



New Perspective in Operational Risk Management

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Operational Risk is the risk of loss resulting from inadequate or failed internal **processes**, **people** and **systems**, or from external events.



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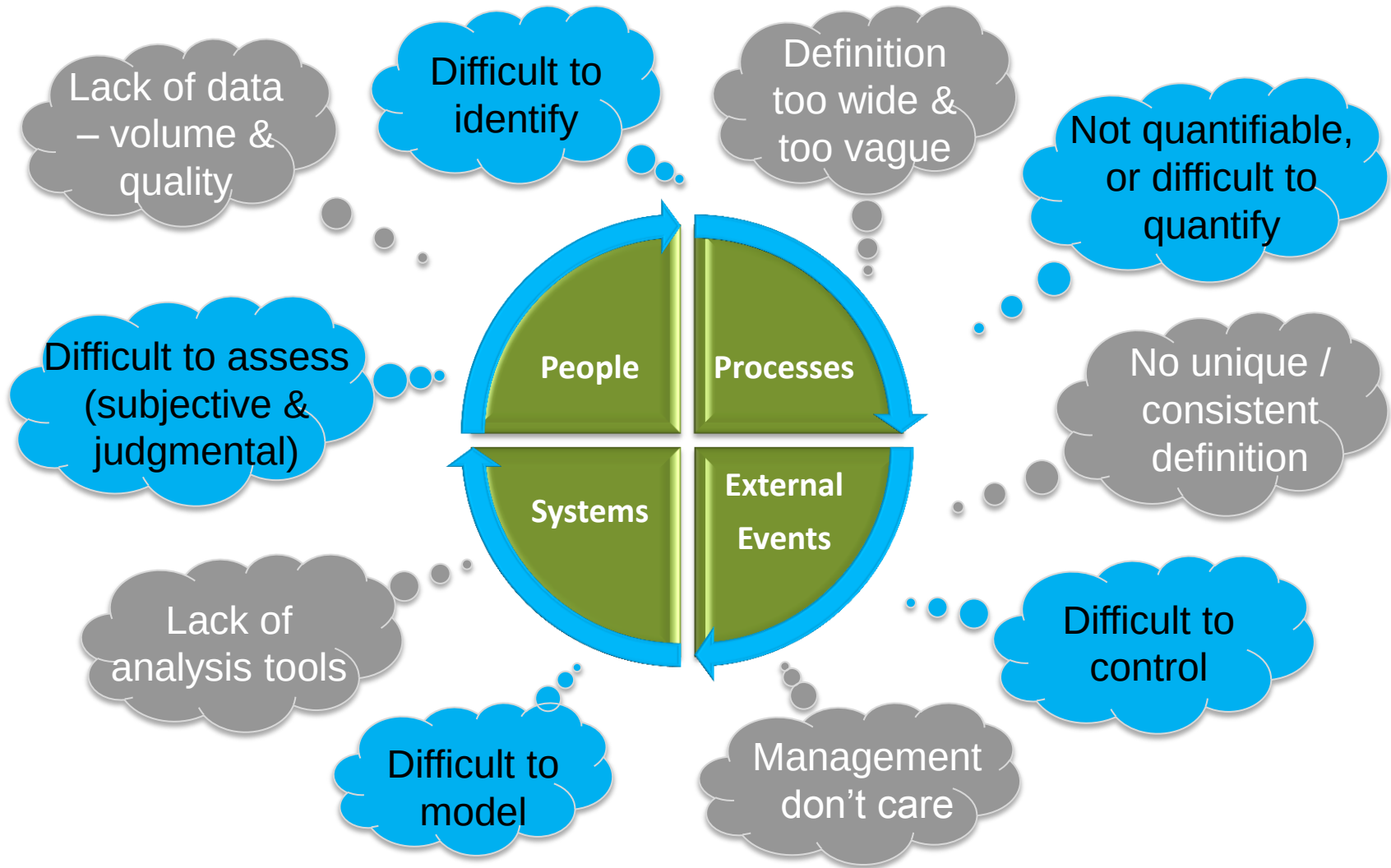
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Problems with Operational Risk...

Problems with Operational Risk...



Ultimately Operational Risk deals with people – Human behaviour, Perception & Risk attitude are hard to predict and control...

Human Behaviour Towards Risk

Human Behaviour Towards Risk



- Risk is the consequence of **uncertainty** which typically draws a **negative response** in human behaviour.
- Human behaviour towards risk is most often to **shy away** from the subject due to the **uncomfortable feeling** one gets when thinking about what one doesn't know or the probable outcome based on uncertainties.

It is not the **Consequence** but the **Perception** (i.e., fear of Consequence) that drives the **Risk Responses**

Risk Perception & Risk Response

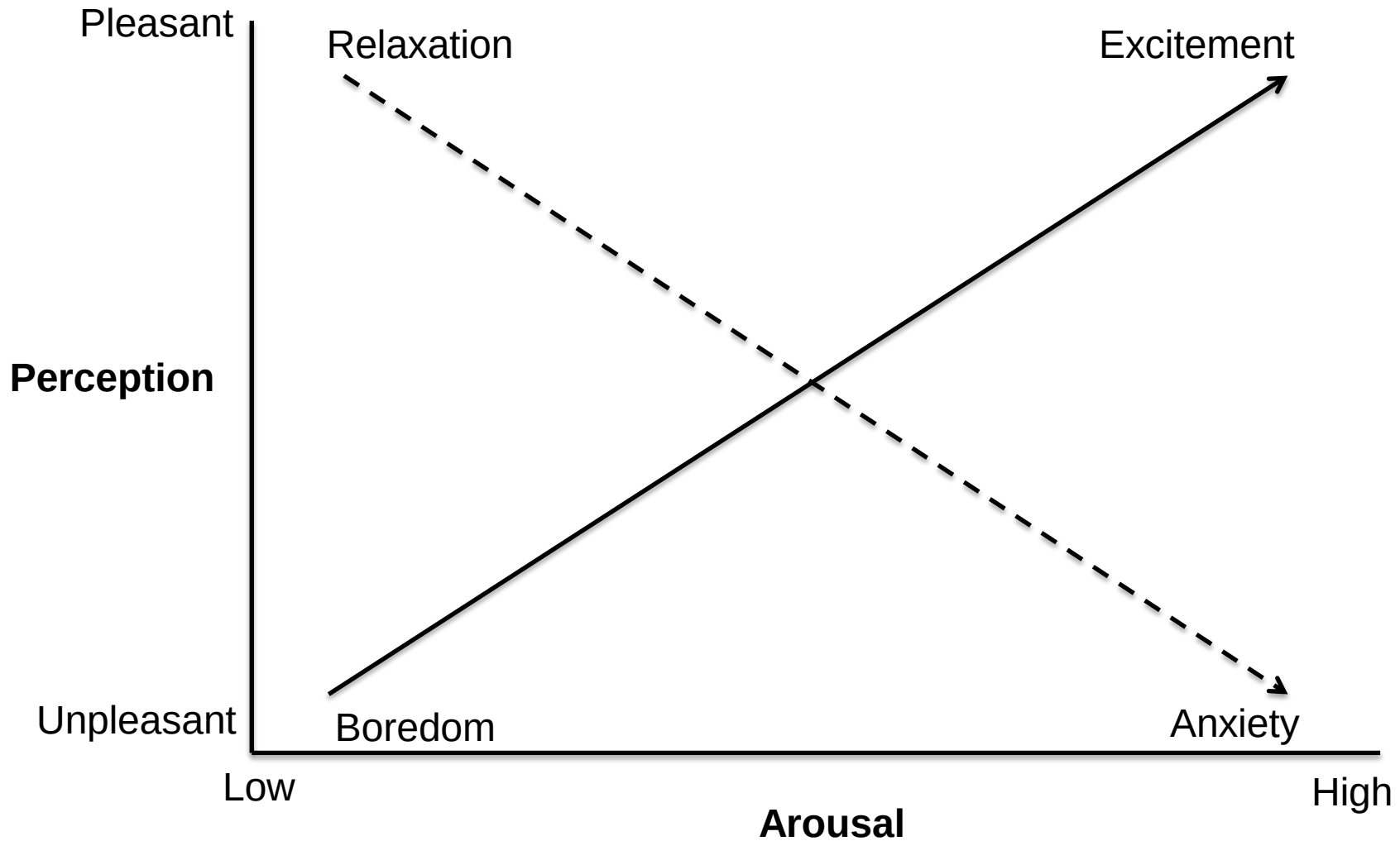
Risk Perception

Protective Frames

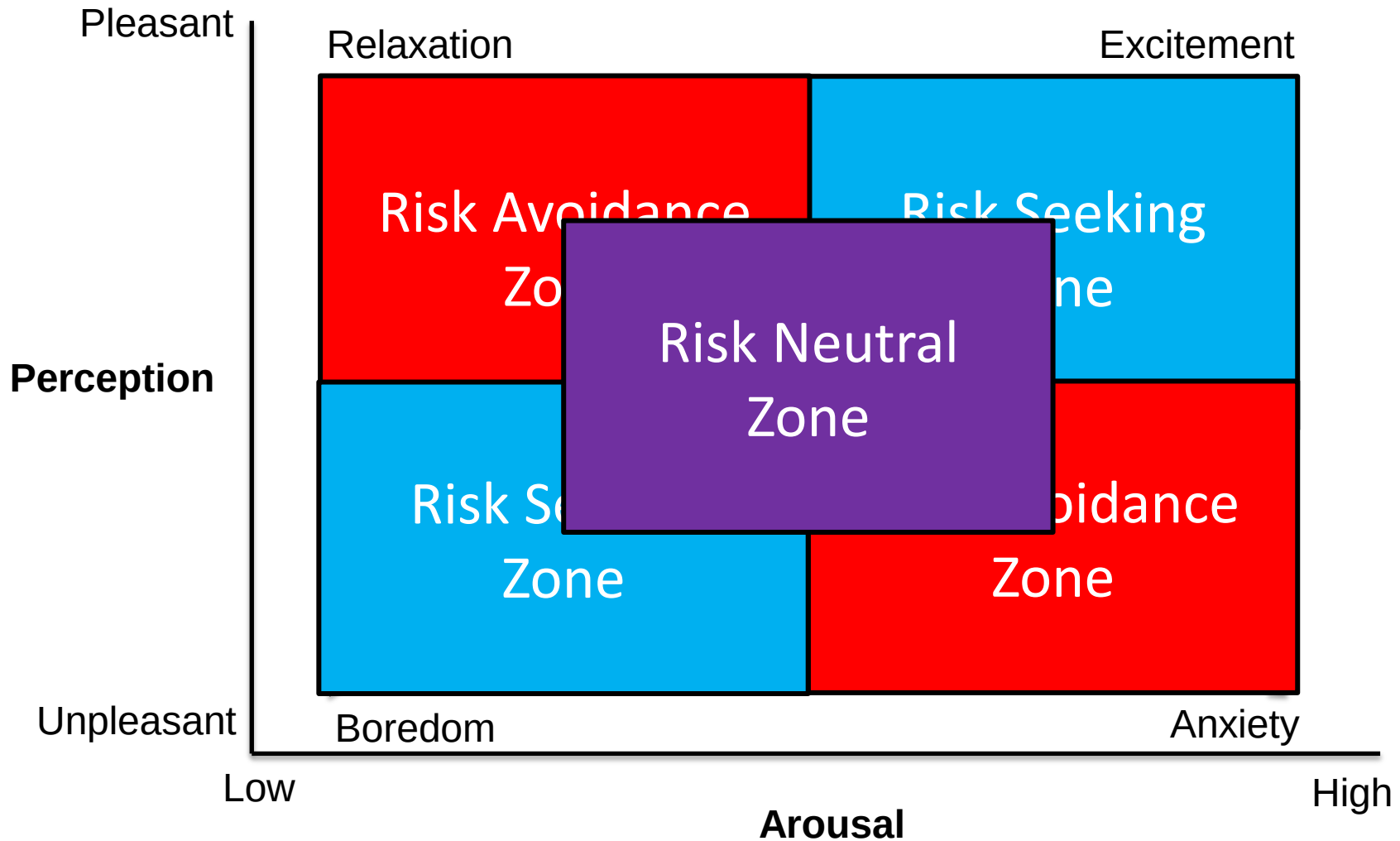
1. The particular “protective frame” determines our risk response as either **risk seeking** or **risk avoidance**
2. A person’s particular “protective frame” is, however, influenced by many factors, including amongst others:
 - Past experience
 - Popularity or widely accepted opinions
 - Sensationalism
 - Distortion or prejudice judgement

Our perception towards risk influence our attitudes which collectively make up the **risk culture within organisation**

Risk Perception & Risk Response



Risk Perception & Risk Response



Protective Frames

Confidence
Protective
Frame

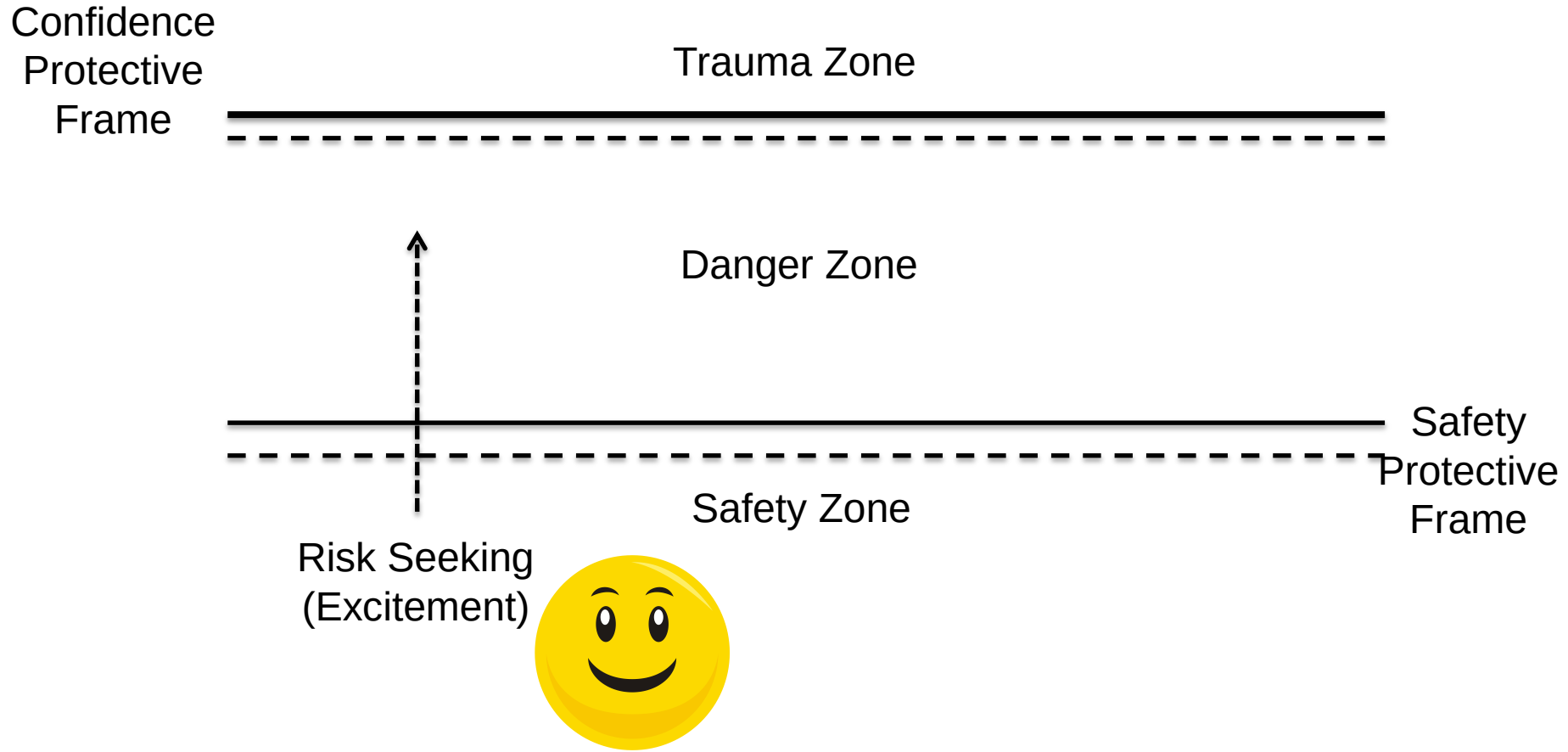
Trauma Zone

Danger Zone

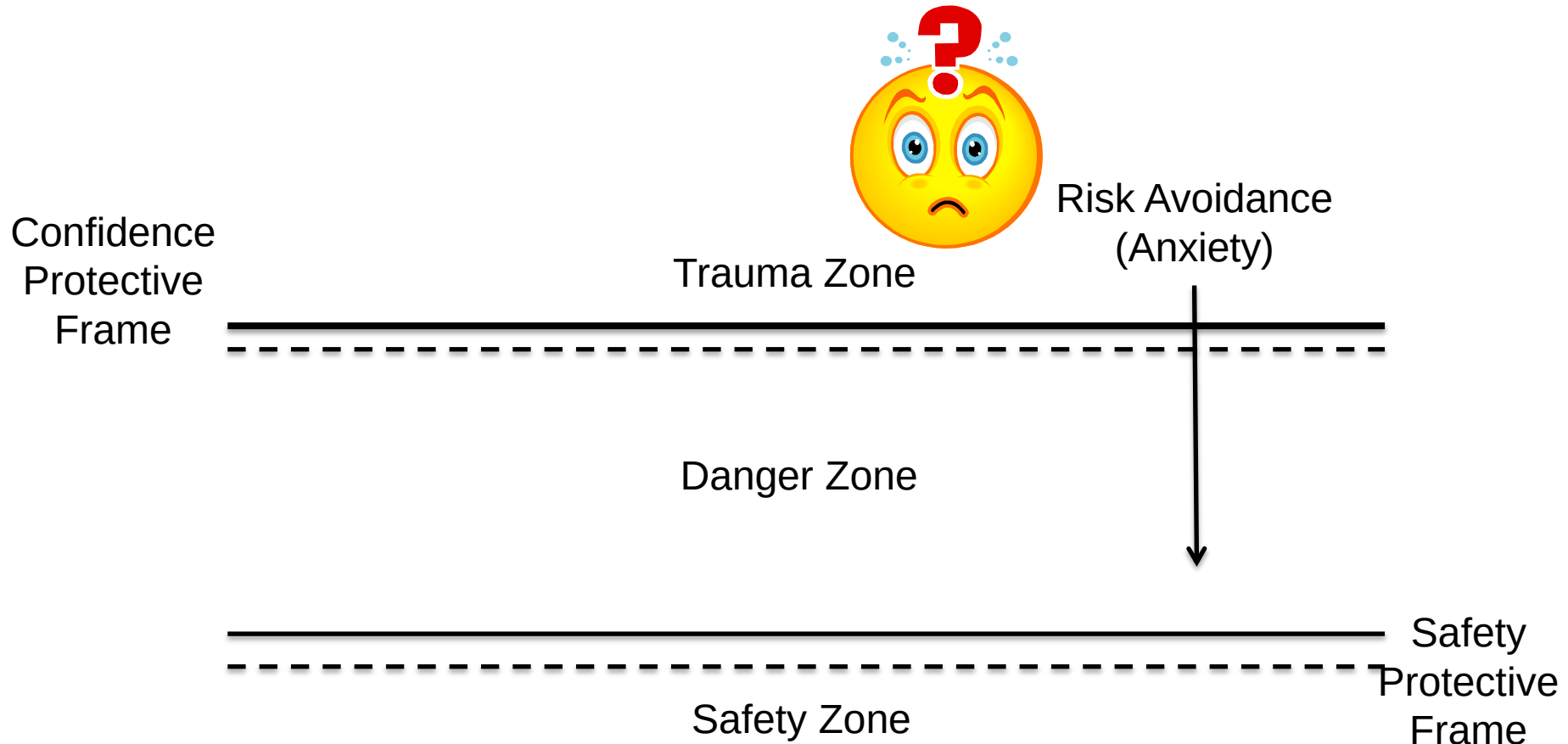
Safety Zone

Safety
Protective
Frame

Protective Frames



Protective Frames



Protective Frames

Confidence
Protective
Frame



Trauma Zone

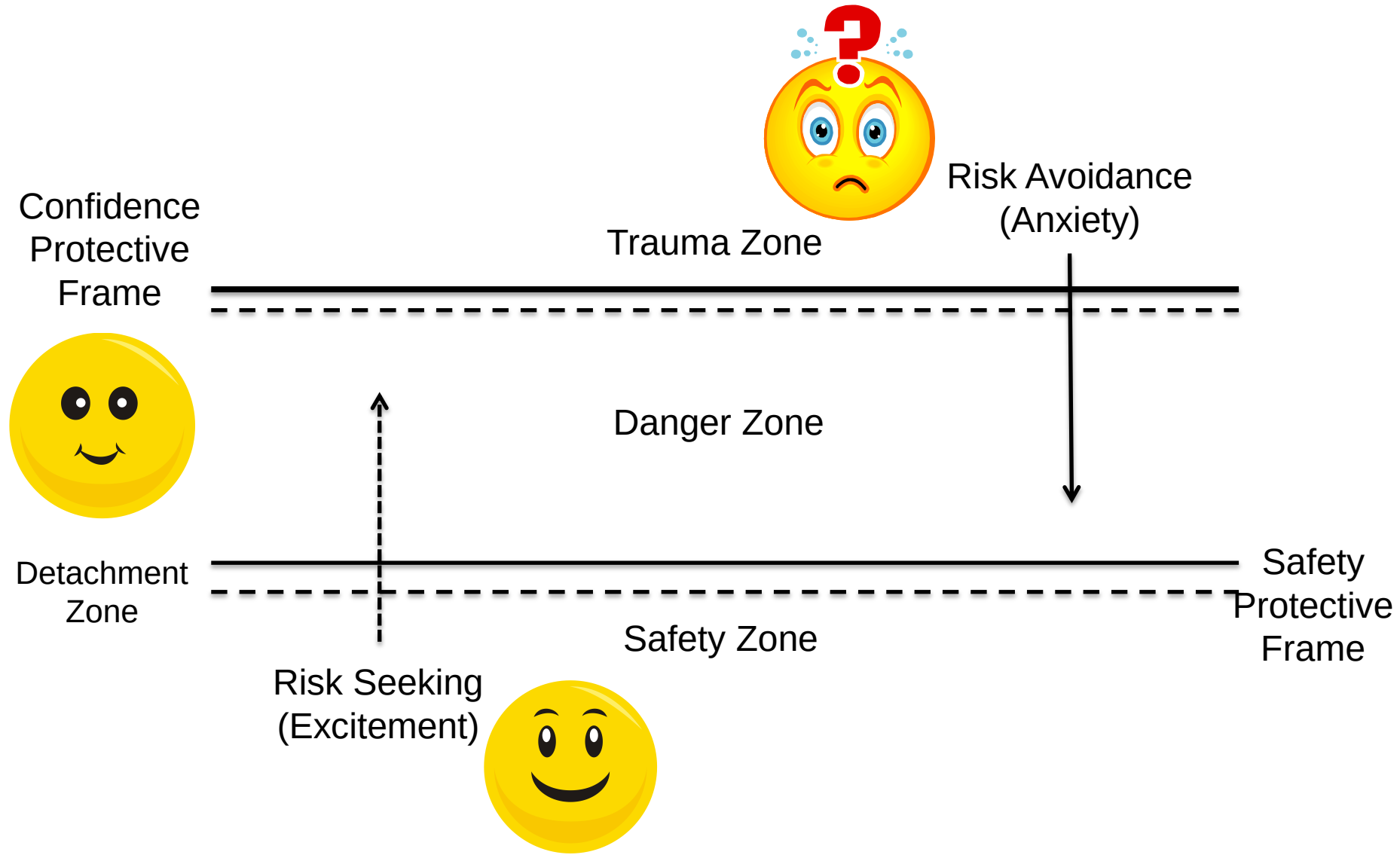
Danger Zone

Detachment
Zone

Safety Zone

Safety
Protective
Frame

Protective Frames



Other Factors affecting Risk Perceptions

- Voluntary vs Imposed
- Natural vs Industrial (Man-made)
- Familiar vs Exotic (Old vs New)
- Not Dreaded vs Dreaded
- Not Memorable vs Memorable
- Chronic vs Catastrophic
- Knowable vs Unknowable
- Individual controlled vs Others controlled
- Fair vs Unfair
- Children vs Adult

Essentially, anything and everything in life can affect our perceptions. No one is spared in this...

Principle 1:



- Risk Perception is **subjective** and influenced by a wide array of psychological, social, institutional and cultural factors
- The two possible **Risk Responses** we encounter in these zones are **Risk Seeking** (Excitement) or **Risk Avoidance** (Anxiety)
- The **Detachment Frame**, a viewpoint that is independent of this environment, allows us to approach the evaluation of risk from an **objective** point of view

Risk is neutral, but Perception of Risk is biased...

Bias – Distorted Perceptions

Statistical (or Heuristic) bias

- When we encounter risk in areas of unfamiliarity, we tend to **follow popular viewpoints** which could be distorted
- The general perception of risk is mainly based on the "**mental heuristics**" (rules of thumb) rather than true statistical data on probability and impact
- For example:
 1. People tend to naively extrapolate trends that they perceive in charts
 2. People ignore or don't correctly use probabilities when making choices
 3. People draw inferences from samples that are too small or unrepresentative
 4. People routinely overestimate their abilities

People often reply on **limited heuristic principles** to reduce a complex tasks of assessing **probabilities** to simpler **judgemental** operations.

“Gambler’s Fallacy”

- The tendency to think that future probabilities are altered by past events, when in reality they are unchanged
- Many people have a strong, but false, belief that random events are self-correcting

Question: If a coin comes up heads 20 times in a row, what is the probability of having tail in the 21st flip?

Gambler’s Fallacy – If a coin comes up heads 20 times in a row, tails is more than 50% likely for the 21st flip

The majority of people often believe the probability of a natural disaster would decrease after a destruction. In Bangladesh, almost every year large areas are flooded, the houses destroyed and hundreds of people killed. But shortly after such as event the same region is farmed again and houses reconstructed.

“Representative Bias”

- Leads people to assign higher probabilities than warranted to scenarios that are representative of how we imagine things would happen
- “Representativeness” is about reliance on stereotypes. Things that go together should look as though they go together

Question: A person is shy, withdrawn, structured, meticulous, helpful but reserved. Amongst farmer, salesman, pilot, librarian or physician, what is his likely occupation?

Will your answer change if I tell you that the ratio of farmers to salesmen to pilots to librarians to physicians is 1000: 50: 2: 1: 0.5?

The ratio shows farmer as more likely occupation than librarian. “Representative Bias” does not address the true probability that should influence judgement

“Availability Bias”

- Assessment made based on familiarity or popularity of the subject
- People are influenced, often inappropriately, by prior events. They often believe that the past is a reasonable predictor for future events
- *E.g., the demand for flood insurance sharply increases after a vivid flood event, then diminishes as the memory of the event receded...*
- When we experience something first-hand, rather than observing it as a spectator, has a greater impact and makes it easier to retrieve
- *E.g., the experience of witnessing a house burning is more likely to suggest a higher probability of house fire than reading it in the paper*

Availability Bias – the experience will make the probability of house fire seem greater by having the experience than reading about it

The **Law of Large Numbers** says that the mean of a large random sample is likely to be close to the mean of whole population.

The **Law of Small Numbers** says an individual's choices are overly influenced by the outcomes in a small sample, especially if sampling is personally experienced by the individual...

“Anchoring”

- Refers to common human tendency to rely too heavily, or “**anchor**”, on one trait or piece of information when making decisions
- People frequently form estimates by starting with a given, easily available **reference value** – often arbitrary – and adjusting from that value. An estimate, therefore, would be ‘anchored’ to that value
- It has been found that once people make an initial pass at a problem their initial judgement may prove to be remarkably resistant to revision

Anchoring – if we give a varying starting point to solve a given problem will lead to different estimates/solutions to that problem

“Zero-risk Bias”

- This occurs when individuals value **complete elimination of a risk**, however small, to a reduction in a greater risk
- Individuals may prefer **small benefits that are certain** to large ones that are uncertain, regardless of the size of the ‘certain’ benefit
- This is a phenomenon that individuals worry about risk, and eliminating it entirely means that there is no chance of harm being caused
- *What is more efficient and relevant is , however, not bringing risk from 1% to 0% but from 50% to 30% for example*

“Zero-risk Bias” – What we **want** is protection against worry, not the **need** to protect against risk...and that worry can be manipulated

There is a difference in attitude between risk reduction and risk elimination. Consider a vaccine that is effective in half of cases vs a vaccine that is fully effective in 1 of 2 cases. Studies show there is a disproportionate preference for the second formulation.

Principle 2:



- Every human is prone to some form of biases when think intuitively about risk, due to their subjective past experience, association or distorted popular viewpoints
- Our **Risk Perception** based on **Heuristics Biases** are often incorrect and cause us to make unsubstantiated decisions
- It is important to incorporate a balance of **objective qualitative analysis** to make the most informed and beneficial decision regarding the assessment, response and management of risk

Correct understanding of biases and how human reacts to risk would help us make better decisions

Approach in Operational Risk

Approach in Operational Risk Management

There are 3 kinds of relationship models:

1. *Offence and Oppose*

- Business units and ERM have different objectives – business units focus on maximizing income and ERM focuses on minimizing losses
(Results: potentially destructive)

2. *Policy and Policing*

- Business units operate within rules, set and policed by ERM, audit and compliance function
(Results: Compliance mindset)

3. *Cooperation and Collaboration*

- Business units and ERM staff work together in a client-consultant type relationship to manage risk
- ERM and business units staff share some measures of risk-return performance
(Results: long-term partnership)



Best Model

We may have all come on different ships,
but we are in the same boat now...

Setting Up ORM Framework

Setting up ORM Framework...

“Sprint” or “Marathon”?

- “Sprint” in perception

1. It is about “Substance”
2. *“What is the gain in the short term?”*

Perception	Mindset
Too Slow	<i>“Not Adding Value”</i>
Too Fast	<i>“Compliance Driven”</i>
Too many changes	<i>“Resistance”</i>

- “Marathon” in practice

1. It is about “Sustainability”
2. *“What is the value in the long term?”*

Implement ORM is both “sprint” & “marathon”.
A Strategy is needed to show **gains** in the short
term & demonstrate **values** in the long term

ORM Committees & Membership Structure...

Principles for Group Effectiveness

1. “Independence” of Chairperson

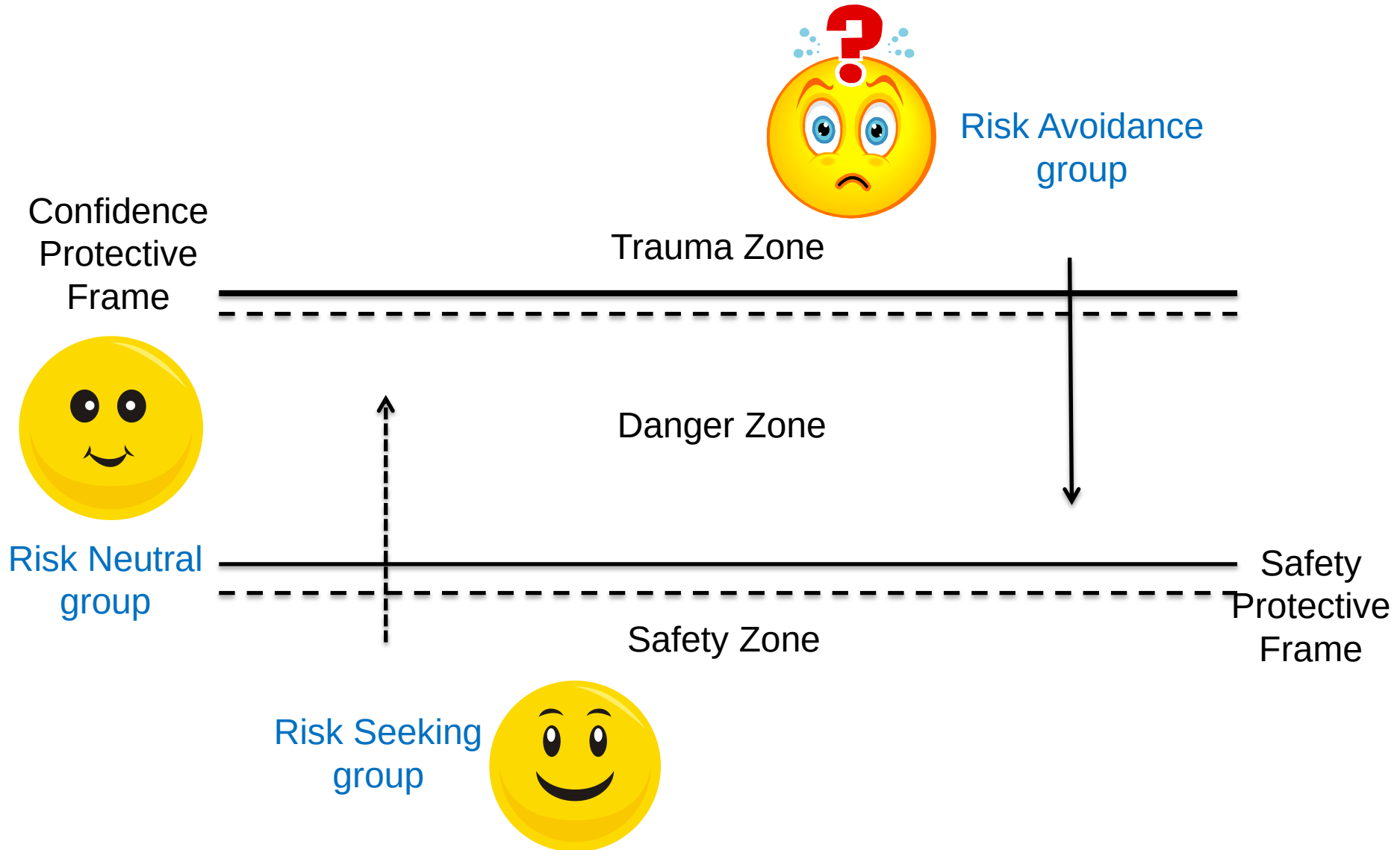
- “*Independence*” means “detachment”
- “*Detachment*” means “unbiased”

2. “Balance” in membership

- Understand *group dynamics*
- “*Balance*” of risk-seeking and risk-averse attitudes (e.g., balance between front office & back office)
- Commitment vs Involvement (the story of “Pig” and “Chicken”)

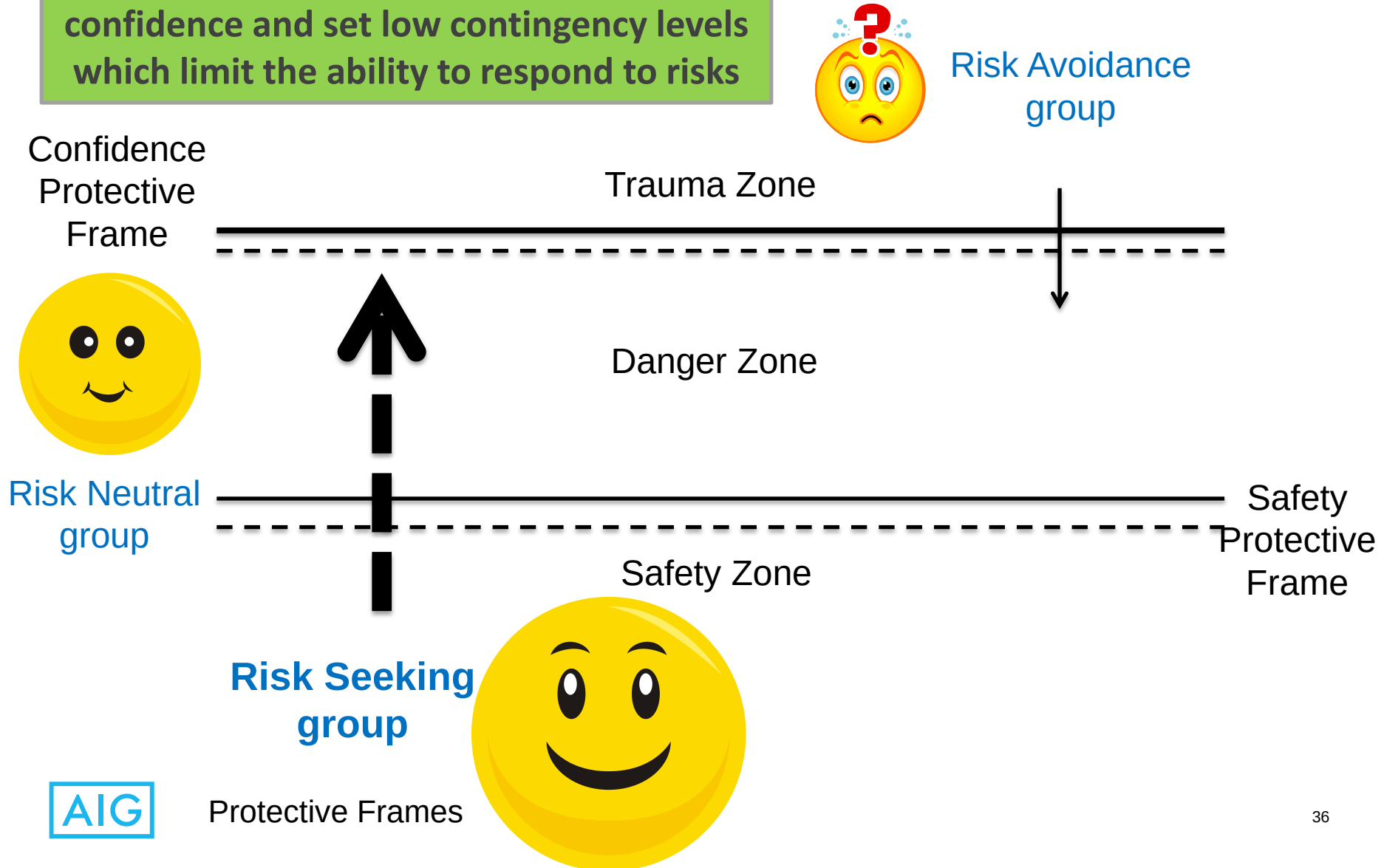
**The problem with ineffective risk management
is not the tools but how it is implemented**

Group Dynamics

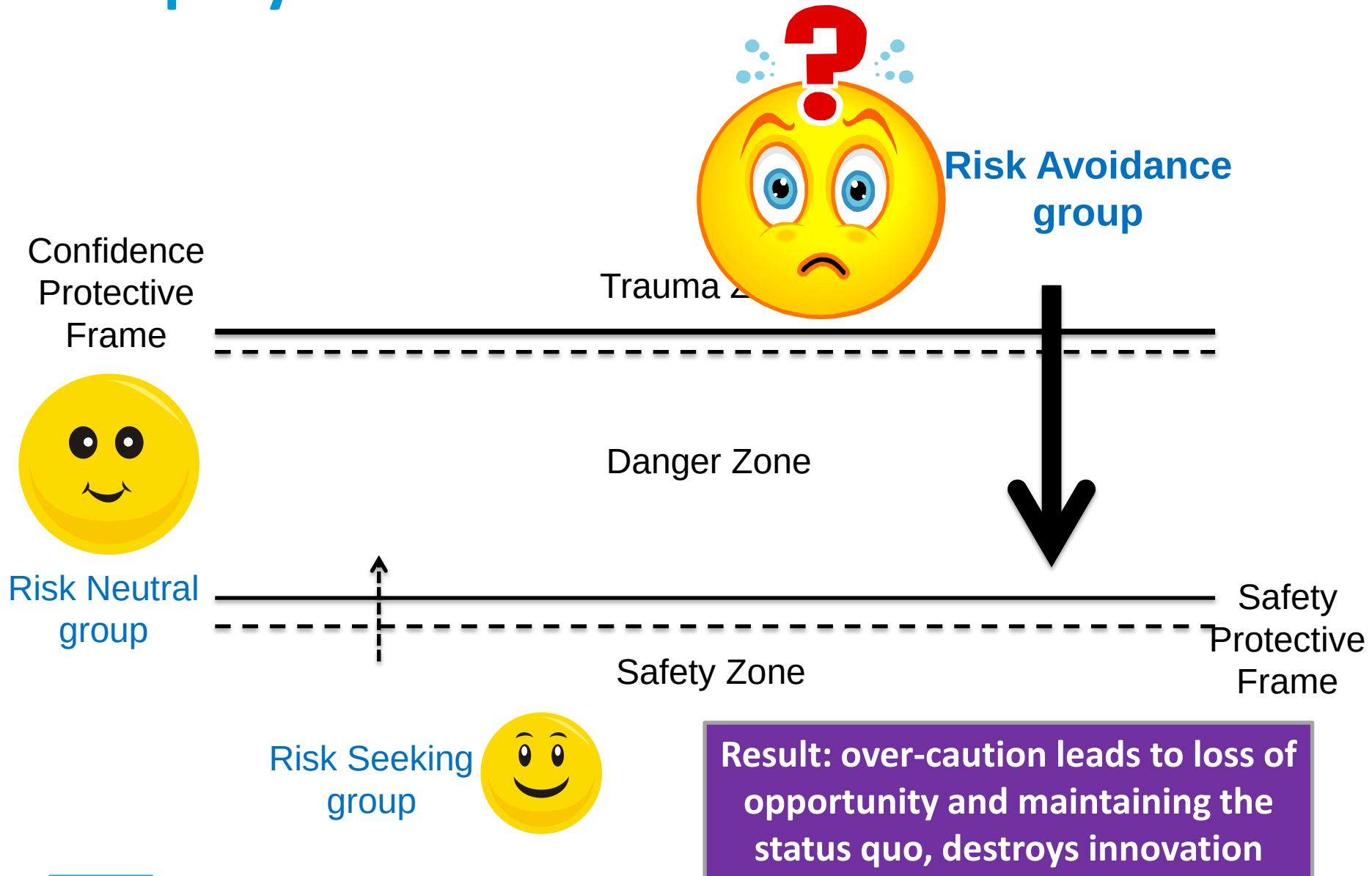


Group Dynamics – Risk-Seeking Imbalance

Result: overly risk-seeking leads to over-confidence and set low contingency levels which limit the ability to respond to risks



Group Dynamics – Risk-Averse Imbalance



Group Dynamics – Risk Neutral Imbalance

Result: No key decisions can be made or decisions made based on overly simplistic assumptions or rationale



Risk Avoidance group

Confidence
Protective

Frame

Trauma Zone

Danger Zone

Risk Neutral
group

Safety
Protective
Frame

Safety Zone

Risk Seeking
group



Stages of Group Dynamics

1. Forming

- *Joining, welcoming, understanding the **purpose**, building relationship*

2. Norming

- *Setting **expectations** & styles, learning leadership & members' roles, establishing processes & goals*

3. Storming

- *Airing dissatisfaction, finding ways through **conflict**, assessing leadership & members' roles*

4. Performing

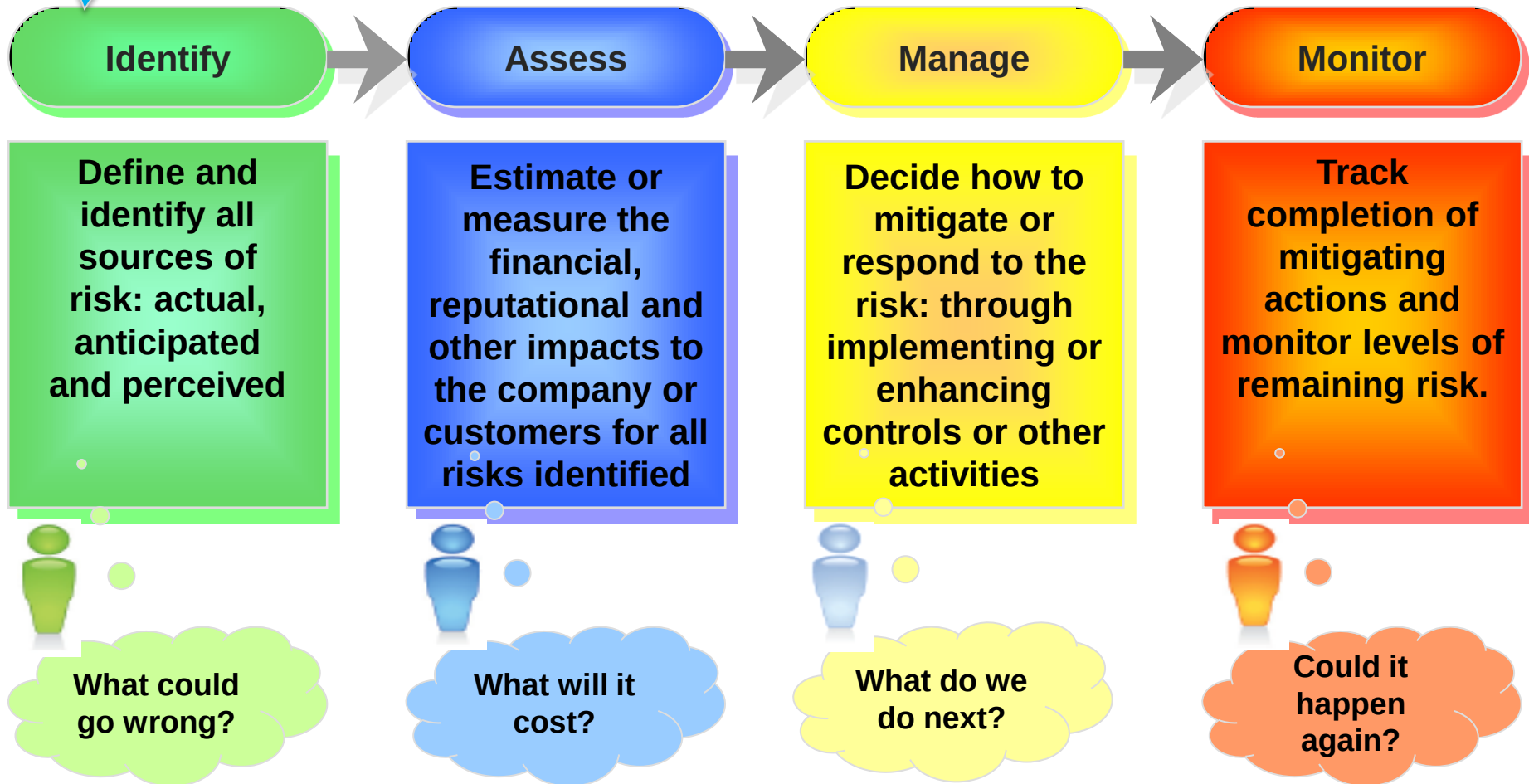
- *Functioning well together, appreciate **teamwork**, seeing conflict as opportunity*

Understanding the stages will help us in project planning, communication and conflict resolution strategies

*Senior Management often don't ask "why" questions. They often ask **"how" (solutions)** and **"when" (deliverables)** questions. Don't just share the problems. Focus on the solutions, action plans and deliverables. And if you have a 30-minutes solution to share, try to summarize it in 5 minutes. The magic word to deal with management is "KISS" – **Keep It Short & Sweet!***

Setting Up ORM Process

Traditional Operational Risk Management Process



Traditional Approach can prevent losses at a tactical level, but does little to mitigate exposure due to excessive risk taking, which are really key drivers of operational risk

Traditional vs Modern ORM



- Under **Traditional ORM**, risk is expressed as the **possibility** that an event will occur and adversely **impact** the achievement of the entity's mission or business objectives.
- Under **Modern ORM**, risk is a **measure of exposure** to loss at a level of **uncertainty**. Where the probability of loss is 100%, because the loss is certain, the level of risk is zero. High risk is characterized by **low probability** (or low frequency) and **high severity**.

The two conceptions of risk measurement are not just materially different – they are contradictory!

Illustration – Risk Concept

Investment A: Guaranteed return of 10%
Investment B: 50% chance of 0% gain or 20% gain
Investment C: 50% chance of 10% loss or 30% gain

Question 1: Which investment has the highest expected return?

Answer 1: All investments have same expected returns...

Question 2: Which investment has the most risk?

Answer 2: Investment C...

Question 3: Which is the best investment?

Answer 3: Depends on your risk attitude...

Risk Attitude	Risk Response
Risk-Neutral	Ignores variance. All 3 investments are of equal value...
Risk-seeking	Prefers C. In fact, he/she is willing to pay a premium for this.
Risk-adverse	Prefers A, as it offers zero risk.

Last question: How much risk is there in each investment?

Risk is not a type of incident. It is a measure. It describes a level of variance or uncertainty w.r.t. some adverse consequence.

Traditional vs Modern ORM

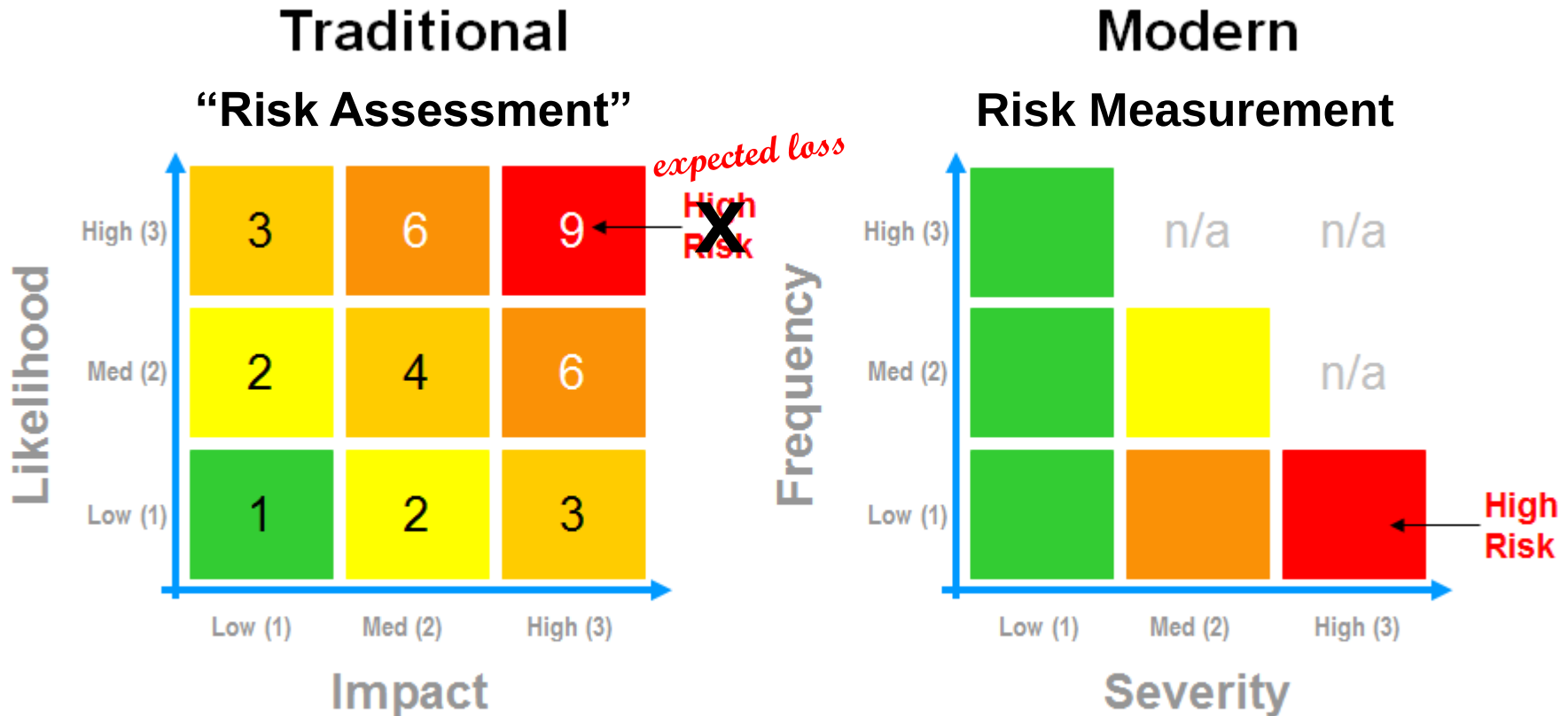
Contradictory Definition

Traditional ORM (Bottom-Up)	Modern ORM (Top-Down)
Definition of Risk: a kind of “undesirable incident/event ” (e.g., fraud, system failure) <i>(What/where are your risks?)</i>	Definition of Risk: a “ measure of exposure ” to loss from undesirable incidents/events <i>(How much risk do you have?)</i>
Risk Identification: Managers to identify major risks, leading to large set of risks	Risk Identification: Define risk universe & risk classes. Use data to reveal where large losses are
Risk Assessment: Calculate risk by multiplying likelihood/impact for each risk type, one “risk” at a time	Risk Assessment: Use Monte Carlo simulation and frequency/severity distributions to calculate cumulative loss potential from multiple events
Aggregation: Likelihood cannot be aggregated, so results cannot be aggregated	Aggregation: Frequency can be aggregated, so results can be aggregated
What is measured: Probability weighted loss from one specific incident (the routine loss)	What is measured: Cumulative loss from risk classes; both expected/unexpected loss, comparable to the average & worst case
Goal: Day-to-day management of current threats arising from imminent operational failures	Goal: Management of key risks , with cost-benefit analysis
Cost: Generally very resource intensive	Cost: Relatively much less resource intensive



Perception in the Definitions of Operational Risk

Tradition vs Modern ORM

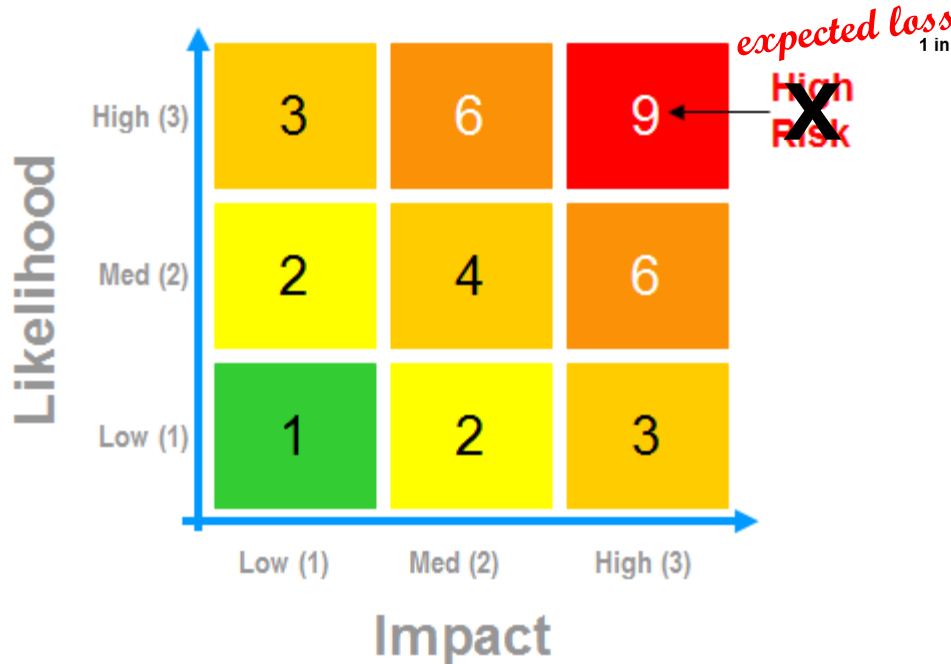


High-likelihood/high-impact scenarios are not necessarily high-frequency/high-severity

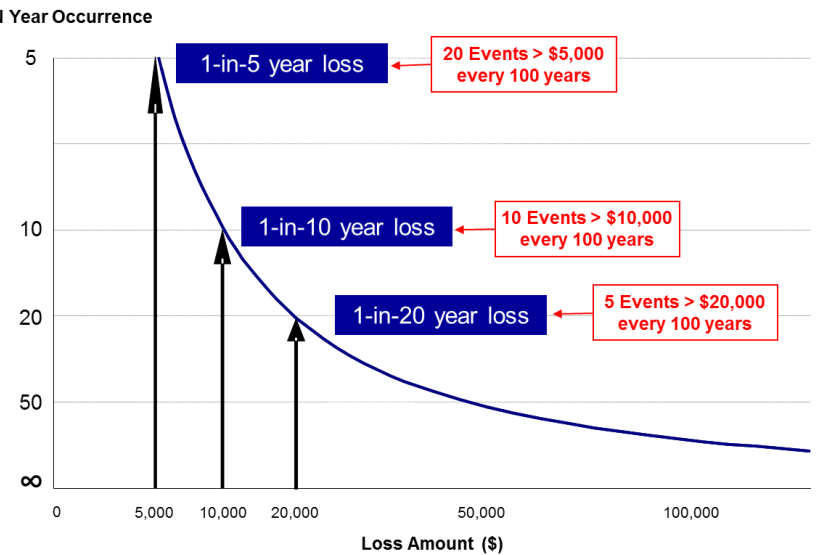
Perception in the Definitions of Operational Risk

Tradition vs Modern ORM

Traditional “Risk Assessment”



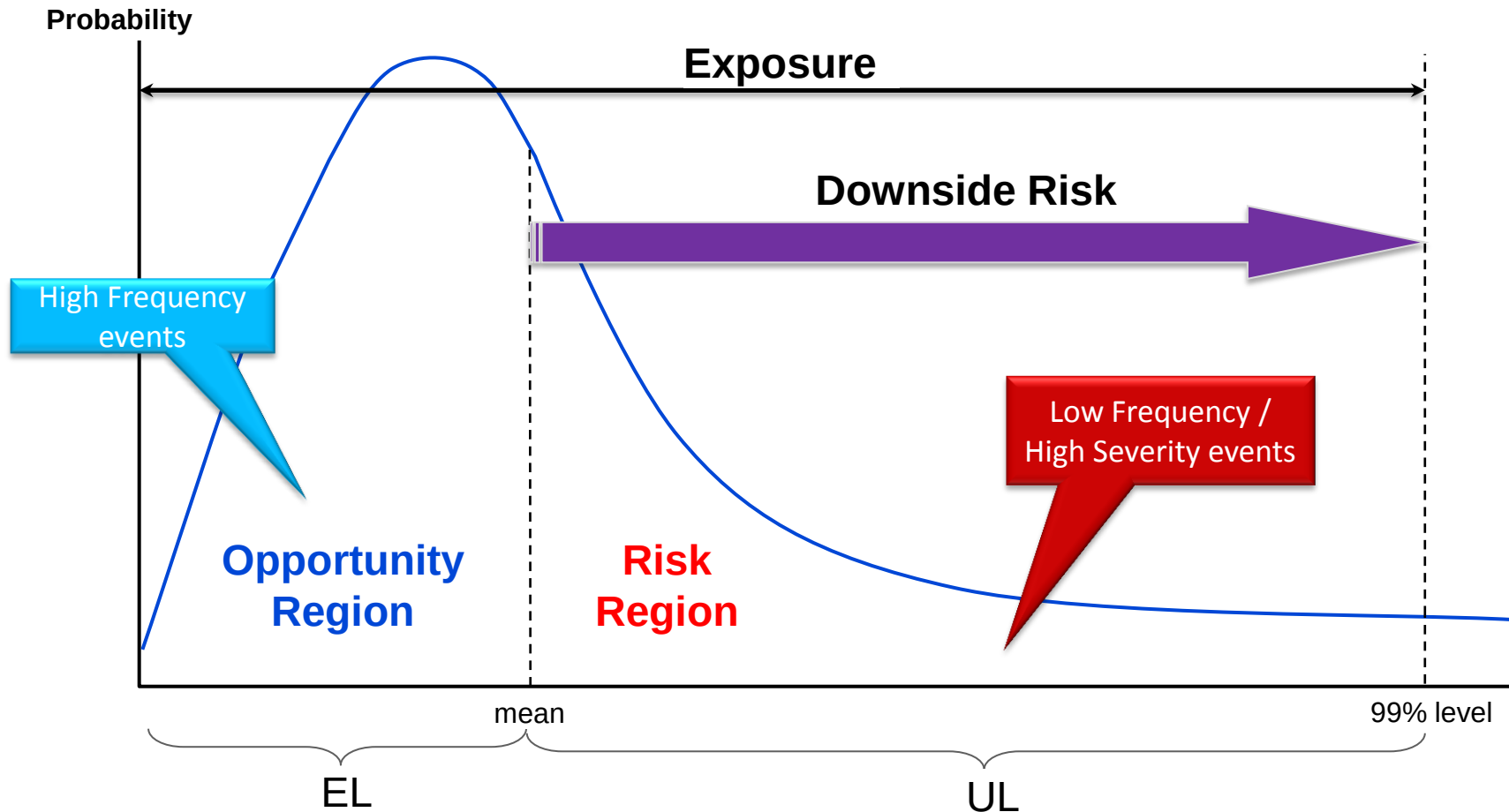
Modern Risk Measurement



There is an inverse relationship between frequency and severity, such that the high severity events tend to be low frequency and vice versa.

Risk & Opportunity

Concept of Expected Loss (EL) & Unexpected Loss (UL)



Risk is a measure of adverse deviation from the expectation, expressed at a level of uncertainty (probability).

Application of Modern ORM

Risk Identification – Risk & Control Self-Assessment (RCSA)

Frequency/Severity Scale: 1 – 3

No.	Description	Frequency	Severity	Expected Loss Risk
1	Use of unauthorised distribution channels resulting in fines and penalties from regulator.	1	2	2
2	Loss of key personnel and difficult to find replacement staff.	2	1	2
3	Risk of loss arising from inadequate policy wording in contract leads to acceptance of unknown and unquantifiable risks.	1	3	3 <i>high risk</i> Low Risk
4	Non-compliance to a change in law or regulation leading to reputation / legal risk.	2	2	4
5	Risk of mis-selling leading to regulatory breach or customer lawsuits.	3	2	6 <i>low risk</i> High Risk

High Frequency is characteristic of low risk, although expected loss could be high.

Low Frequency / High Severity is characteristic of High Risk.

We often use RCSA to measure “Risk” but in actual fact we are measuring “Expected Loss”.

Application of Modern ORM

Risk Identification – Risk & Control Self-Assessment (RCSA)

99%; 1 year time horizon

Risk	Description	Total Exposure (\$)	Expected Loss (\$)	Risk (\$)
1	Use of unauthorised distribution channels resulting in fines and penalties from regulator.	50,000	20,000	30,000
2	Loss of key personnel and difficult to find replacement staff.	100,000	20,000	80,000
3	Risk of loss arising from inadequate policy wording in contract leads to acceptance of unknown and unquantifiable risks.	800,000	10,000	790,000
4	Non-compliance to a change in law or regulation leading to reputation / legal risk.	50,000	15,000	35,000
5	Risk of mis-selling leading to regulatory breach or customer lawsuits.	100,000	80,000	20,000

High Risk

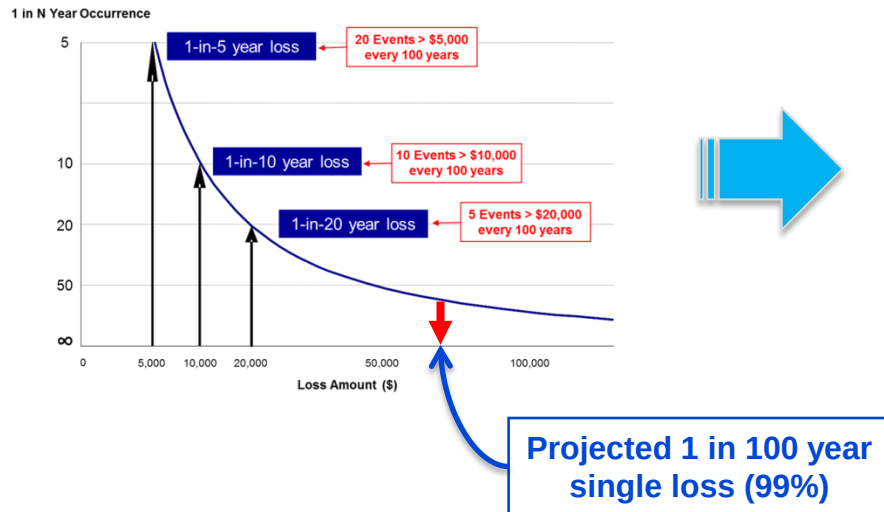
Low Risk

Risk measures the potential of unexpected loss which is really the difference between total exposure (given a specified probability level) & the expected loss.

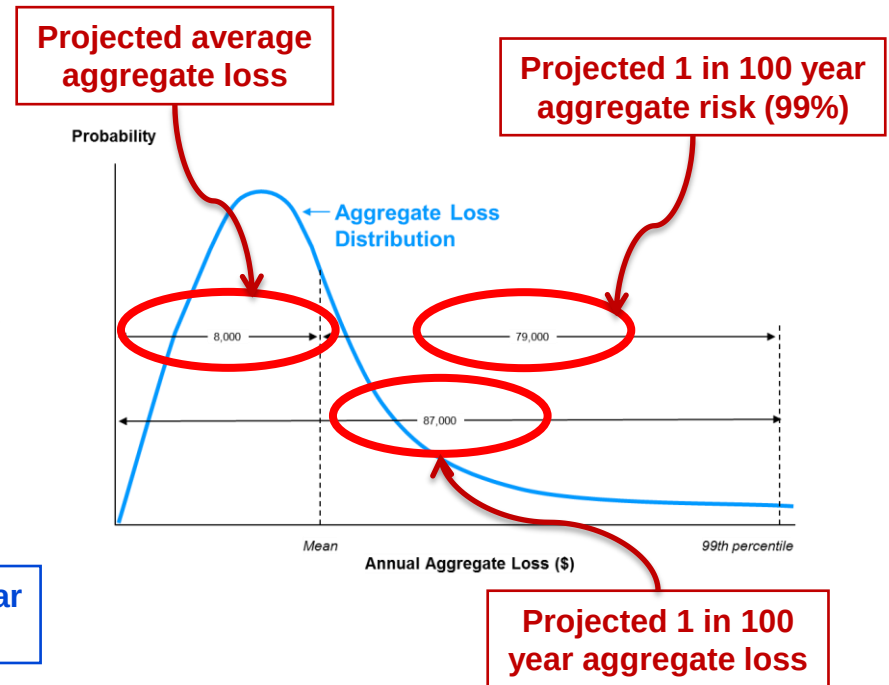
Application of Modern ORM

Risk Measurement / Assessment

SINGLE EVENT LOSS ASSESSMENT (Loss from one event)



AGGREGATE RISK ASSESSMENT (Loss from multiple events)



Under Modern ORM, risk measurement and risk assessment represent two ways of achieving the same objective – to calculate expected loss and unexpected loss figures.

Application of Modern ORM

Operational Risk Management / Monitoring

1. **Risk Taxonomy** ➤ Redefine risk from unpleasant outcomes (qualitative) to “uncertainty” (quantitative). Adopt a more robust **risk architecture/taxonomy**
2. **Measure of Exposure** ➤ Specify a probability level for the distribution of possible outcomes (e.g., 99%) to express **risk tolerance** in monetary terms
3. **Risk Identification (Tactical)** ➤ Continue to deploy Traditional methods like **RCSA process** where they are effective, but recognize that these approaches are inadequate when dealing with the most significant risks
4. **Risk Identification (Strategic)** ➤ Focus on “**major risks**”, with major risks defined as low frequency/high severity scenarios. Develop **Key Risk Indicators (KRIs)** used to track and mitigate the major risks regularly

Application of Modern ORM

Risk Management / Monitoring

5. Data for Risk Measurement

- Collect “hard data” through Internal loss event capturing process. This process, most often than not, only capture expected loss data on a prospective basis. This would be useful for risk measurement

6. Data for Risk Assessment

- Collect “soft data” based on empirical observations. Data may not have been collected through a robust process and/or represent only a proxy variable. Soft data would be most valuable for risk assessment/analysis beyond expected loss

7. Risk Assessment

- Replace likelihood x impact analysis with frequency and severity analysis. Aggregate by key risk themes

8. Risk Culture / Communication

- Conduct “right” ORM trainings to key decision makers and assist them in developing/acquiring tools and methodology to measure EL and UL

Conclusion

New Perspective in ORM

1. Operational Risk deals with **people** – Human behaviour, Perception & Risk attitude are hard to predict and control
2. **Risk Perception** is **subjective** and influenced by a wide array of psychological, social, institutional and cultural factors
3. Our **Risk Perception** based on **Heuristics Biases** are often incorrect and cause us to make unsubstantiated decisions
4. Implement ORM is both “sprint” & “marathon”. A Strategy is needed to show **gains** in the short term & demonstrate **values** in the long term
5. Traditional ORM approach does little to mitigate exposure due to excessive risk taking, which are really key drivers of operational risk
6. In Modern ORM, risk is a **measure of exposure** to loss at a level of **uncertainty**. High risk is characterized by **low probability** (or low frequency) and **high severity**
7. Key metrics for Modern ORM assessment are the **expected loss** (average annual loss) and **unexpected loss** (annualized risk exposure)

The new perspective should help senior management to appreciate Operational Risk, rather than viewing ORM as a threat, a value-destroyer or a pure compliance exercise to their business



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