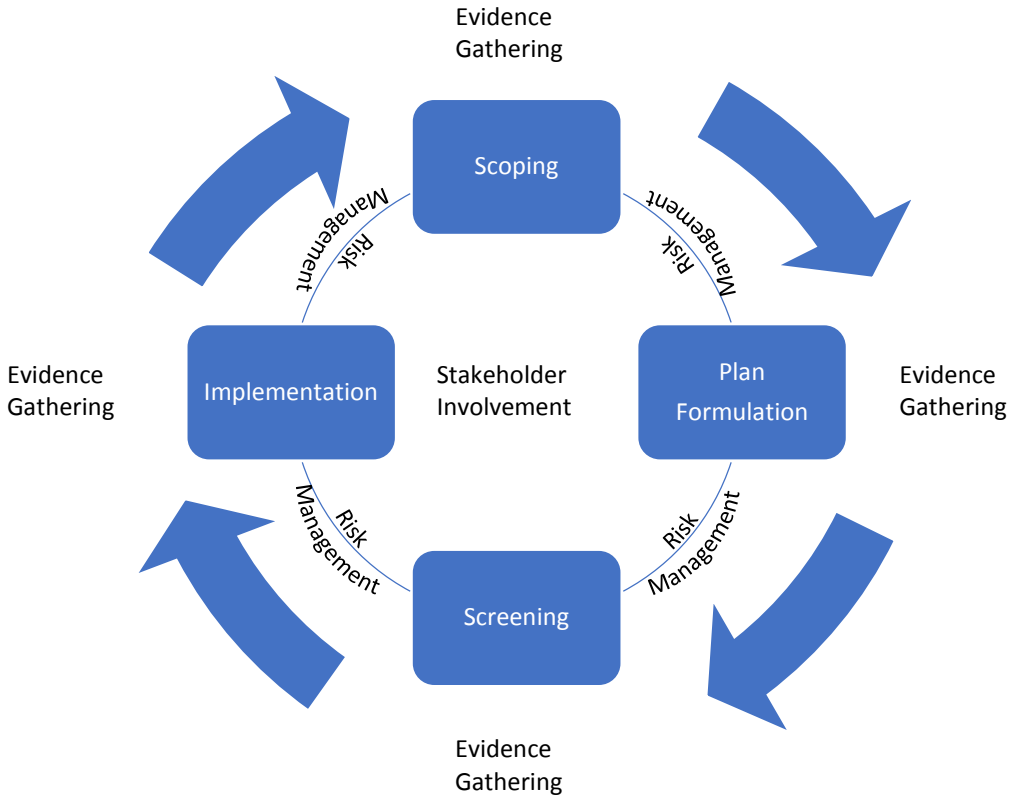
- Riskography with an engaging beginning, an interesting middle, and a satisfying ending
- More “why” less “how” and “what”
- No more six step structure, no data dumping
- Explain uncertainty
- Explore alternative media



Be A Risk-Informed Planner

Bloated budgets
Prolonged schedules
Unhappy stakeholders





3 x 3 x 3
Iterative
Addresses uncertainty

Discussion