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BUILDING AND EVALUATING DECISION-MAKING SKILLS

WRMC

2020

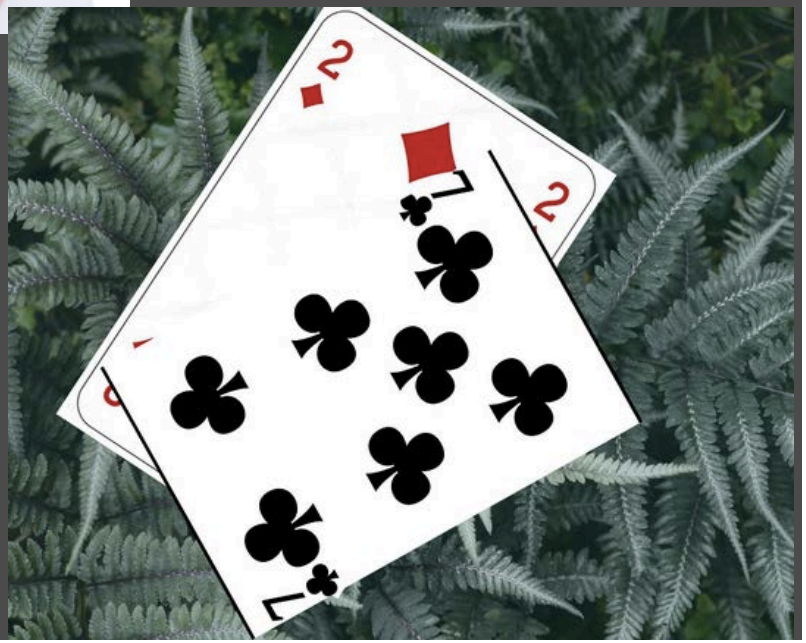
PROBLEM:
IN THE OUTDOOR INDUSTRY, WE FACE

Ill-structured problems
Complex dynamic environments
Poor feedback loops
High stakes

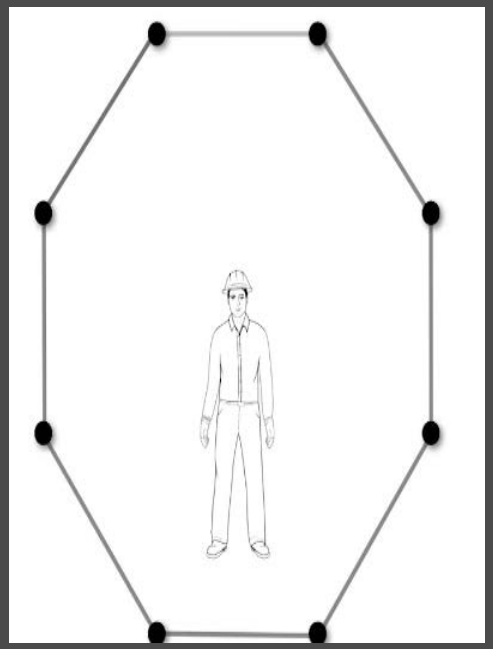
WICKED LEARNING ENVIRONMENT

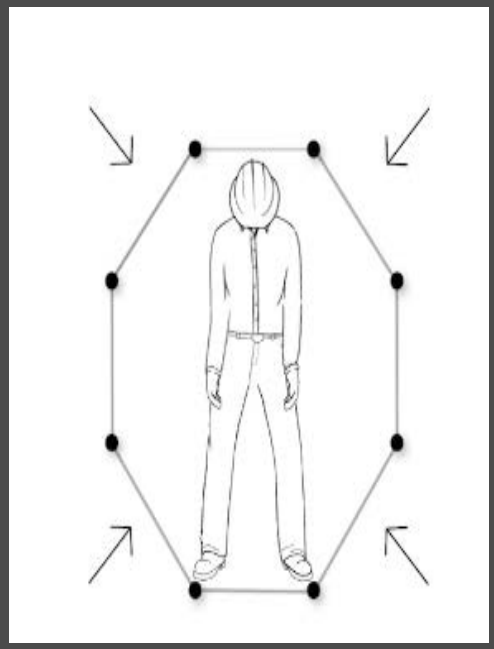
KIND LEARNING ENVIRONMENT

CHESS VS. POKER



MARGIN





WHAT'S THE CULTURE AT YOUR ORGANIZATION?

THE TOOLS TO ADDRESS THAT CHALLENGE INCLUDE:
VOCABULARY/ LANGUAGE
CULTURE
SYSTEMS for IMPLEMENTATION

VOCABULARY/
LANGUAGE

BUILDING VOCABULARY AROUND RISK AND DECISION-MAKING

A FEW DEFINITIONS

HAZARD = AN AGENT THAT HAS THE POTENTIAL TO CAUSE HARM

RISK = MEASURES THE LIKELIHOOD OF HARM FROM A HAZARD

North American Public Avalanche Danger Scale

Avalanche danger is determined by the likelihood, size and distribution of avalanches.

Danger Level		Travel Advice	Likelihood of Avalanches	Avalanche Size & Distribution
5 Extreme		Avoid all avalanche terrain.	Natural and human-triggered avalanches certain.	Large to very large avalanches in many areas.
4 High		Very dangerous avalanche conditions. Travel in avalanche terrain not recommended.	Natural avalanches likely; human-triggered avalanches very likely.	Large avalanches in many areas; or very large avalanches in specific areas.
3 Considerable		Dangerous avalanche conditions. Careful snowpack evaluation, cautious routefinding and conservative decision-making essential.	Natural avalanches possible; human-triggered avalanches likely.	Small avalanches in many areas; or large avalanches in specific areas; or very large avalanches in isolated areas.
2 Moderate		Heightened avalanche conditions on specific terrain features. Evaluate snow and terrain carefully; identify features of concern.	Natural avalanches unlikely; human-triggered avalanches possible.	Small avalanches in specific areas; or large avalanches in isolated areas.
1 Low		Generally safe avalanche conditions. Watch for unstable snow on isolated terrain features.	Natural and human-triggered avalanches unlikely.	Small avalanches in isolated areas or extreme terrain.

Safe backcountry travel requires training and experience.
***You Control Your Own Risk** by choosing where, when and how you travel.*

RISK – PROBABILITY OF LOSS (OR GAIN)

AVALANCHE PROBLEMS

Conceptual Model of Avalanche Hazard

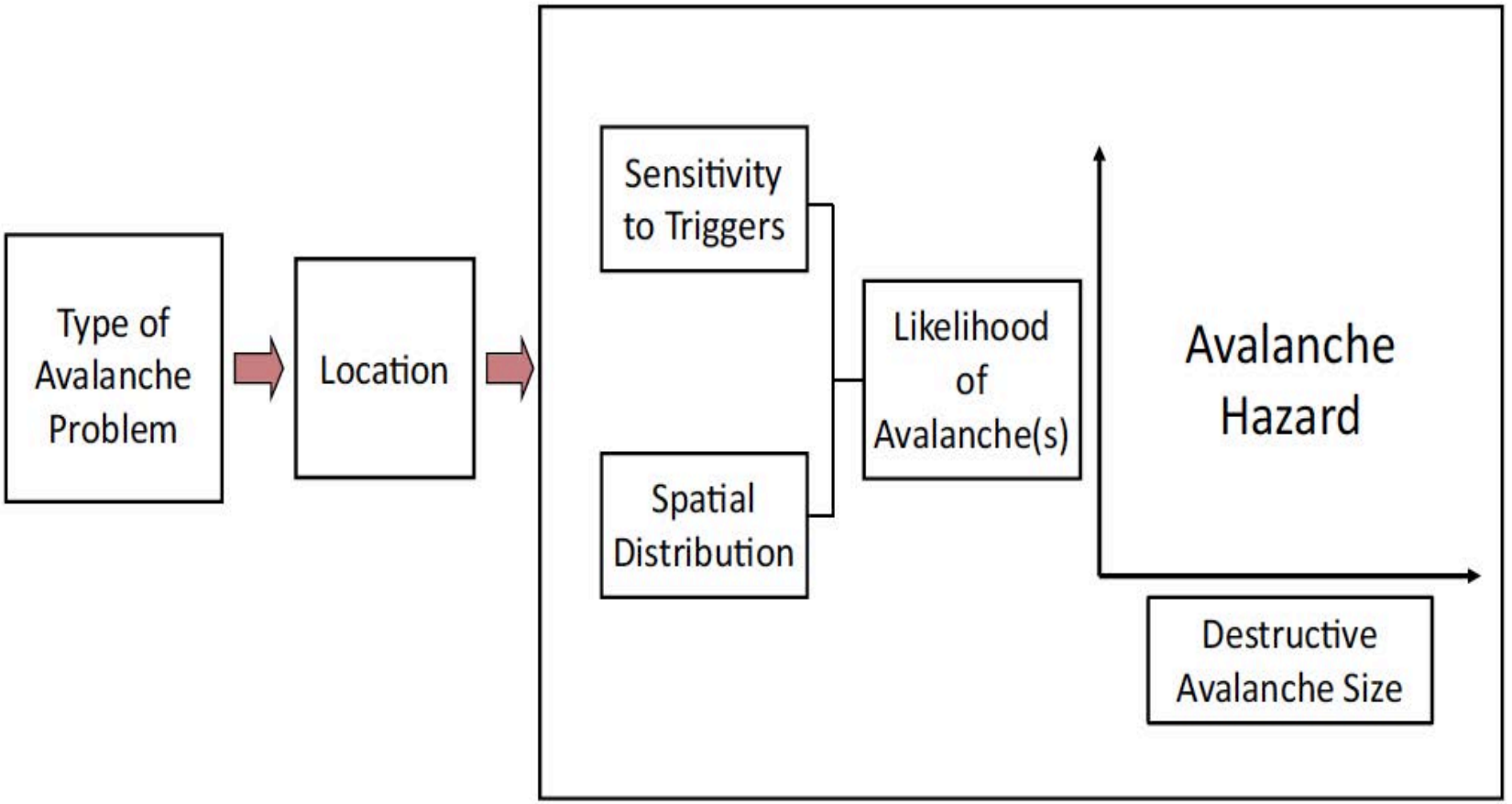
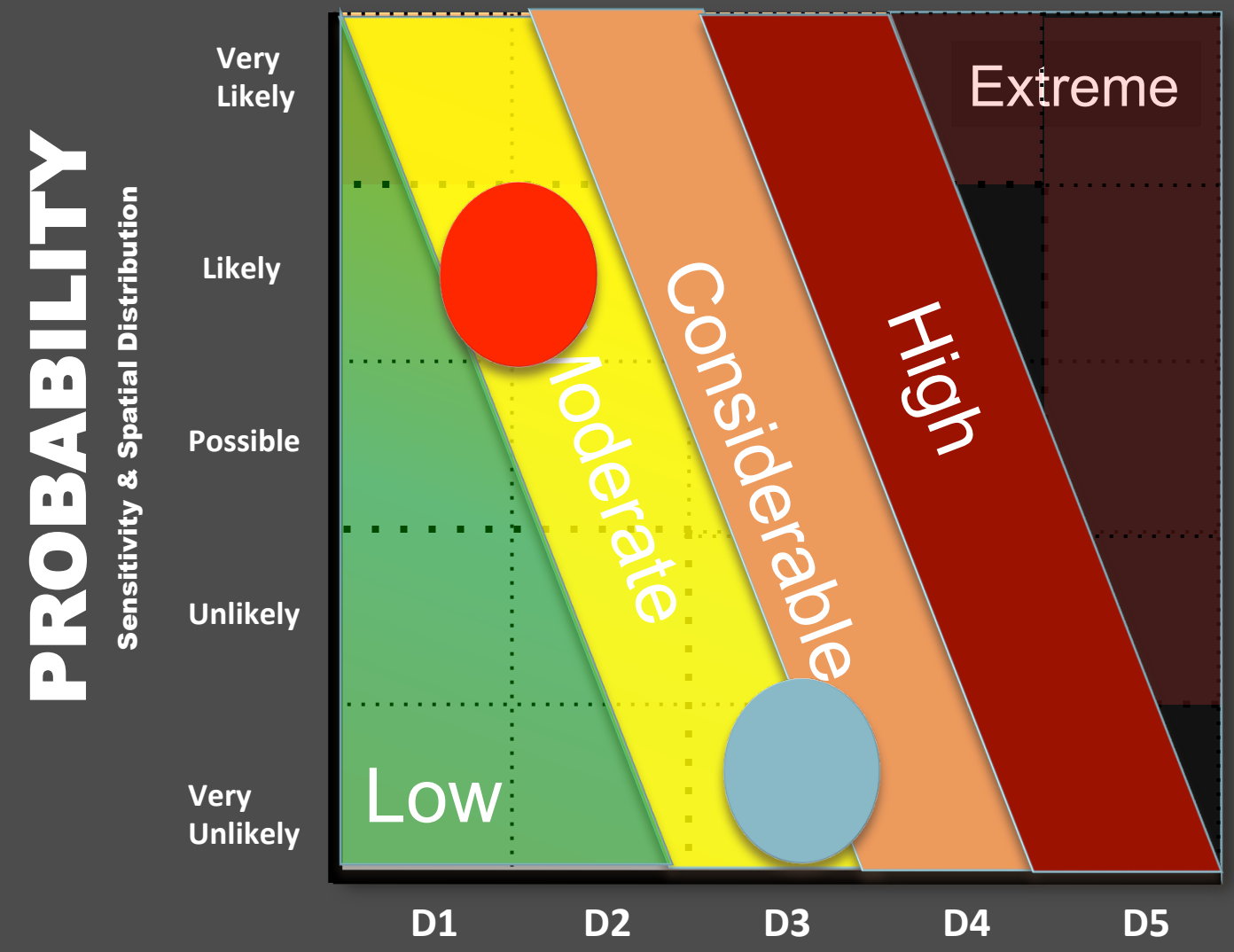


Fig. 1 Structure of an avalanche problem. Each problem is defined by its *type*, *location*, *likelihood* and *size*

Avalanche Hazard



SIZE OF AVALANCHE

RISK – PROBABILITY OF LOSS (OR GAIN)

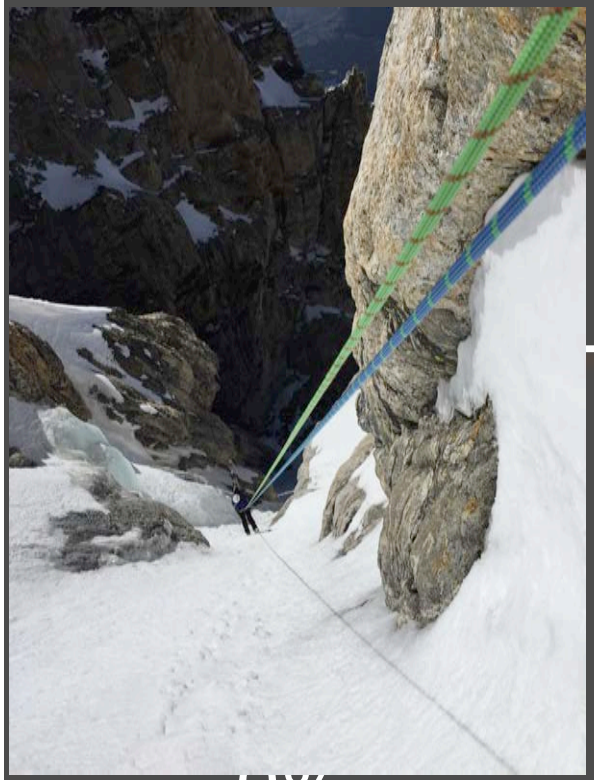
Likelihood

Consequence

Vulnerability

Exposure

LIKELIHOOD/PROBABILITY

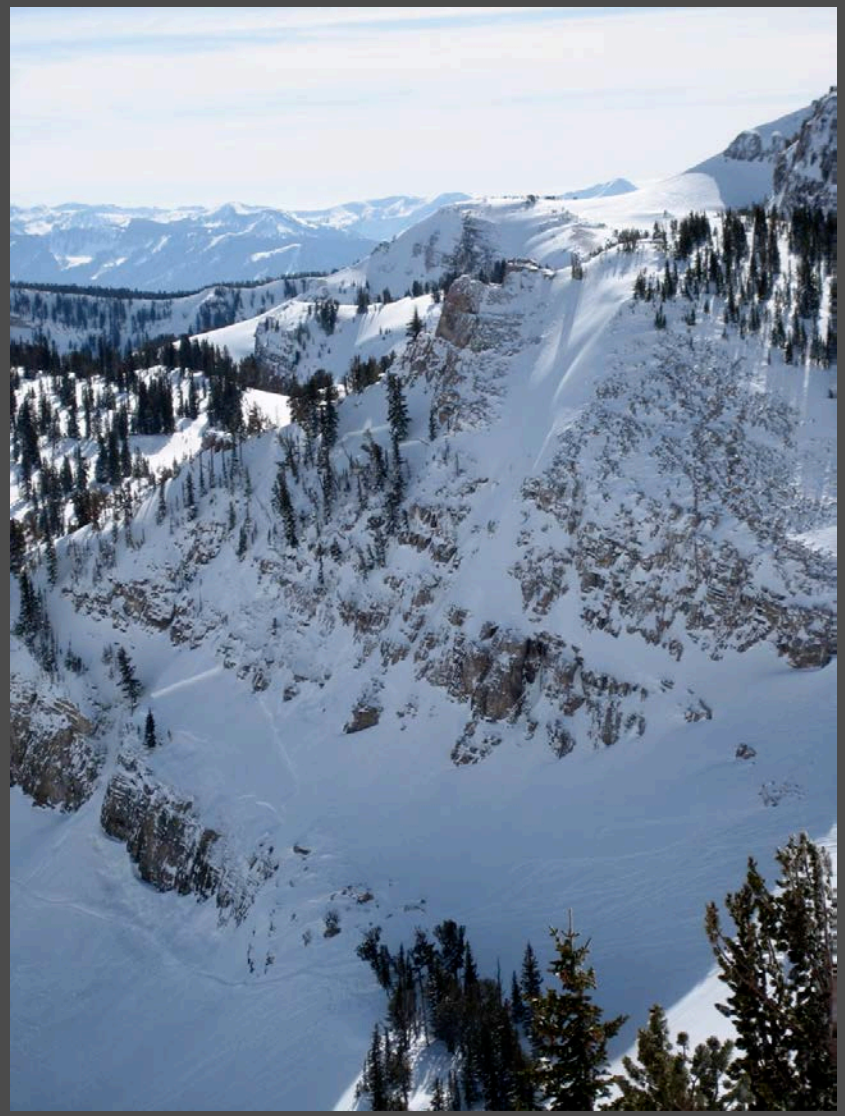


UNCER

0%

100%

CONSEQUENCE - THE IMPACT OF SOMETHING HAPPENING



VULNERABILITY

EXPOSURE

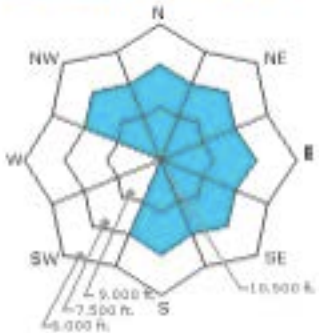
Today's Avalanche Problems

WIND SLAB

TYPE

View problem definition

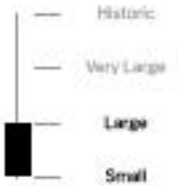
ASPECT/ELEVATION



LIKELIHOOD

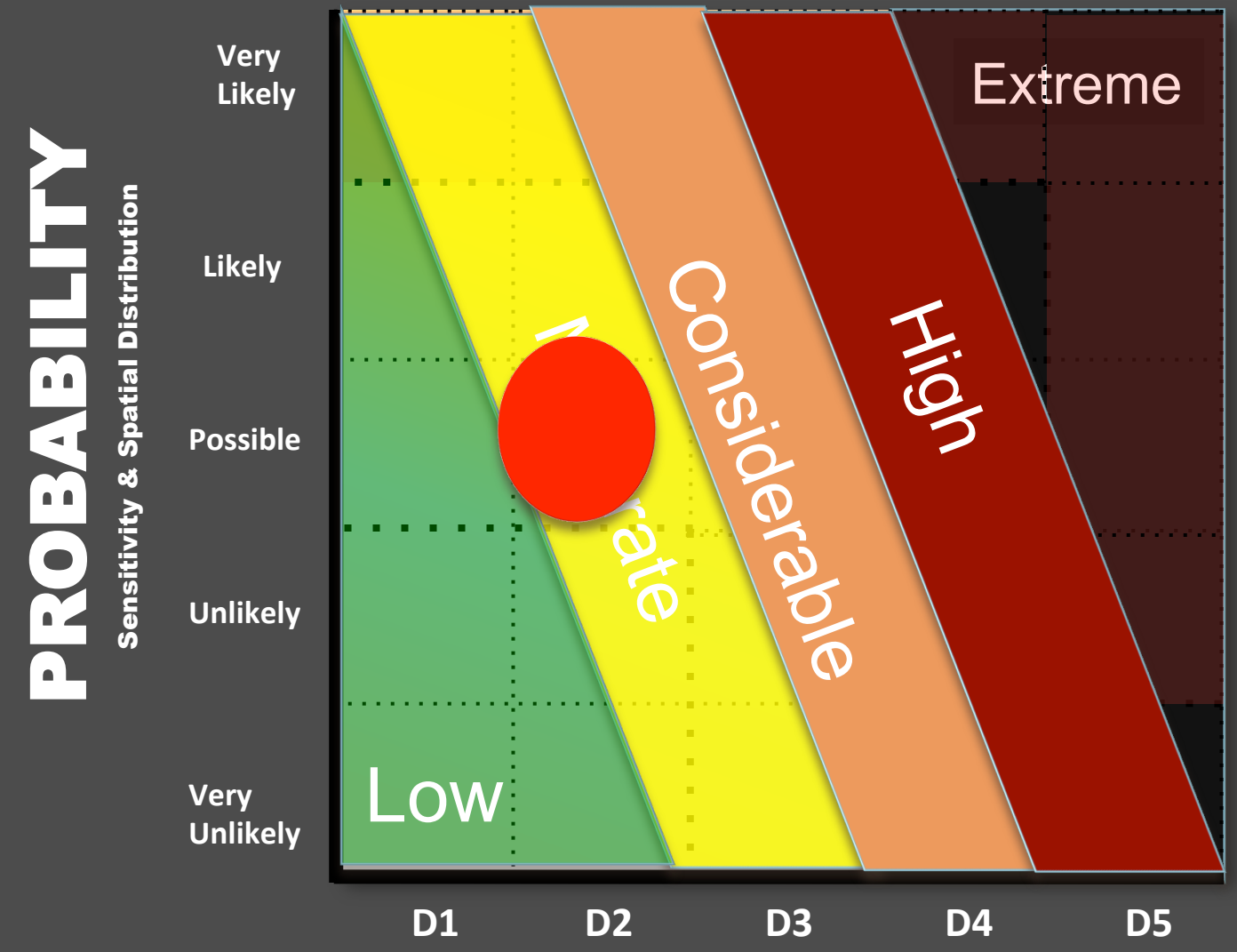
CHARACTERISTICS

SIZE



TREND

Communicating Risk



RISK – PROBABILITY OF LOSS (OR GAIN)

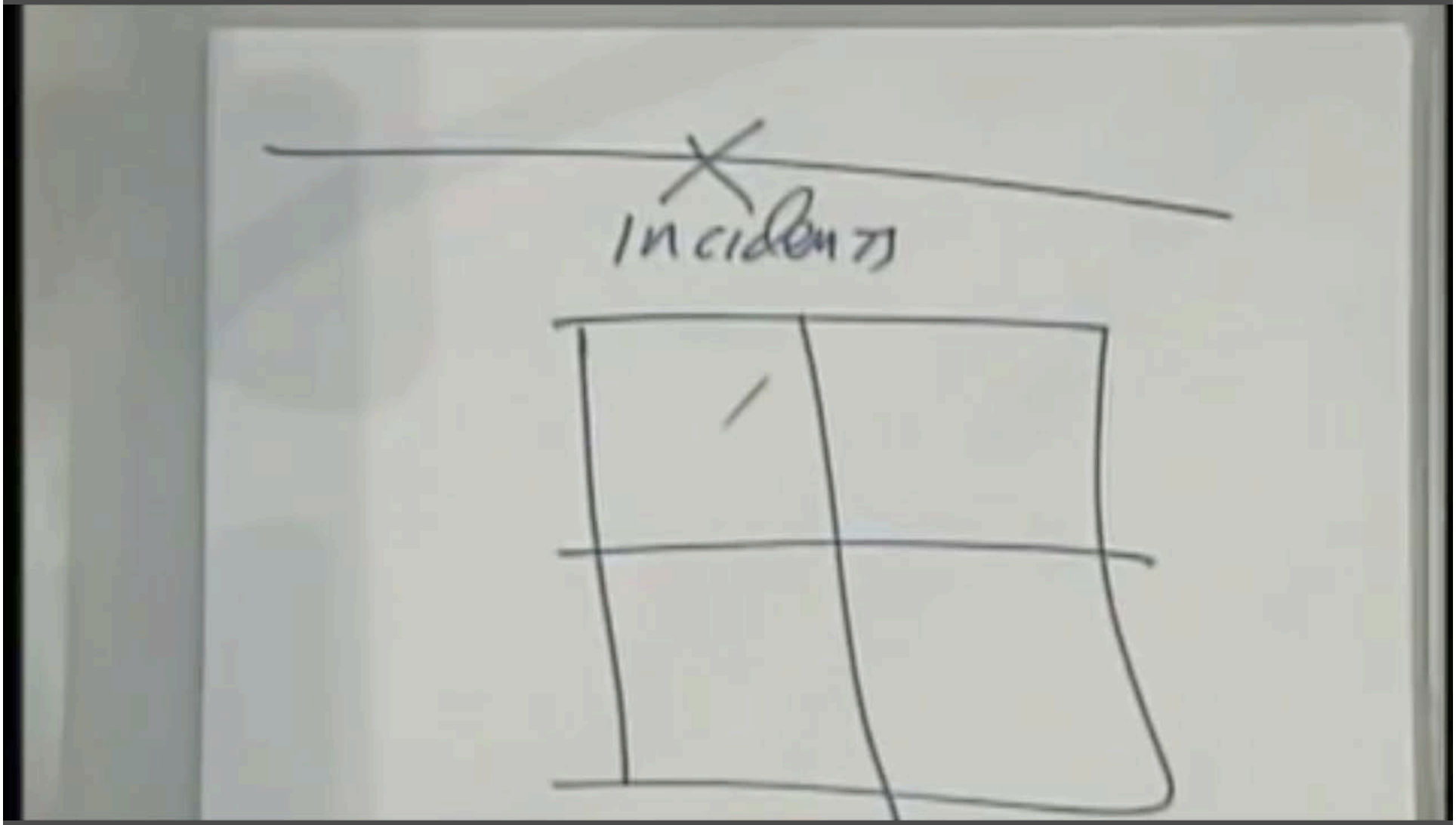
Likelihood

Consequence

Vulnerability

Exposure

RISK
FREQUENCY


INCIDENT

High Risk
Low frequency

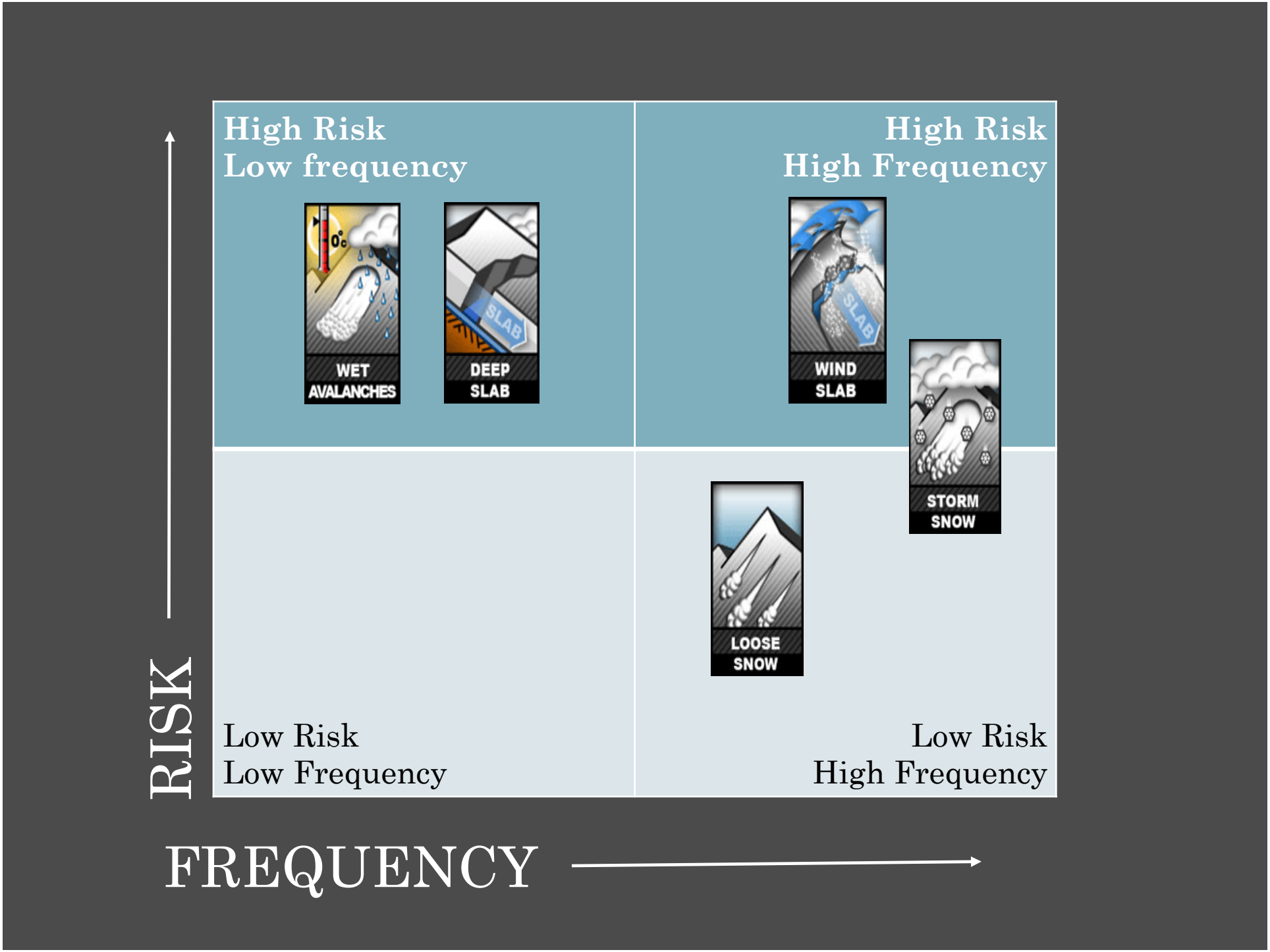
High Risk
High Frequency

Low Risk
Low Frequency

Low Risk
High Frequency

RISK

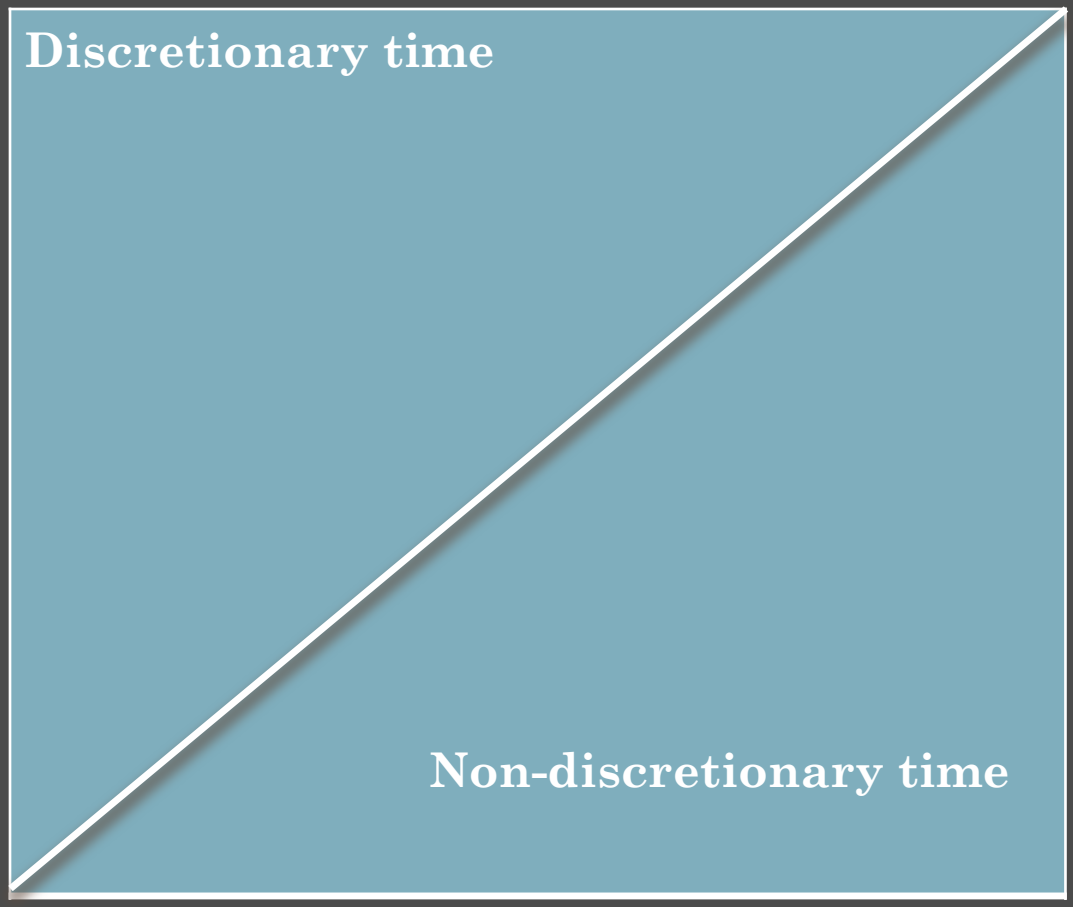
FREQUENCY


High Risk
Low frequency
High Risk
High Frequency
WET AVALANCHES
DEEP SLAB
WIND SLAB
STORM SNOW
LOOSE SNOW
Low Risk
Low Frequency
Low Risk
High Frequency
RISK
FREQUENCY

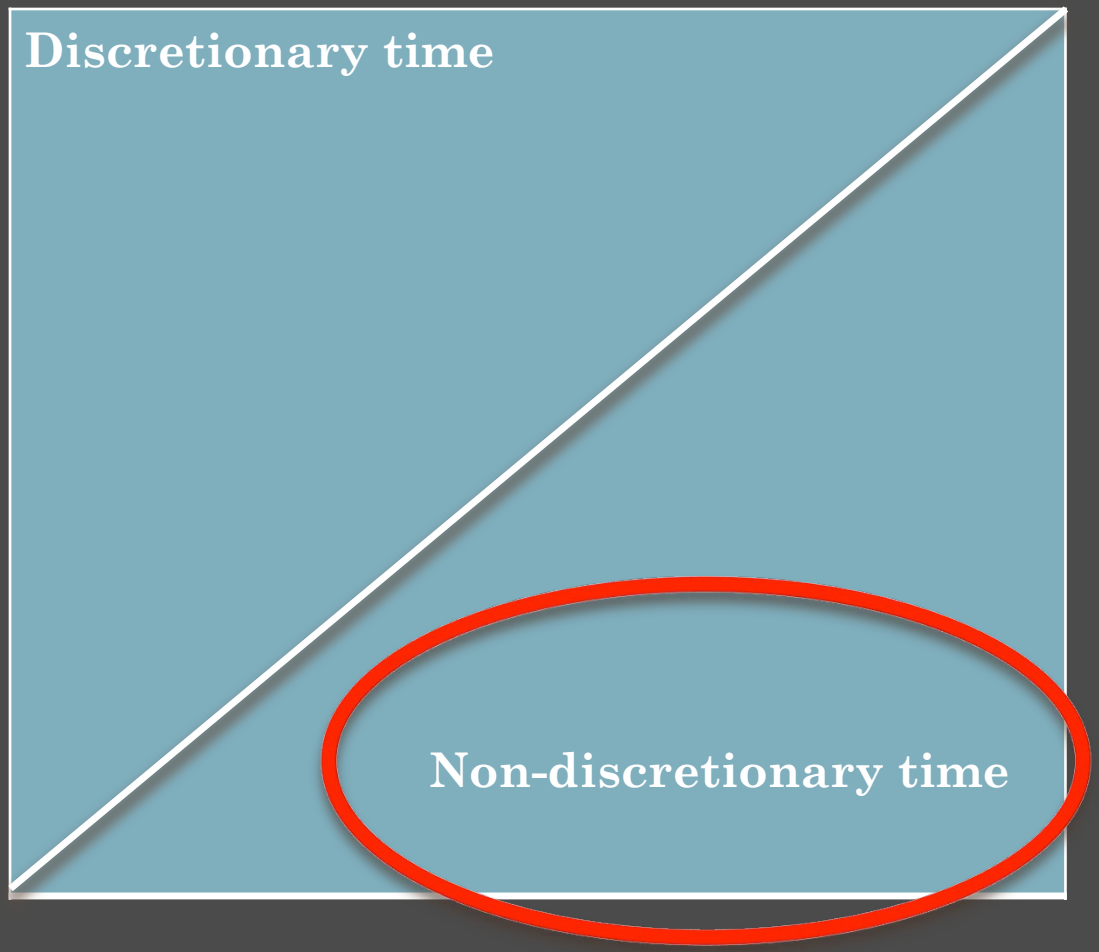
WHAT DOES THIS LOOK LIKE IN YOUR PROGRAM?

High Risk **Low frequency**	**High Risk** **High Frequency**
Low Risk Low Frequency	Low Risk High Frequency

HIGH RISK, LOW FREQUENCY



HIGH RISK, LOW FREQUENCY



ADDITIONAL LANGUAGE

SLOW IS SMOOTH, SMOOTH IS FAST

OR AS GORDON GRAHAM SAYS,
"SLOW DOWN"

BUILD A SAFETY CULTURE

BUILD A
CULTURE OF
DISSENT
AND
ONE IN WHICH
EVERY VOICE
MATTERS

dps
kode
42

CULTURE SURROUNDING DECISION-MAKING

- CLEAR EXPECTATIONS
- SAFE ENVIRONMENT TO TRY THINGS ON
- DISSENT IS ENCOURAGED
- SITUATIONAL AWARENESS IS A TEAM SPORT

TRAIN COMMUNICATION

CREW RESOURCE MANAGEMENT

WORKPLACE CHALLENGES

- Hierarchy / Personalities
- Fatigue / Morale

BENEFITS FOR THE WORKPLACE

- Situational Awareness / Self Awareness
- Problem Solving / Decision-Making
- Teamwork / Leadership
- Communication

CREW RESOURCE MANAGEMENT

5 STEP ASSERTIVE STATEMENT PROCESS

- Attention Getter
- State: I have a concern
- State the problem as you see it
- Give a solution
- Ask for buy-in

- Focus on what is right, not who is right!

CREW RESOURCE MANAGEMENT

- *Hey Sarah, Hold up*
- *The slope you're about to ski cut looks wind loaded and firm.*
- *I don't think that ski cutting is appropriate today. It might break farther back than you are now.*
- *Let's back off and put a shot below this pillow where the slab might be thinner*
- *Are you seeing something else here?*

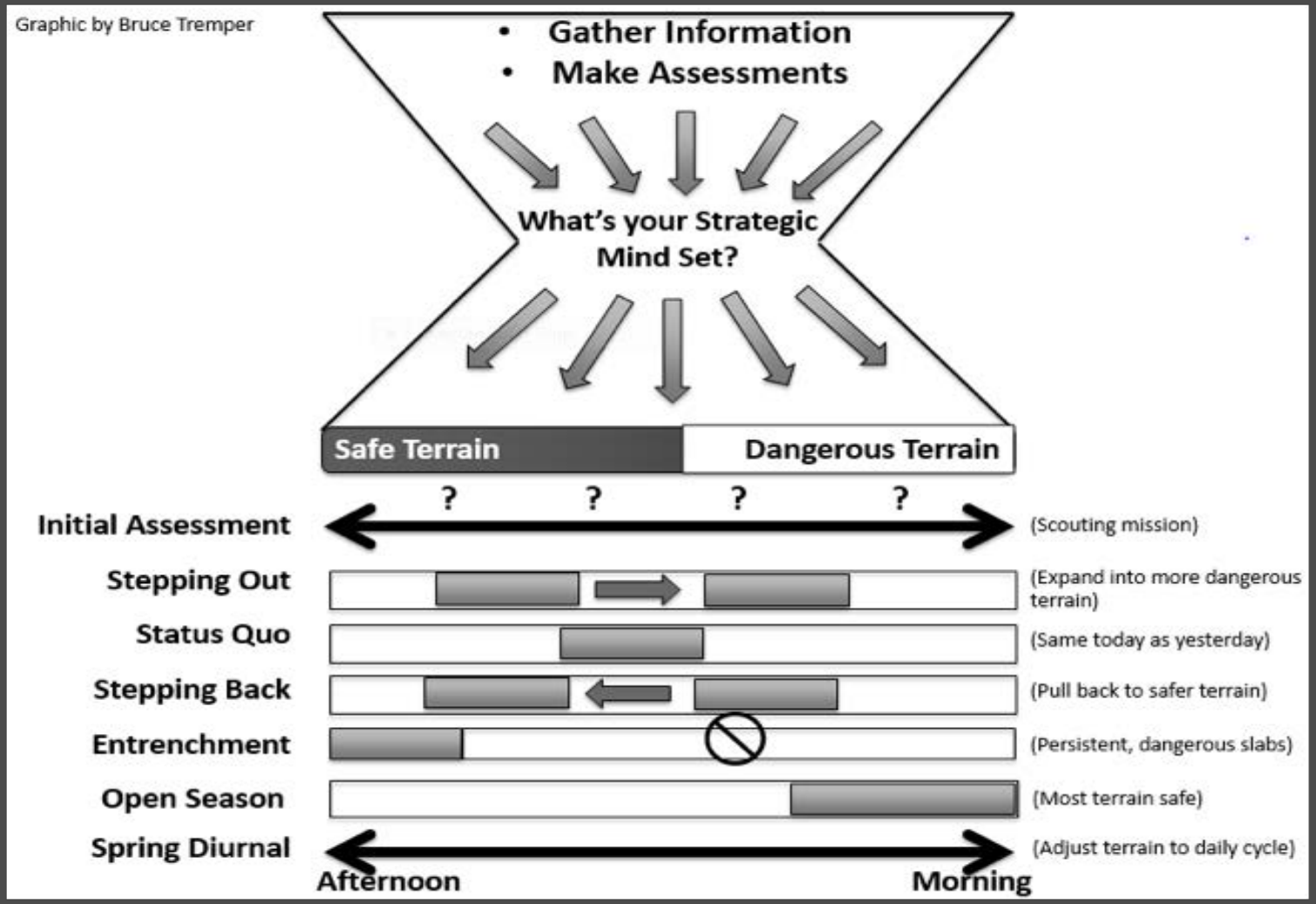
CAN YOU BUILD THIS INTO STAFF TRAINING?

- THROUGH INCIDENTS AND NEAR-MISSES
  - Ask staff to reflect on near misses and incidents.
  - Ask staff to reflect on communication surrounding those incidents.
  - Would CRM techniques have helped?

- THROUGH A ROUND ROBIN OF SCENARIOS

ACCIDENT REVIEWS – A STORY WITHOUT THE OUTCOME

COMMUNICATING THE DAILY STRATEGIC MINDSET



ADJUST HOW SUCCESS IS MEASURED

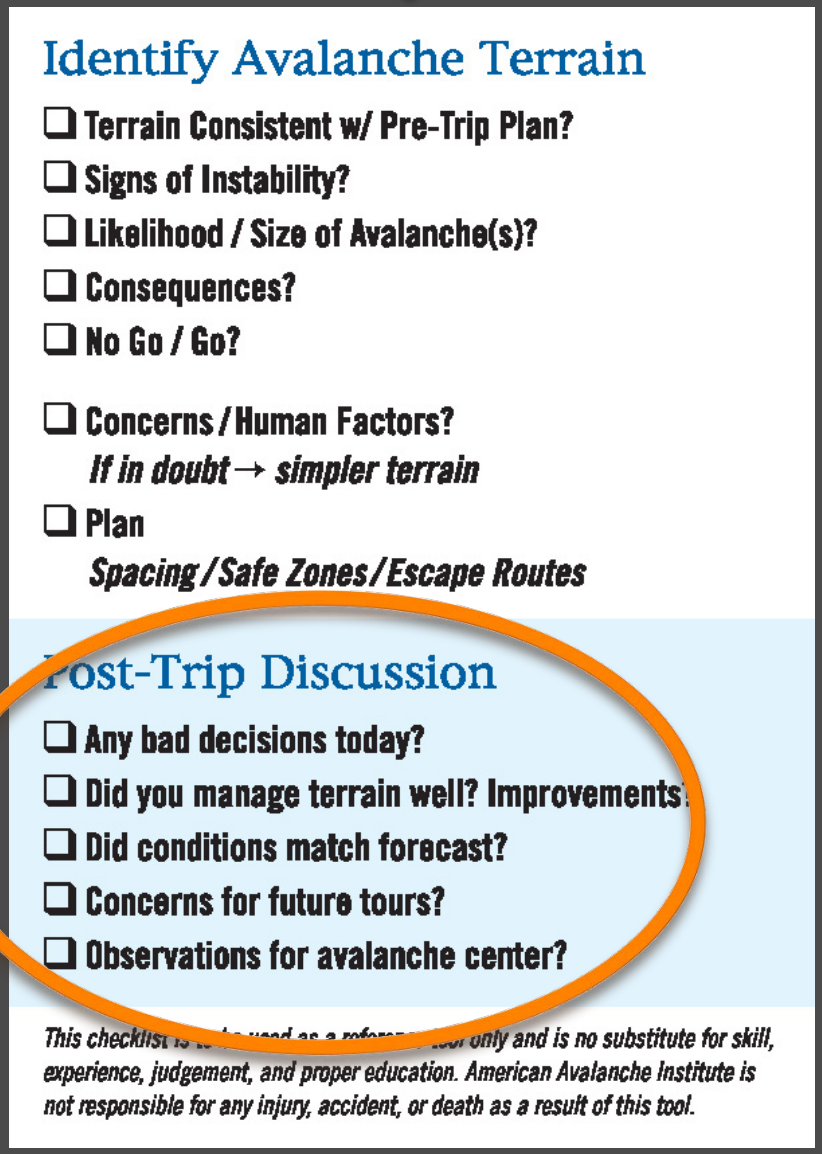
WHICH DAY = BAD DECISIONS?

DECISION-MAKING QUALITY VS. OUTCOME QUALITY

SYSTEMS FOR IMPLEMENTATION OF A RISK MANAGEMENT CULTURE

WERE WE GOOD OR WERE WE LUCKY?

DEBRIEF QUESTIONS



Identify Avalanche Terrain

- ❑ Terrain Consistent w/ Pre-Trip Plan?
- ❑ Signs of Instability?
- ❑ Likelihood / Size of Avalanche(s)?
- ❑ Consequences?
- ❑ No Go / Go?

- ❑ Concerns / Human Factors?
  If in doubt → simpler terrain
- ❑ Plan
  Spacing / Safe Zones / Escape Routes

Post-Trip Discussion

- ❑ Any bad decisions today?
- ❑ Did you manage terrain well? Improvements?
- ❑ Did conditions match forecast?
- ❑ Concerns for future tours?
- ❑ Observations for avalanche center?

This checklist is [illegible] only and is no substitute for skill, experience, judgement, and proper education. American Avalanche Institute is not responsible for any injury, accident, or death as a result of this tool.

After Action Review: AAR

Active discussion centered around 4 questions:

What did we intend to accomplish/ strategy?

What did we do? How did we execute relative to our strategy?

Why did it happen that way? Difference between strategy and execution?

What will we do to adapt our strategy/ refine our execution/ repeat our success?

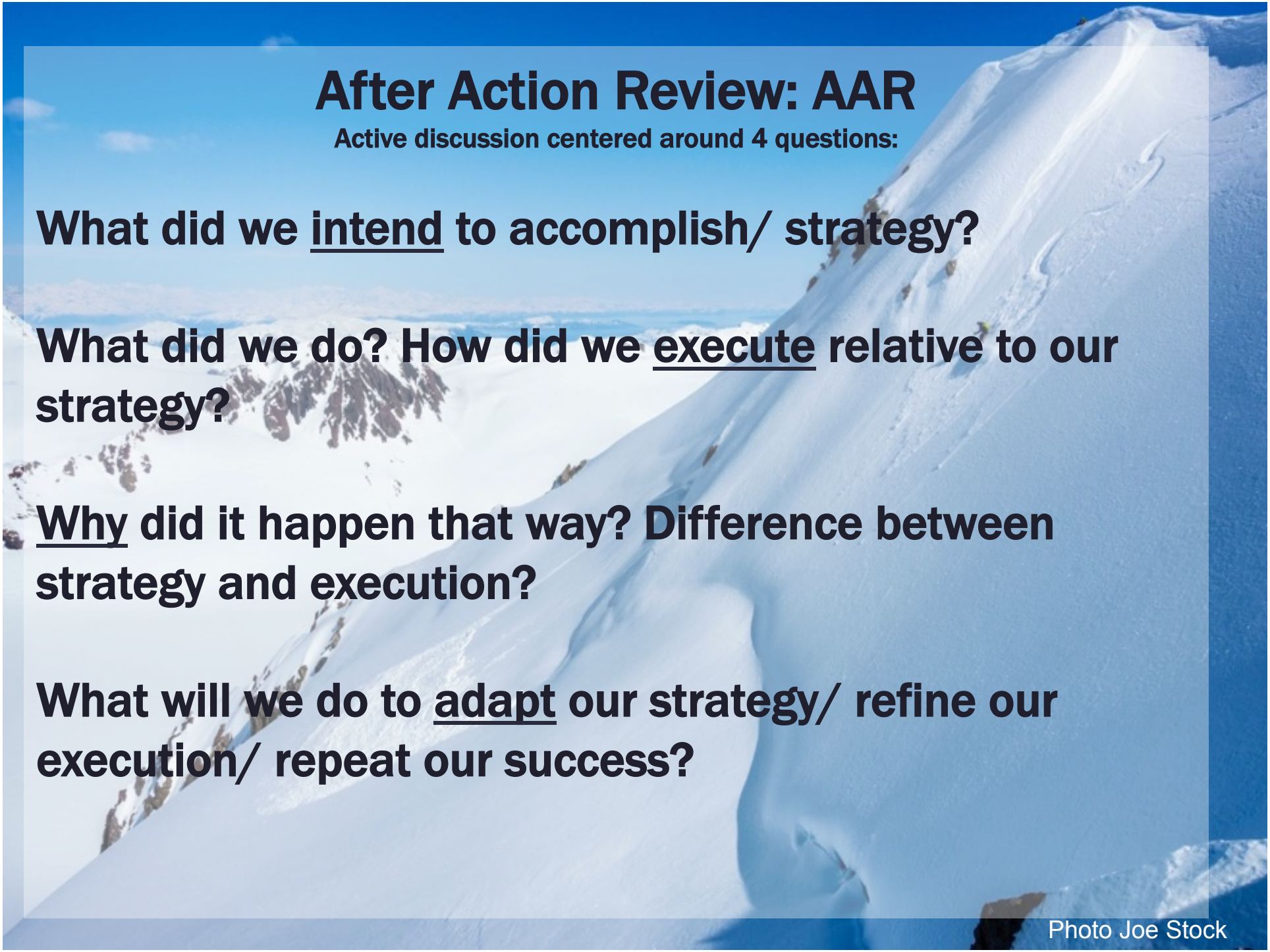


Photo Joe Stock

CRISIS RESPONSE PLAN

RUN THROUGH AT STAFF TRAINING

VARY ROLES THAT INDIVIDUALS AND GROUPS PLAY

MAKE TIME FOR BRAINSTORMING AND FEEDBACK

MAKE CHANGES

TEST AGAIN

DESIGN THINKING

Empathize

Define

Ideate

Prototype

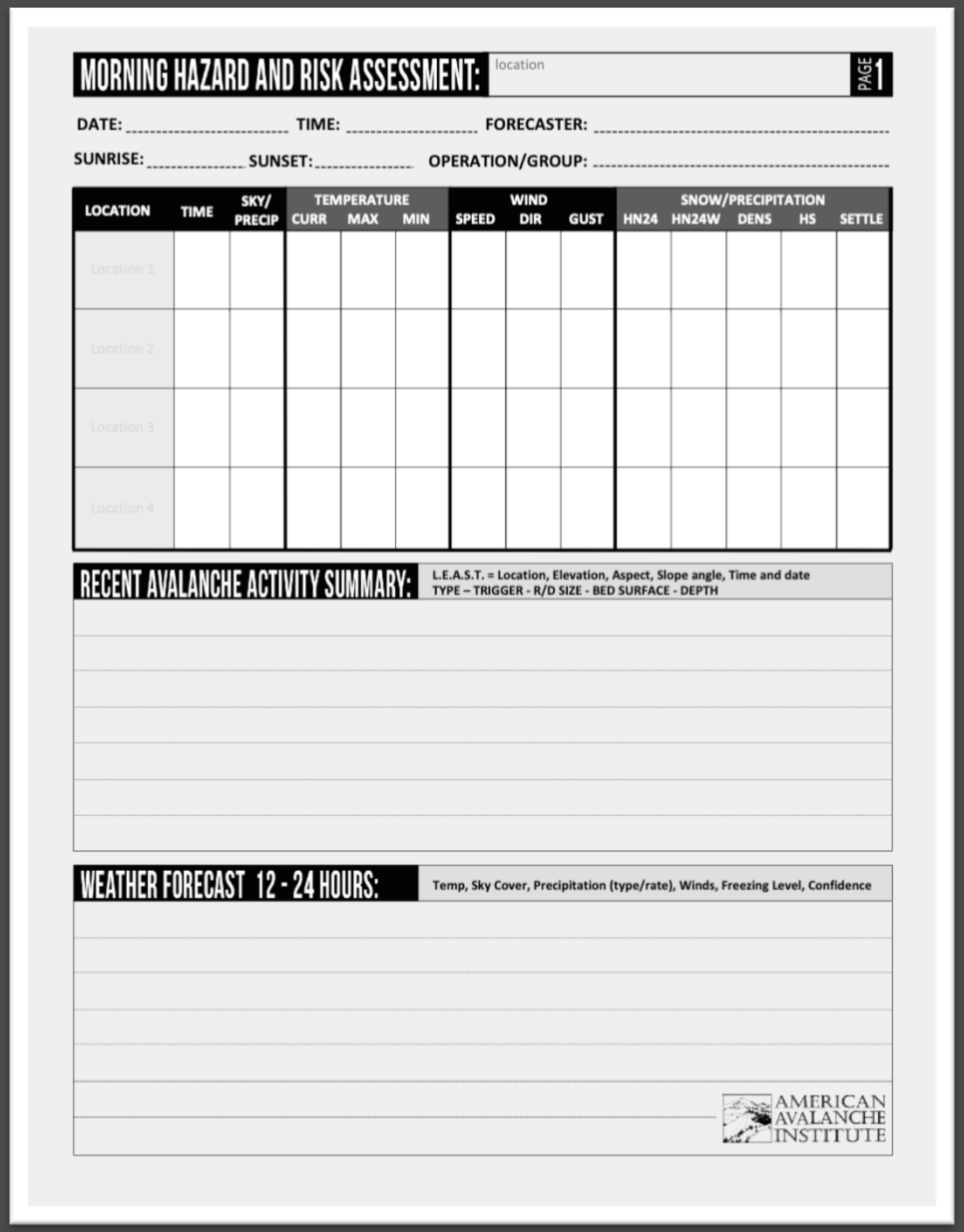
Test

RISK MANAGEMENT PLAN

What part of this plan needs to be tested? Trained? Changed?

How can you employ design thinking as you build a culture around risk management and decision-making?

MORNING AND EVENING FORMS



MORNING HAZARD AND RISK ASSESSMENT: location PAGE 1

DATE: _____ TIME: _____ FORECASTER: _____

SUNRISE: _____ SUNSET: _____ OPERATION/GROUP: _____

LOCATION	TIME	SKY/ PRECIP	TEMPERATURE			WIND			SNOW/PRECIPITATION				
			CURR	MAX	MIN	SPEED	DIR	GUST	HN24	HN24W	DENS	HS	SETTLE
Location 1													
Location 2													
Location 3													
Location 4													

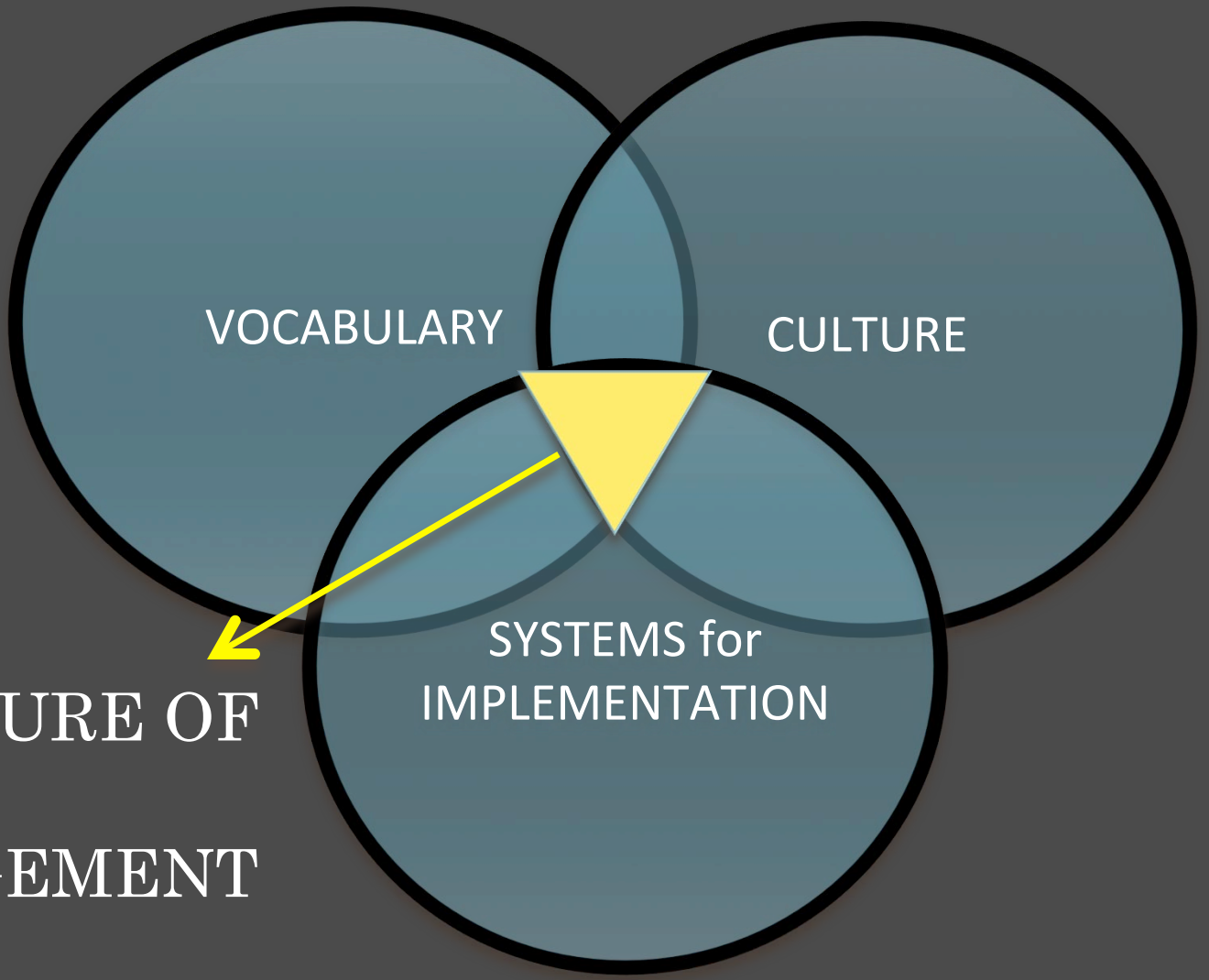
RECENT AVALANCHE ACTIVITY SUMMARY: L.E.A.S.T. = Location, Elevation, Aspect, Slope angle, Time and date
TYPE – TRIGGER - R/D SIZE - BED SURFACE - DEPTH

WEATHER FORECAST 12 - 24 HOURS: Temp, Sky Cover, Precipitation (type/rate), Winds, Freezing Level, Confidence

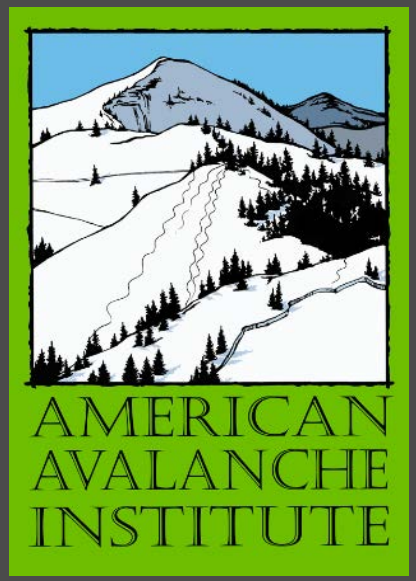
AMERICAN AVALANCHE INSTITUTE

BUILDING DECISION-MAKING SKILLS
VOCABULARY
CULTURE
SYSTEMS for IMPLEMENTATION

BUILDING DECISION-MAKING SKILLS



A CULTURE OF RISK MANAGEMENT



Questions?