D9 UNIT 4-A
RISK MANAGEMENT

Exposure, taxonomy and discovery

Concepts
Risk

25 min

Concepts
Risks and problems

- *Possible future event that will lead to an undesirable outcome.*
- A ***risk*** is a problem that has yet to occur, and a ***problem*** is a risk that has already materialized.

A risk implies:

- ***Uncertainty***: the event that characterizes the risk may or may not happen.
- ***Potential loss***: if the risk becomes true, undesired consequences will happen.

Concepts
Risks and problems

- ***Risk management*** is the process of thinking out corrective actions before a problem occurs, while it's still an abstraction.
- The opposite of risk management is ***crisis management***, trying to figure out what to do about the problem after it happens.

Concepts

Risk transition and transition indicators

- ***Risk transition***: when something that used to be a risk suddenly becomes a problem. This is the point at which the risk is said to ***materialize***.
- What you see is a ***transition indicator***.
- We must keep a reasonable percentage of false positives.

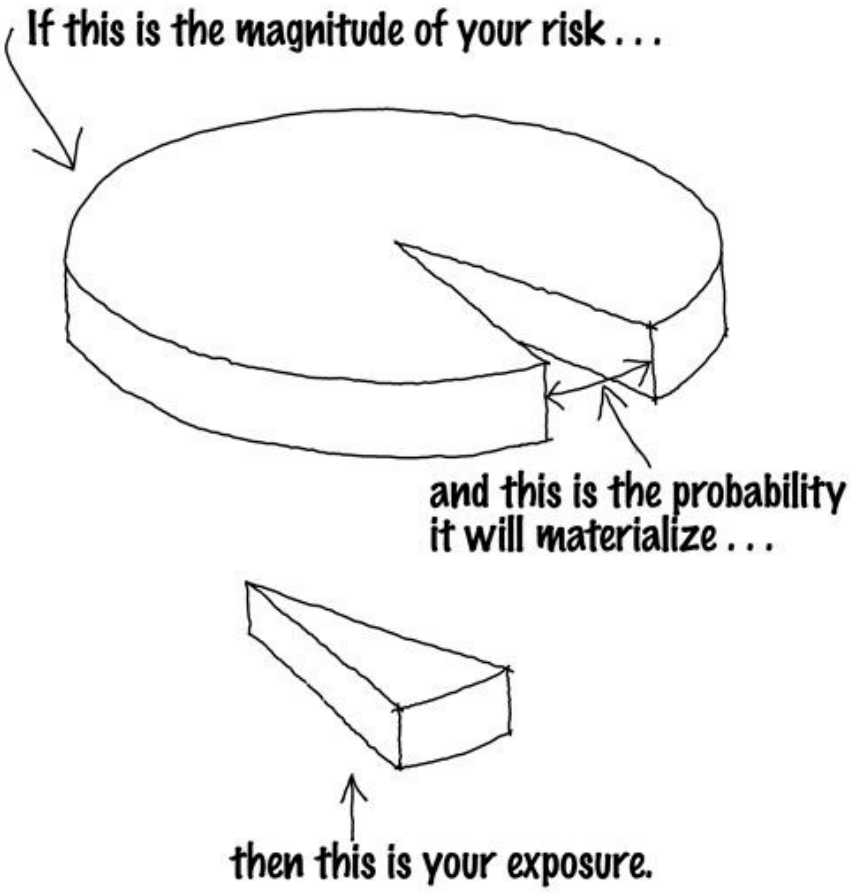
Concepts
Risk management

Bob Charette:

It’s the risks that you take that speed up the stairs for everyone else. Not taking them just assures that your world will come to be shaped and dominated by someone else.

Concepts
Risk management

Risk exposure
Probability and cost



risk exposure = cost · probability

Cost can be expressed in money or time:

If you identify a risk that is 20% likely to occur, and it will cost you a million dollars if it does, your risk exposure is $200,000.

If a risk is 20% likely to occur and will cost you five months if it does, your risk exposure is one month of delay.

Risk exposure
Using quantitative values

Risk	Prob. (%)	Cost (weeks)	Exp. (weeks)
Add new marketing features	35	8	2.8
Schedule is too optimistic for the implementation of the sales subsystem	50	5	2.5
Inappropriate design	15	15	2.2
The new toolkit does not provide the expected processing speed	30	5	1.5
New requirements related to the automatic update from the server	5	20	1.0
Unstable interface for plotting graphs	25	4	1.0
Delay in the delivery of the tracking subsystem	20	4	0.8

Risk exposure
Showstoppers

- Are difficult to price because they cost everything. They will force you either to completely rethink the product or to cancel the entire project.

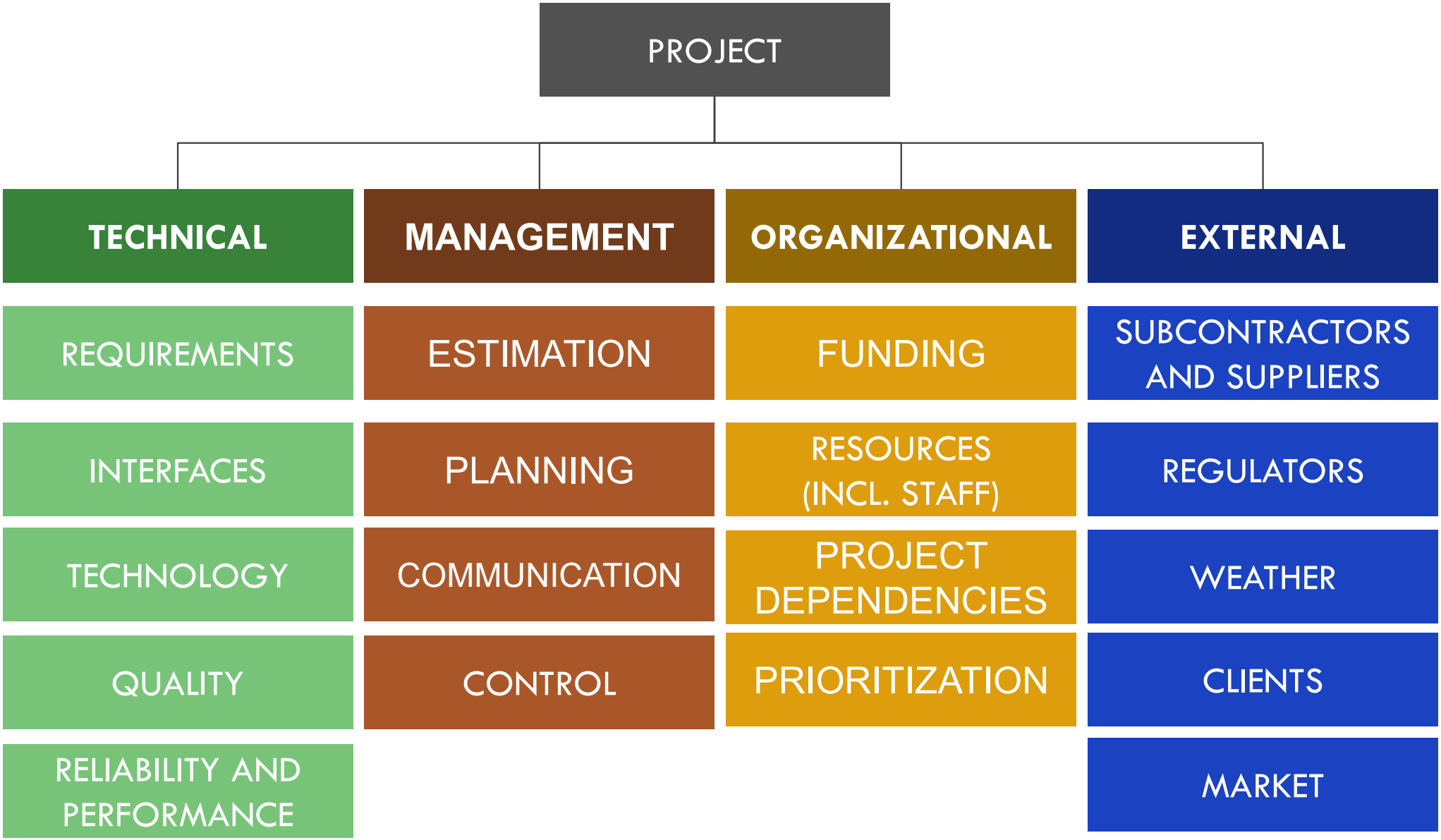
- Can only be managed by what we call *project assumptions.* In order for you to continue your work, you must assume that the showstoppers will not occur.

- Still belongs on your risk list (since you still need to watch it), but it should be explicitly noted as a project assumption. That means it's not going to be managed by you.

Why is risk management useful?

- Risk management bounds uncertainty
- Risk management makes aggressive risk-taking possible
- Risk management decriminalizes risk
- Risk management focuses attention where it is needed
- Risk management protects against invisible transfers of responsibility
- Risk management maximizes opportunity for personal growth

Risk taxonomy



Risk categories

Technical risks (product)

Technical risks refer to anything that could **go wrong with your software, hardware, or** any manuals or other process **documents** related to your project.

- Consider whether you have experts on your staff to resolve any software glitches that may arise or if you have access to external vendors who could help.
- Ask if the project is feasible with the material resources you have available.
- Review whether you've created user-friendly reference guides for your project's implementation.

Risk categories

Technical risks (product)

- Changing requirements.
- Ambiguous specification.
- Technical uncertainty.
- Advanced technology not available.
- Complexity of design or implementation.
- Difficult integration of modules.
- Difficulties with the interfaces.
- High performance, reliability or quality requirements.
- Obsolescence.
- Maintenance.

Risk categories

Management risks (project)

Project management risks involve **how the team** directly working on your project **operates** and what internal aspects of your team could impact your project's success.

- Take a look at the culture and morale of your team and whether interpersonal issues could impact results.
- Review whether you have clear communication channels established between team members and if people know whom to turn to for specific issues.
- Consider whether you have included everyone you need to in the planning phase of your project or if there are other voices you need to consult.

Risk categories

Management risks (project)

Related to estimation and planning:

- Inaccurate time estimation.
- Insufficient resource allocation.
- Complex functionalities which were not identified and require more than expected.
- Expansion of the scope.

Related to team coordination and operation:

- Undefined responsibilities.
- Wrong prioritization.
- Bad communication.
- Lack of control.
- Lack of training.

Risk categories

Organizational risks (business)

Organizational risks refer to aspects of **your company's overall resources and culture** which could impact your project's implementation.

- See if you have enough staff available to cover the time and effort it will take to complete your project.
- Review whether your financial processes are functioning well enough to pay subcontractors in a timely fashion.
- Ask whether you have the budget available to implement your project as intended.
- Consider whether you have policies in place to know who will make decisions on critical project issues.

Risk categories

Organizational risks (business)

- Budget problems.
- Financial problems.
- Inaccurate cost estimation.
- Unexpected expenses.
- Expansion of the project’s scope.
- Staff problems.
- Lack of resources.
- Project dependencies.

Risk categories

External risks

External risks are things that could impact your project that are **outside of your organization**'s direct control.

- Analyze the current state of your market.
- Consider what problems might occur with your subcontractors or suppliers.
- Review related local, state, and federal regulations that impact your company's field.
- Ask if your customers might change over time and how that would affect your project.

Risk categories

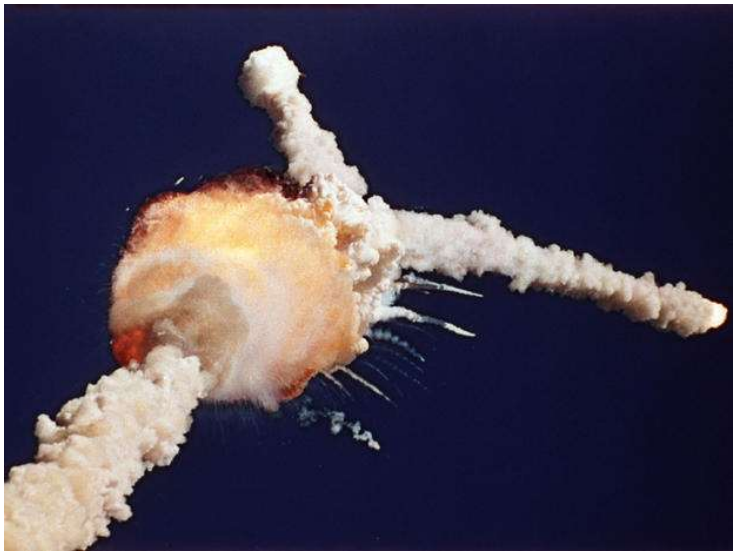
External risks

- Unfavorable market development.
- Changes in the client’s strategy or priorities.
- Changes in the rules or legislation.
- Problems with suppliers.
- Natural disasters.

Risk discovery

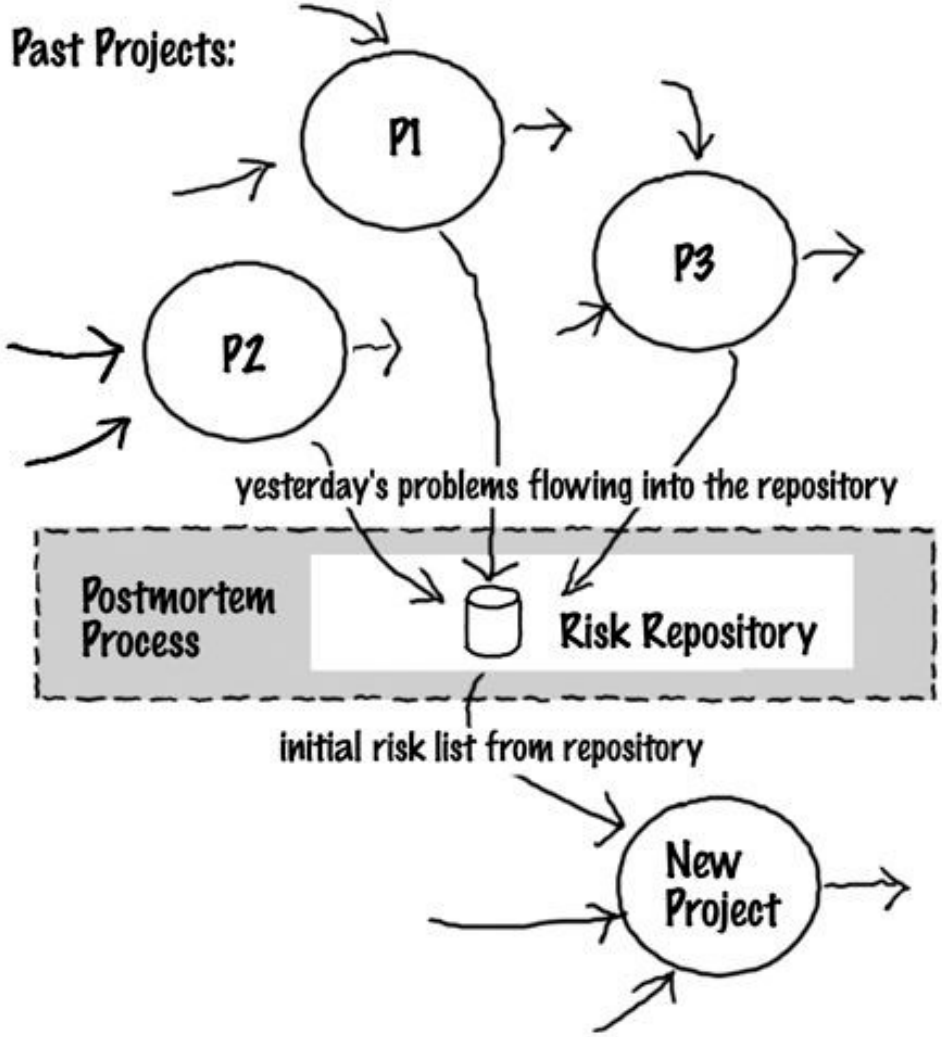
Reasons that stop people from articulating risks

- Don’t be a negative thinker.
- Don’t raise a problem unless you have a solution for it.
- Don’t say something is a problem unless you can *prove* it is.
- Don’t be the spoiler.
- Don’t articulate a problem unless you want its immediate solution to become your responsibility.

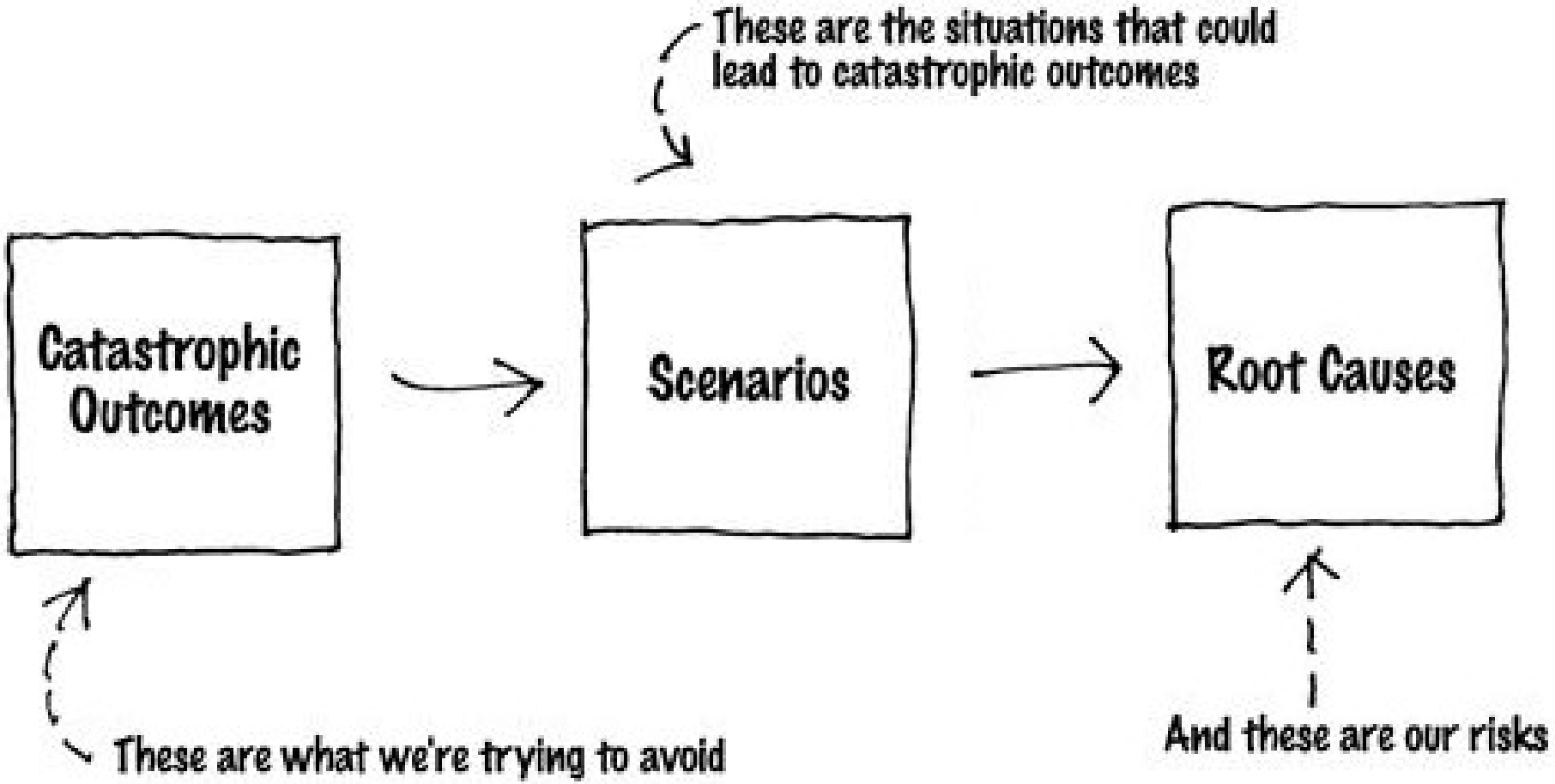


Risk discovery
Strategies

- *Yesterday's problem is today's risk*
- Run a few postmortems of projects good and bad and look for ways in which they deviated from their initial expectations.
- Trace each deviation back to its cause and call that cause a risk.
- Use of the output of the postmortem process as input to the risk management process



Risk discovery
Strategies



Risk discovery
Strategies

BRAINWRITING

An alternative to brainstorming provides a more structured approach to sussing out risk.

TALKING

Interviewing people with experience and conversing with team members can offer unseen insights.

PESSIMISM

Like preparing for a worst-case scenario, consulting with negative persons can shed light on areas you were unaware of.

HORIZON SCANNING

A structured process for strategy generation and scenario planning, which can assist in identifying risk.

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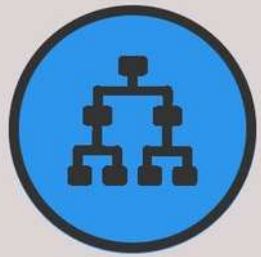
Risk discovery
Strategies

HISTORY

Going back to research data related to similar projects can unearth risks that may remain relevant to your current one.

ROOT ANALYSIS

By finding out what caused a problem you can plan ahead to avoid repeating it.



WBS

A Work Breakdown Structure (WBS) is a rigorous way to see where risks pops up in a project.

PRE-MORTEM

Tap into your team's intuitive hunches to anticipate the unlikely but not impossible challenges that face your project.

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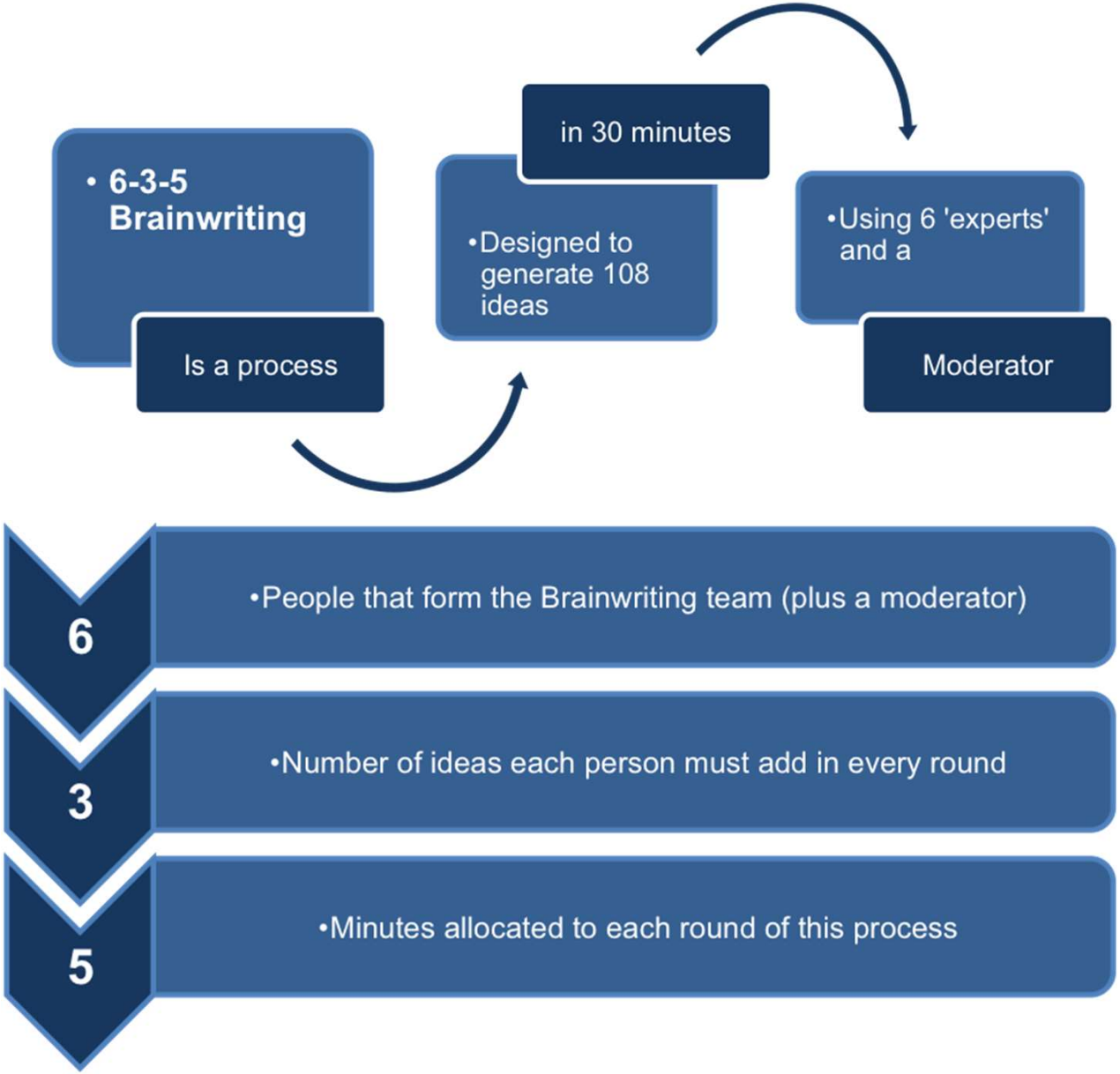
Risk discovery
Strategies: 6-3-5 Brainwriting



Risk discovery

Risks that make no sense to manage

- The probability of materialization is small enough to ignore.
- If the risk materialized, the product that you're building would be irrelevant.
- The risk has minimal consequences and requires no actions to be taken in advance.
- It's somebody else's risk.

References

Waltzing with Bears: Managing Risk on Software Projects

by Tom Demarco, Timothy Lister

Addison Wesley Professional, 2013