

# Measuring Safety Culture

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# “Safety Culture”

What exactly is it that people mean when they talk about “safety culture”?

Are there different ways to measure “safety culture”?

How do we know they are effective?

# Main Ideas

- The most important aspects of safety culture are psychological, not behavioural.
- Improving safety culture is “value based safety”.
- Measurement can focus on level of evolution or degree of success at a single phase.
- Safety culture is more complex than it seems.
- The Internal Responsibility System is an excellent framework to assess safety culture.

# Definition

## Edgar Schein

“Organizational culture is the system of shared beliefs and values that develops within an organization and which guides the behaviour of its members.”

# Observable and Core Culture

## Observable Culture

- Rites and rituals
- Symbols
- Heroes
- Stories

## Core Culture

- Values
- Attitudes
- Beliefs

# Observable and Core Culture

## Observable Culture

- Material
- Organizational

## Core Culture

- Philosophy -- Values

# Safety Culture – Material

From the perspective of everyone, but especially the operational worker, it is apparent from the physical condition of the workplace that OHS is a priority. The workplace “speaks” to observers.

# **Safety Culture – Organizational**

An examination of the management system reveals that OHS is integrated into all aspects of the management system.

# **Safety Culture – Philosophy & Values**

From the perspective of everyone, but especially the operational worker, it is apparent from leadership practices of everyone that protection and promotion of human life and health are primary values.

# **The Complexity of Organizational Safety Culture**

# James Reason's "Multi-Cultural" Safety Culture

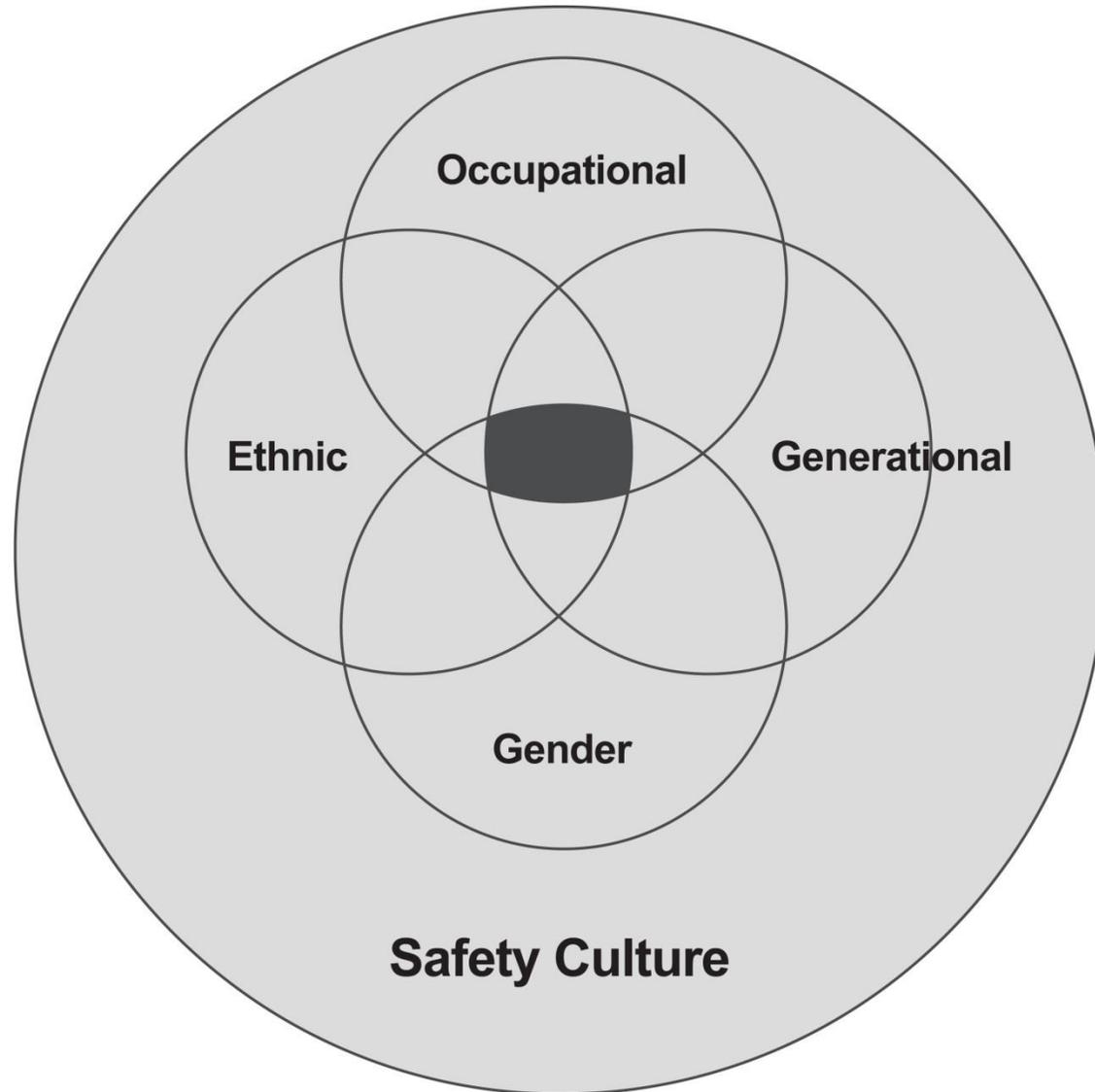
## Safety Culture

- Informed Culture
- Reporting Culture
- Just Culture
- Flexible Culture
- Learning Culture

# Culture and Subculture

- Occupational
- Generational
- Ethnic
- Gender
- Organizational Level

# Safety Subcultures



# Safety Subcultures

- Do some ethnic groups have beliefs about fate that are antithetical to risk reduction
- Are there differences between young and old workers concerning risk?
- Are there male/female differences in risk perception, risk evaluation and risk acceptance?

# Generational Sub- Subcultures

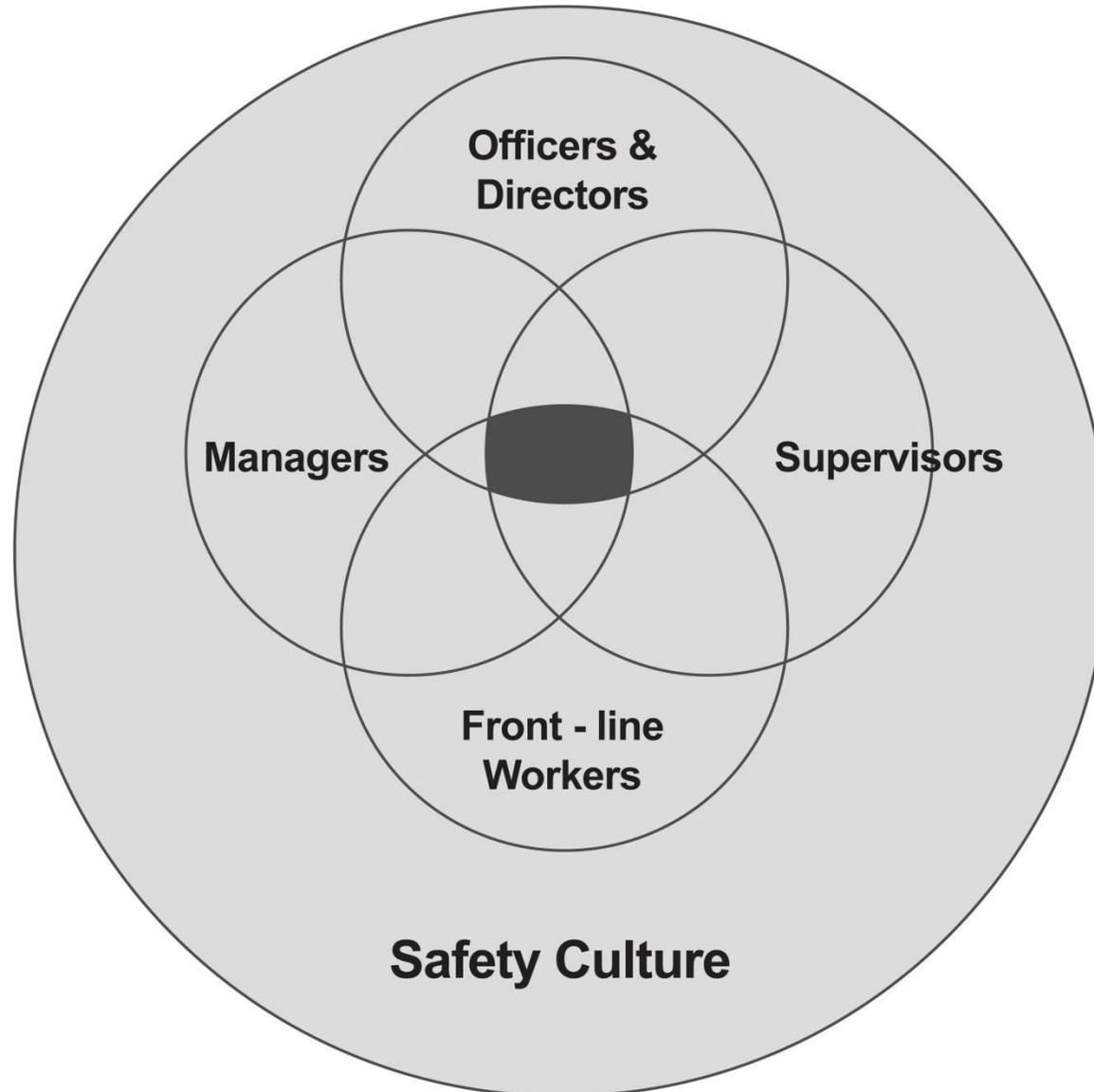
- Pre-Boomers
- Boomers
- Gen X
- Gen Y
- Millennials
- Gen WiFi

# IRS Levels

## Safety Culture of:

- Workers
- Supervisors
- Managers
- Officers
- Directors
- OHS Committee
- OHS Professionals

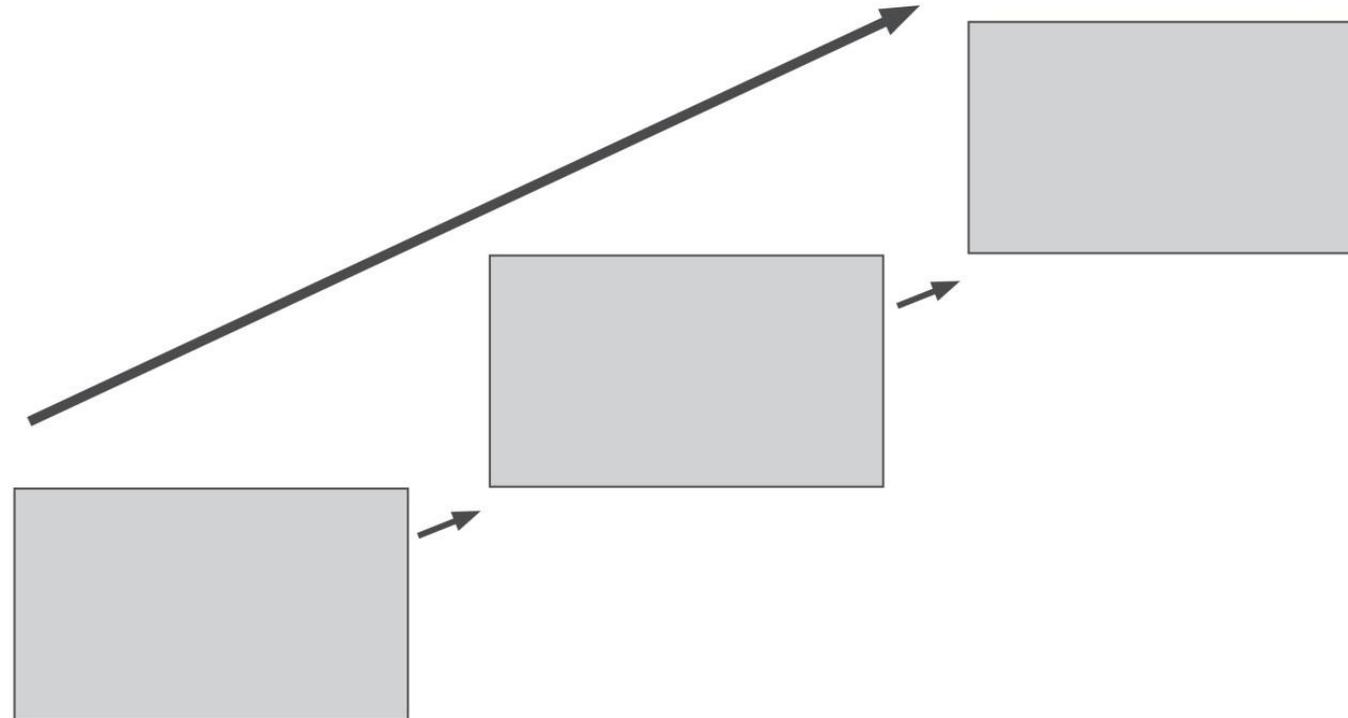
# Beliefs at Different Levels



# Beliefs at Different Levels



**So when moving through phases...**



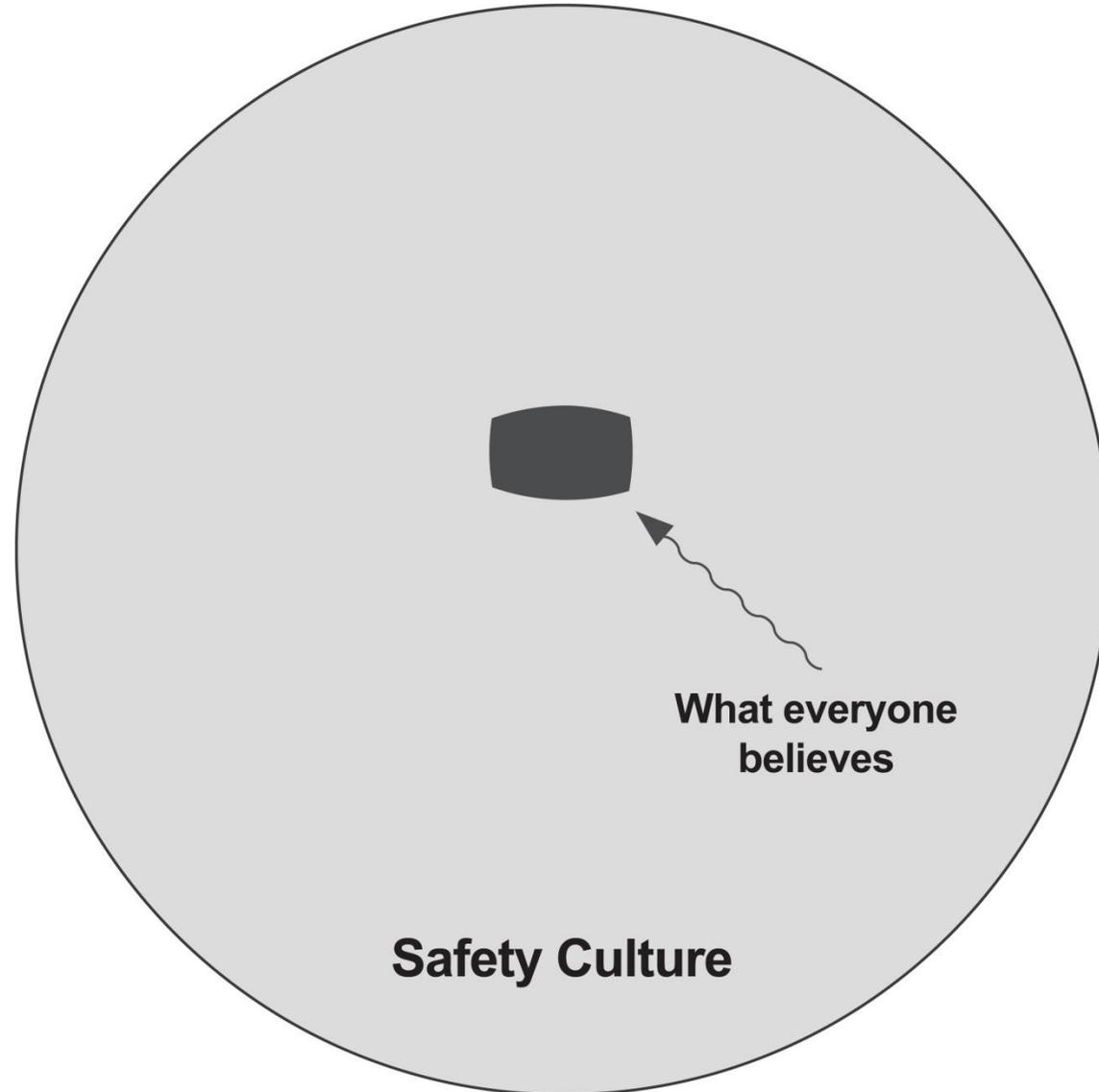
**Which level is driving overall average belief?**

**Are different organizational levels at  
different safety culture levels?**

# Complexity of Safety Culture



# Complexity Reduces Consistency, Harmony, etc.

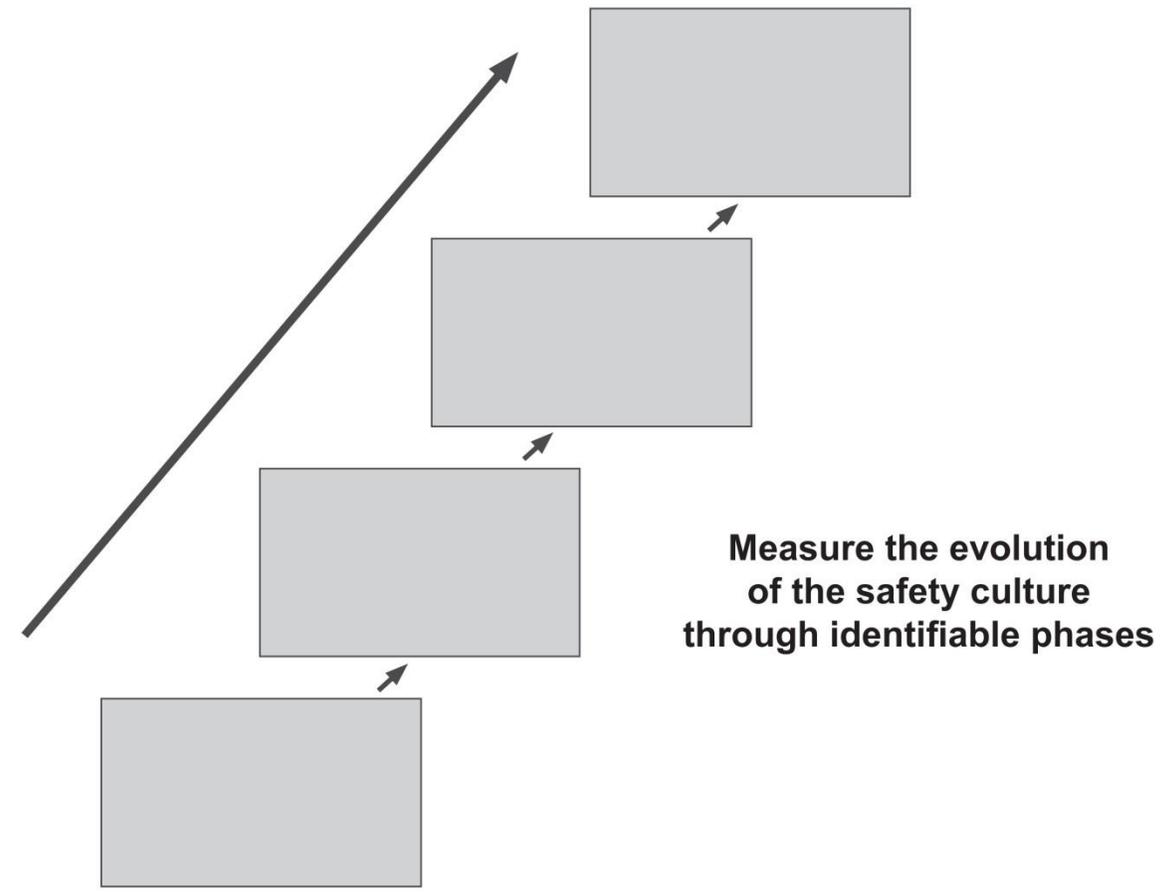


# Organization versus Groups versus Individuals

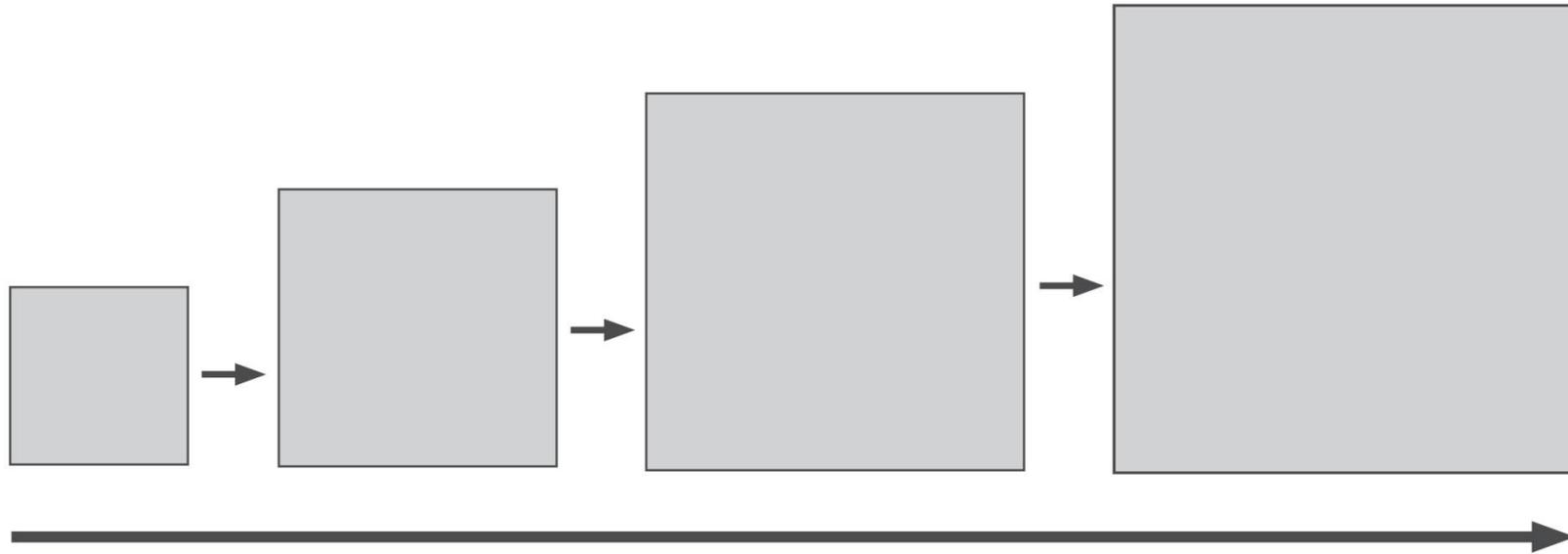
- Organizations and groups don't actually think, believe, have values and behave.
- Caution about language: "The organization's values".
- Above the individual level one is thinking statistically.
- Measuring safety culture requires measuring what individuals – with their characteristics -- believe.

# **Evolution of Safety Culture**

# Evolution Through Phases

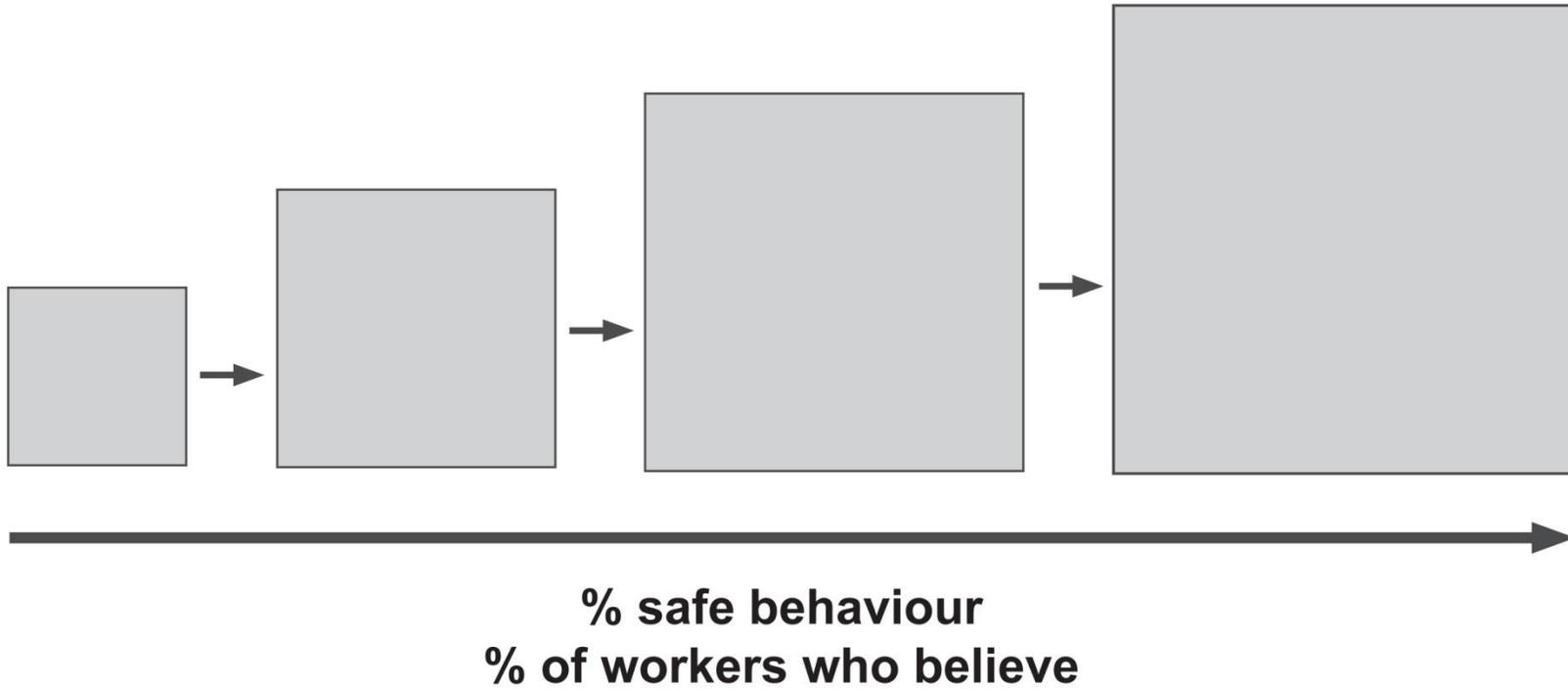


# Evolution Towards Completion

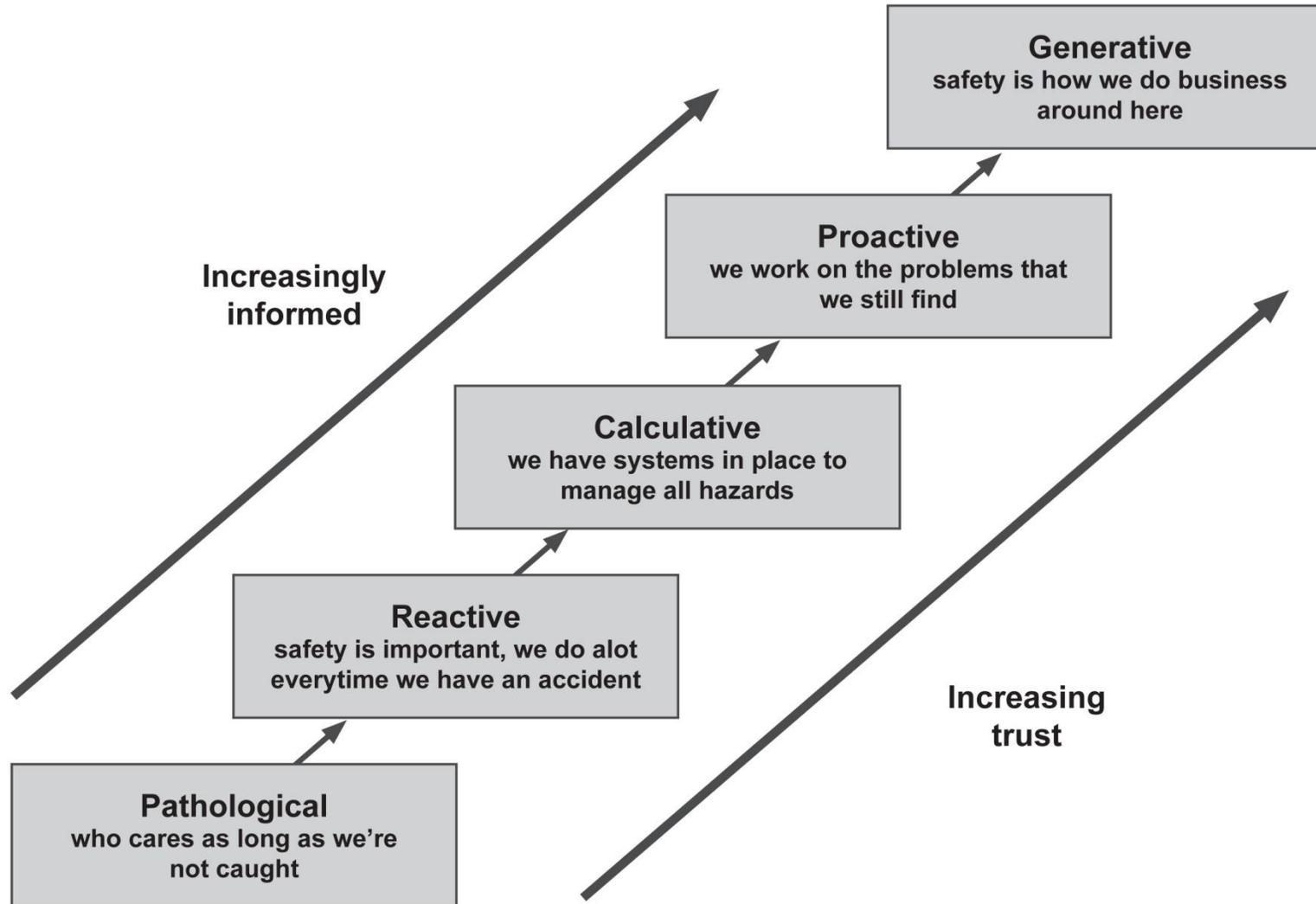


**Measure a single version of a safety culture as it moves  
closer to perfection (100% of the people)**

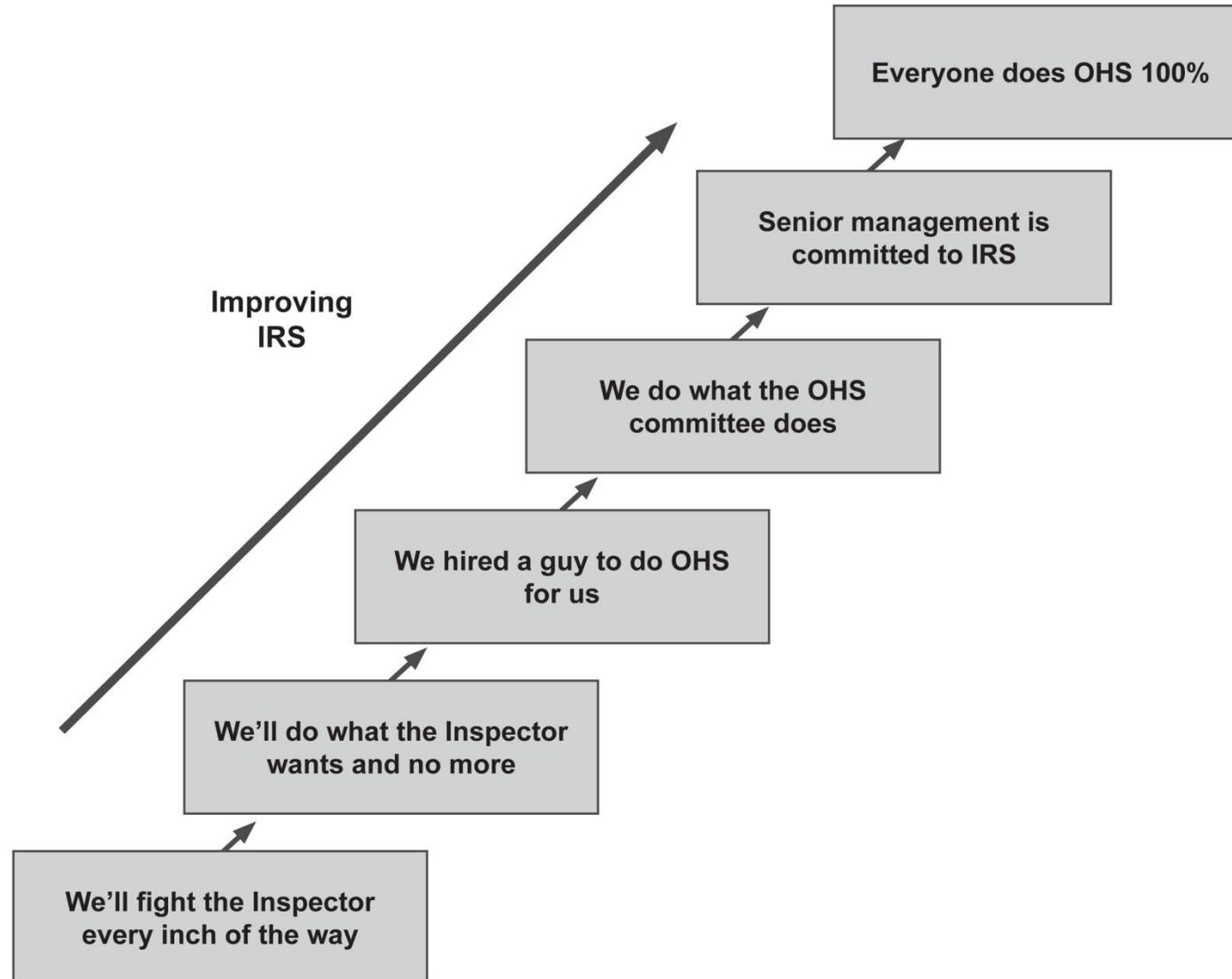
# Examples



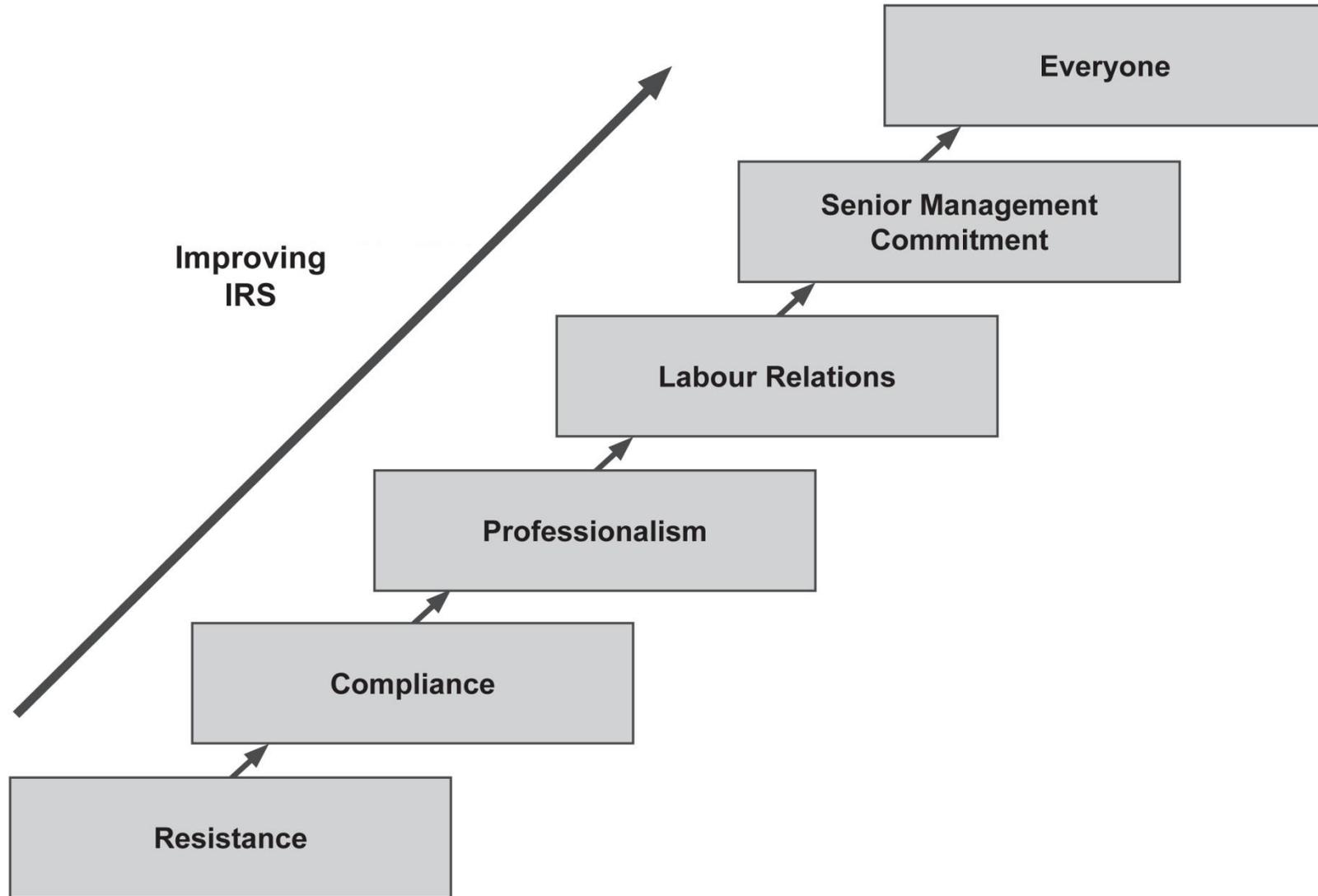
# Patrick Hudson's Model



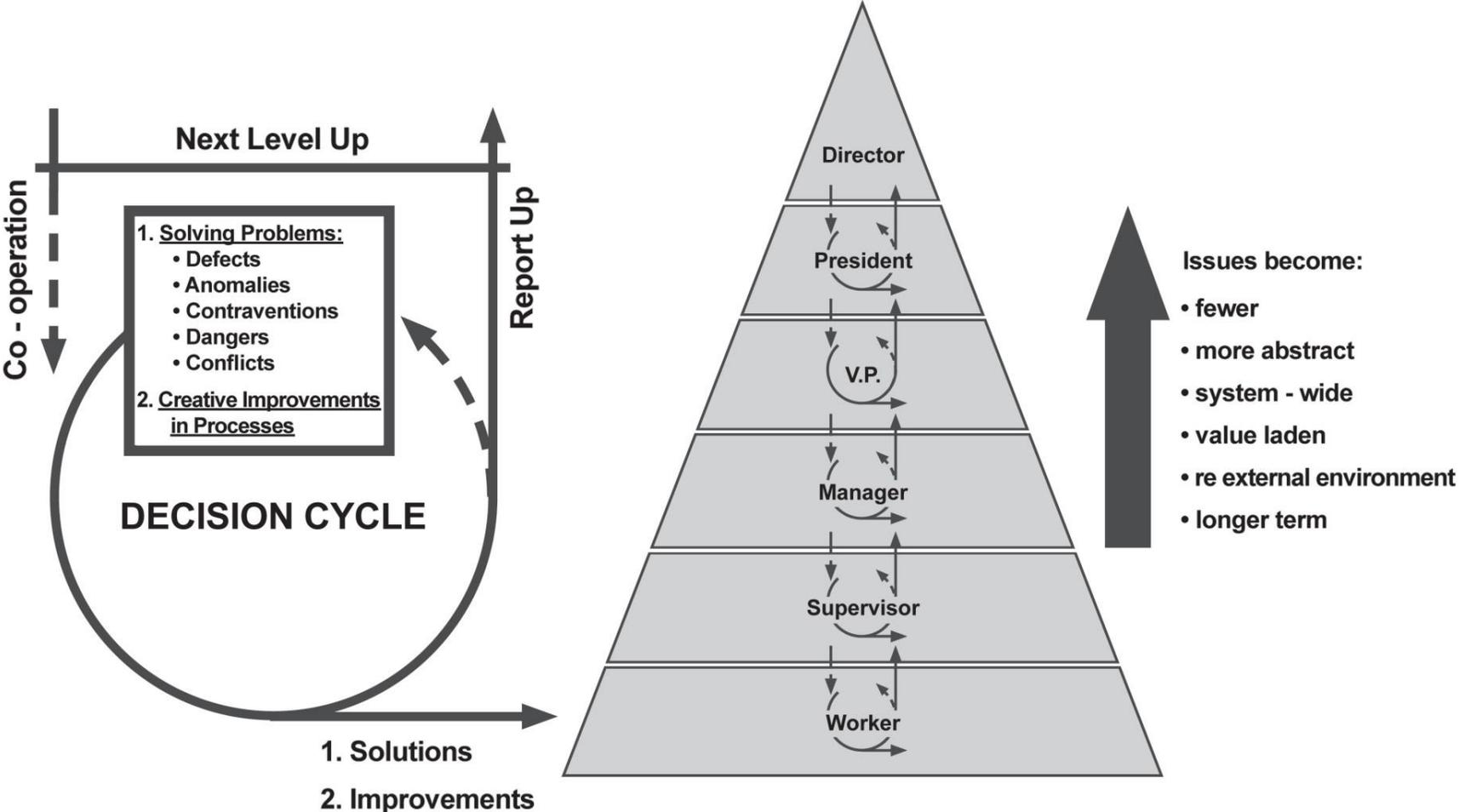
# IRS Evolutionary Model



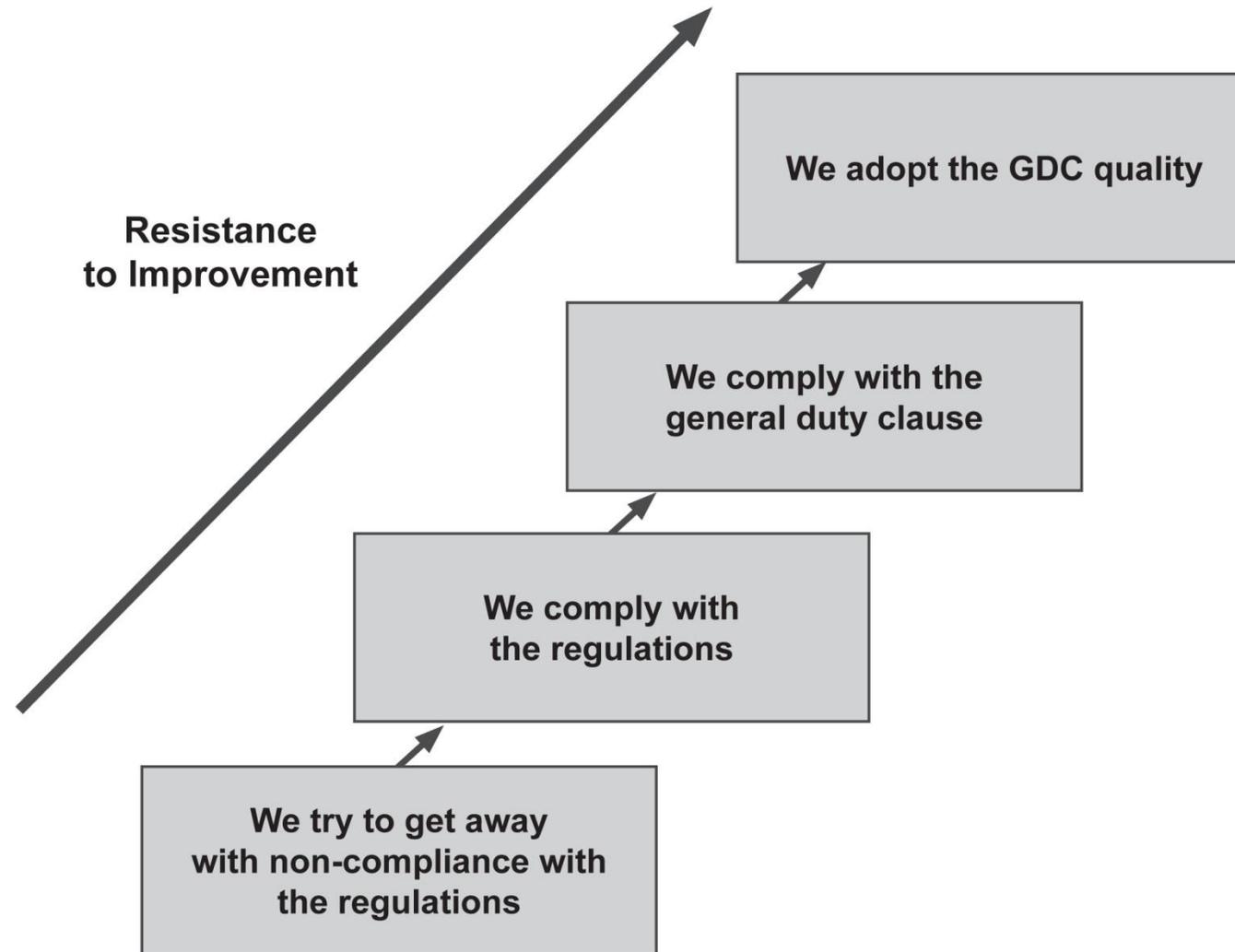
# IRS Evolutionary Model



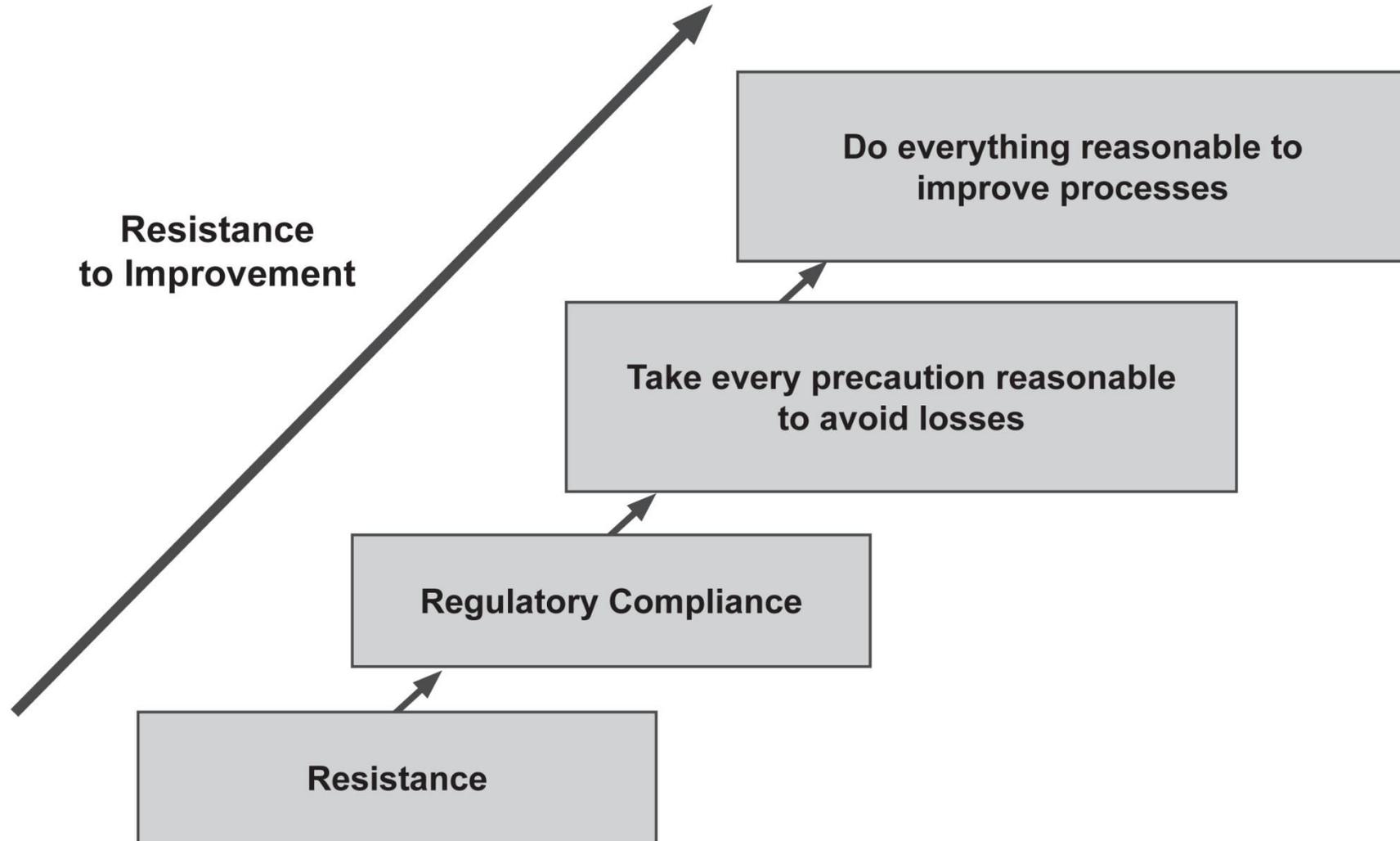
# Stop, Correct, Report ... Innovate



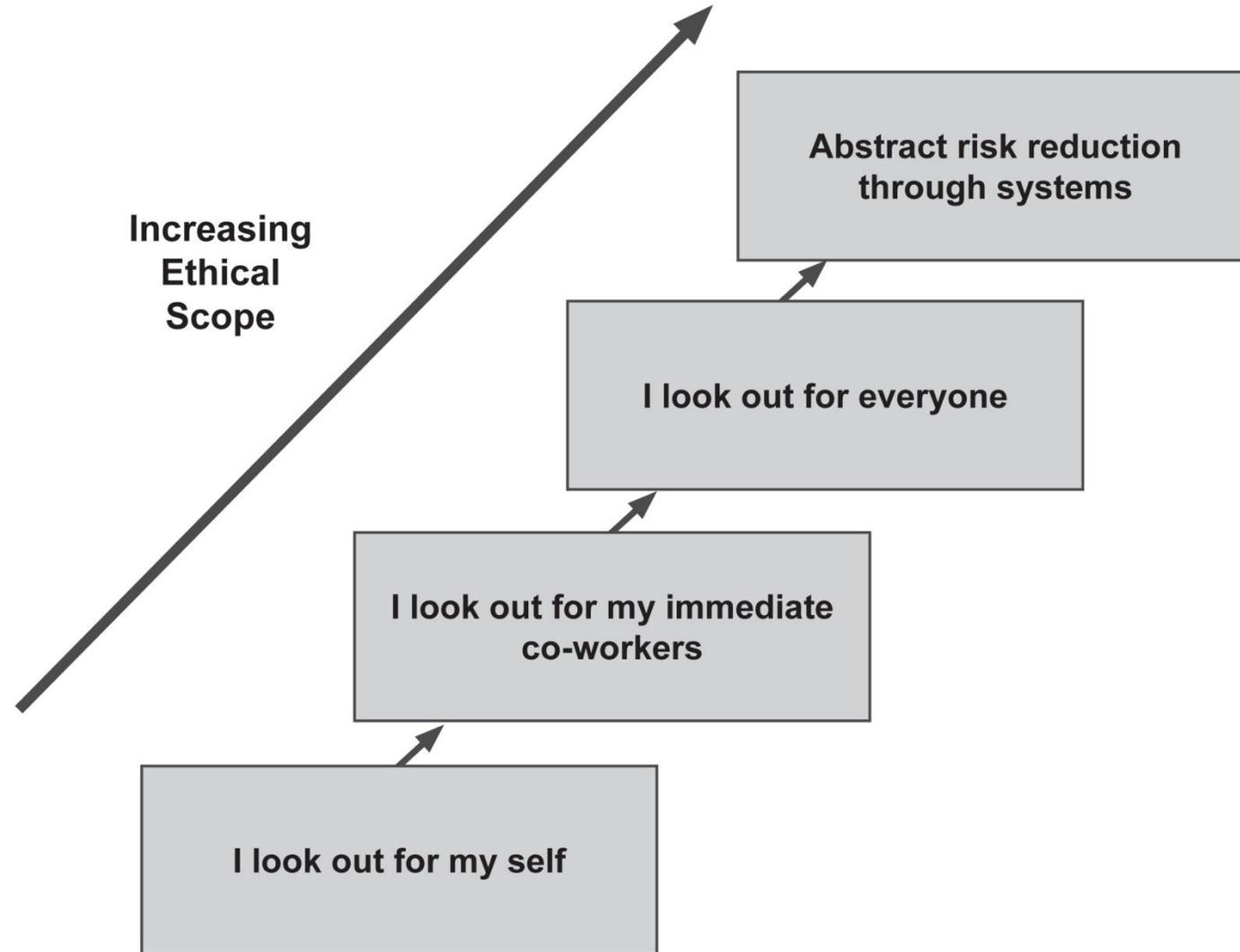
# Evolution to IRS Phase II



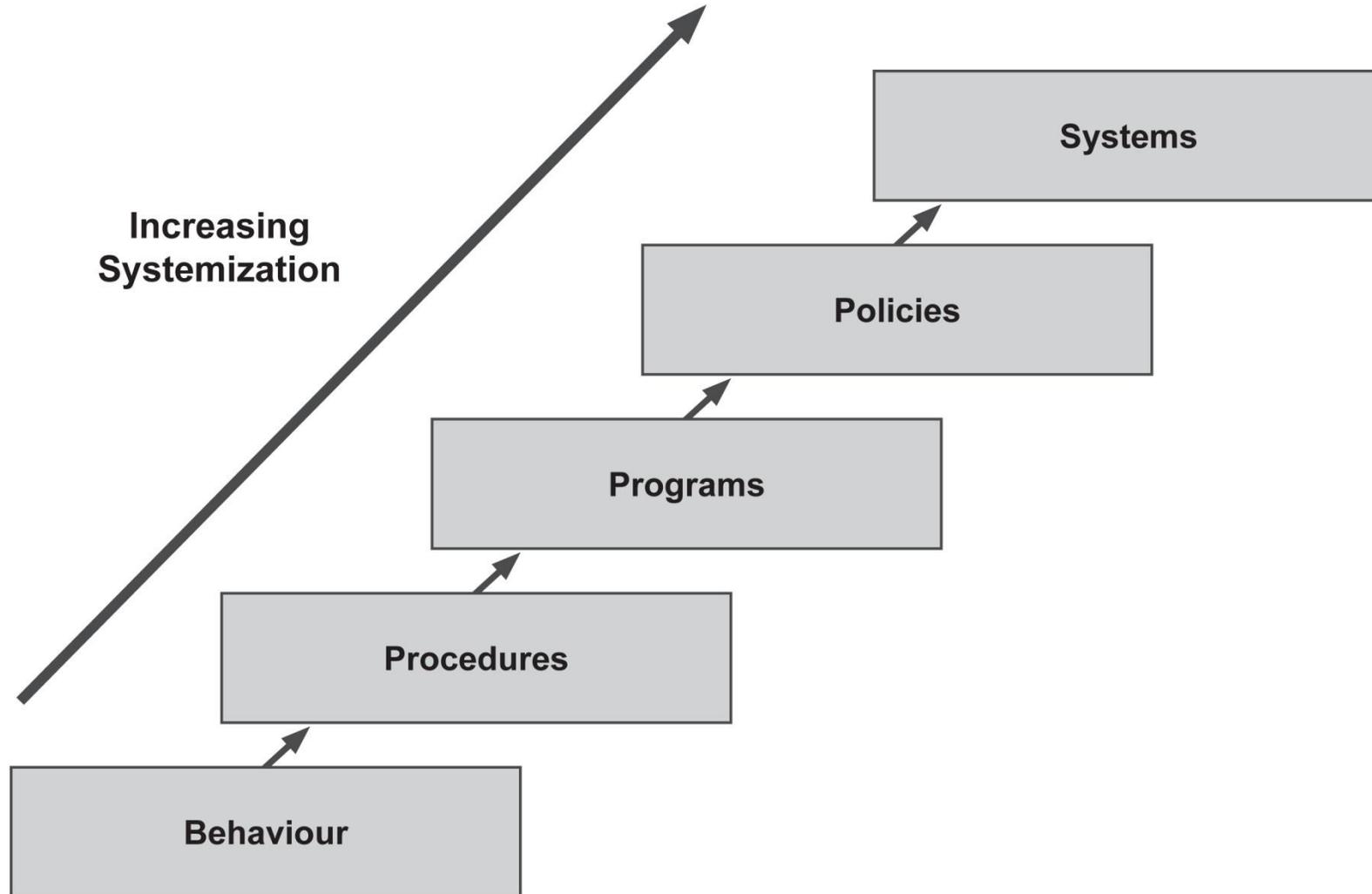
# Evolution to IRS Phase II



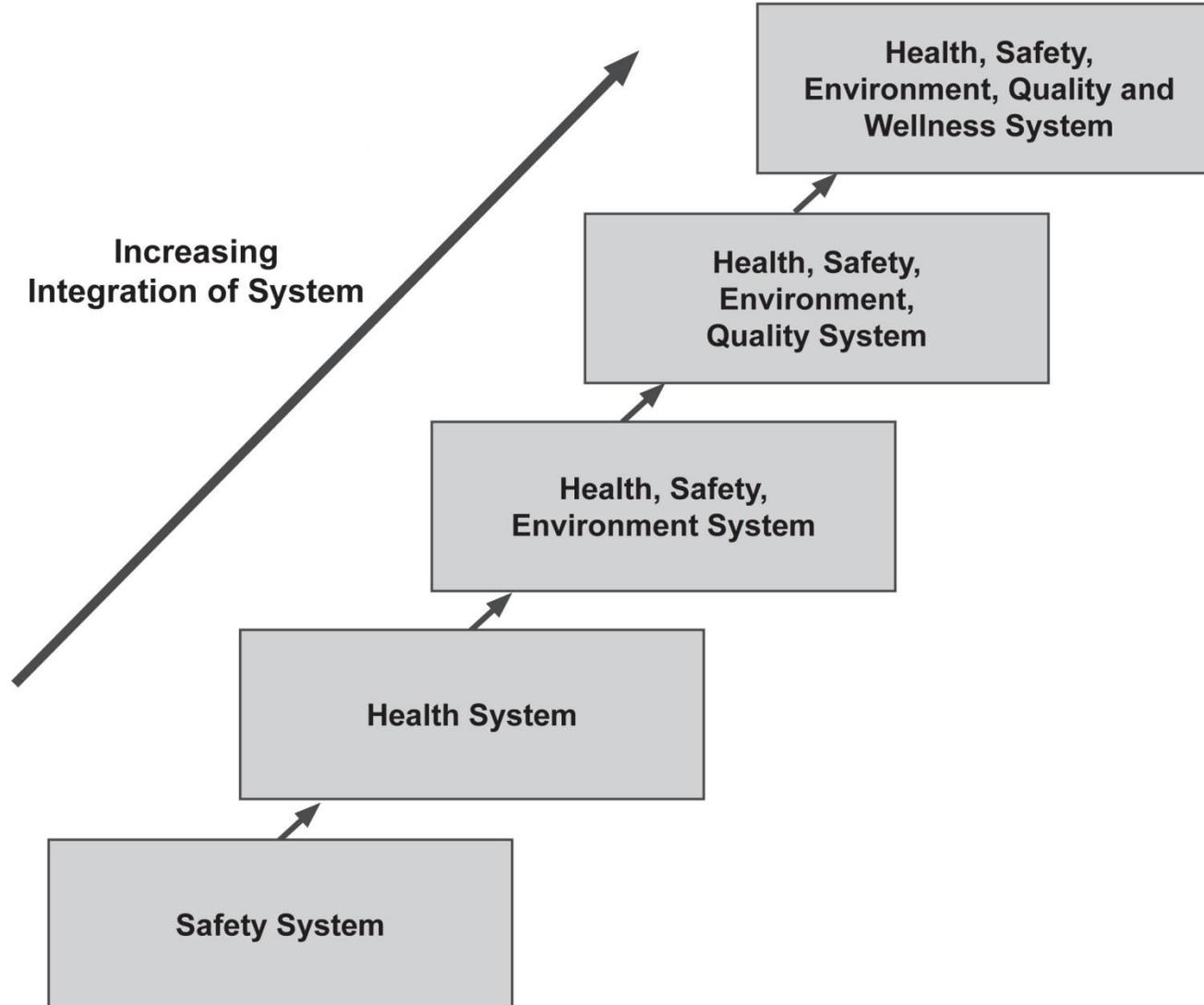
# Ethical Evolution



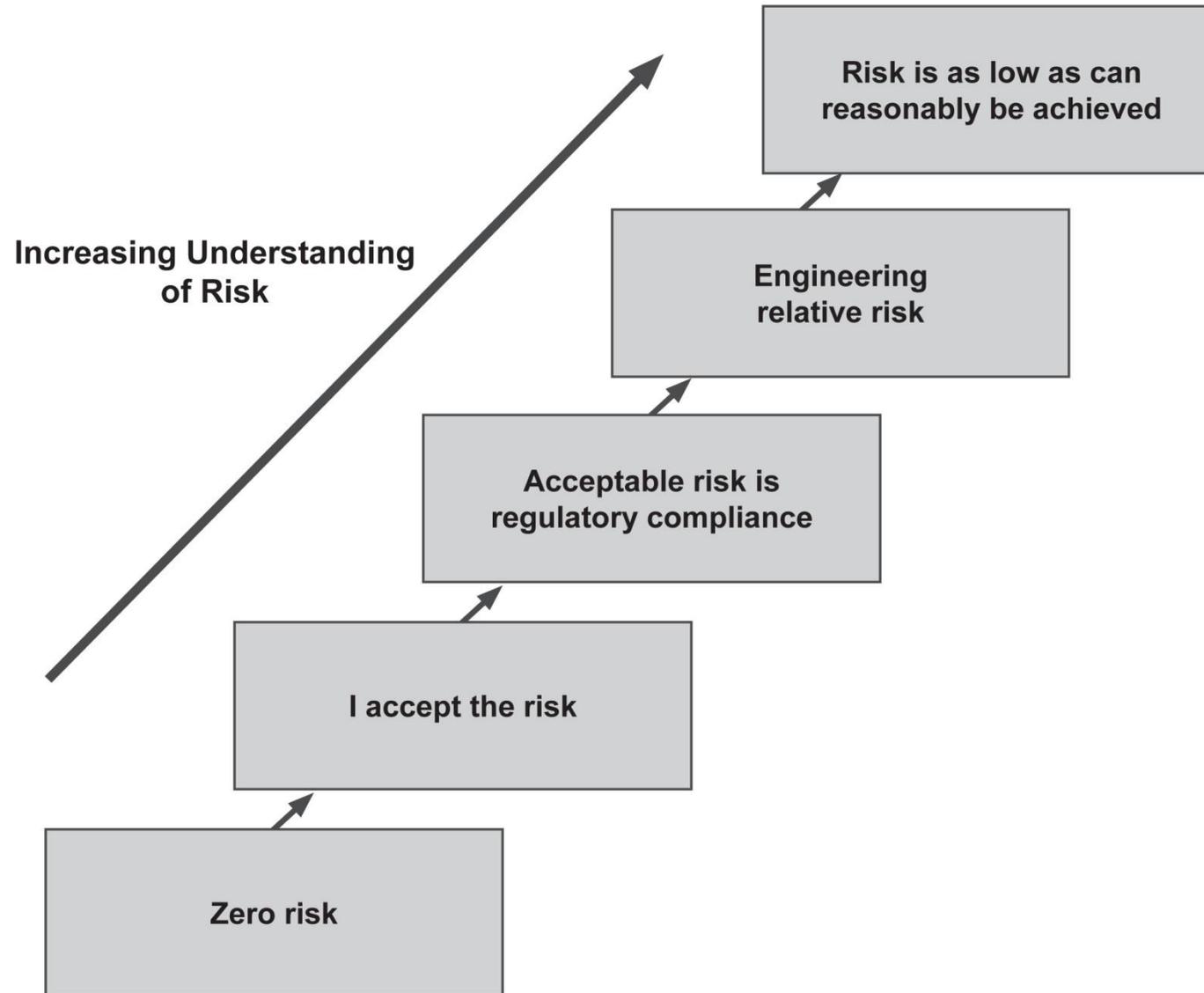
# Systematization



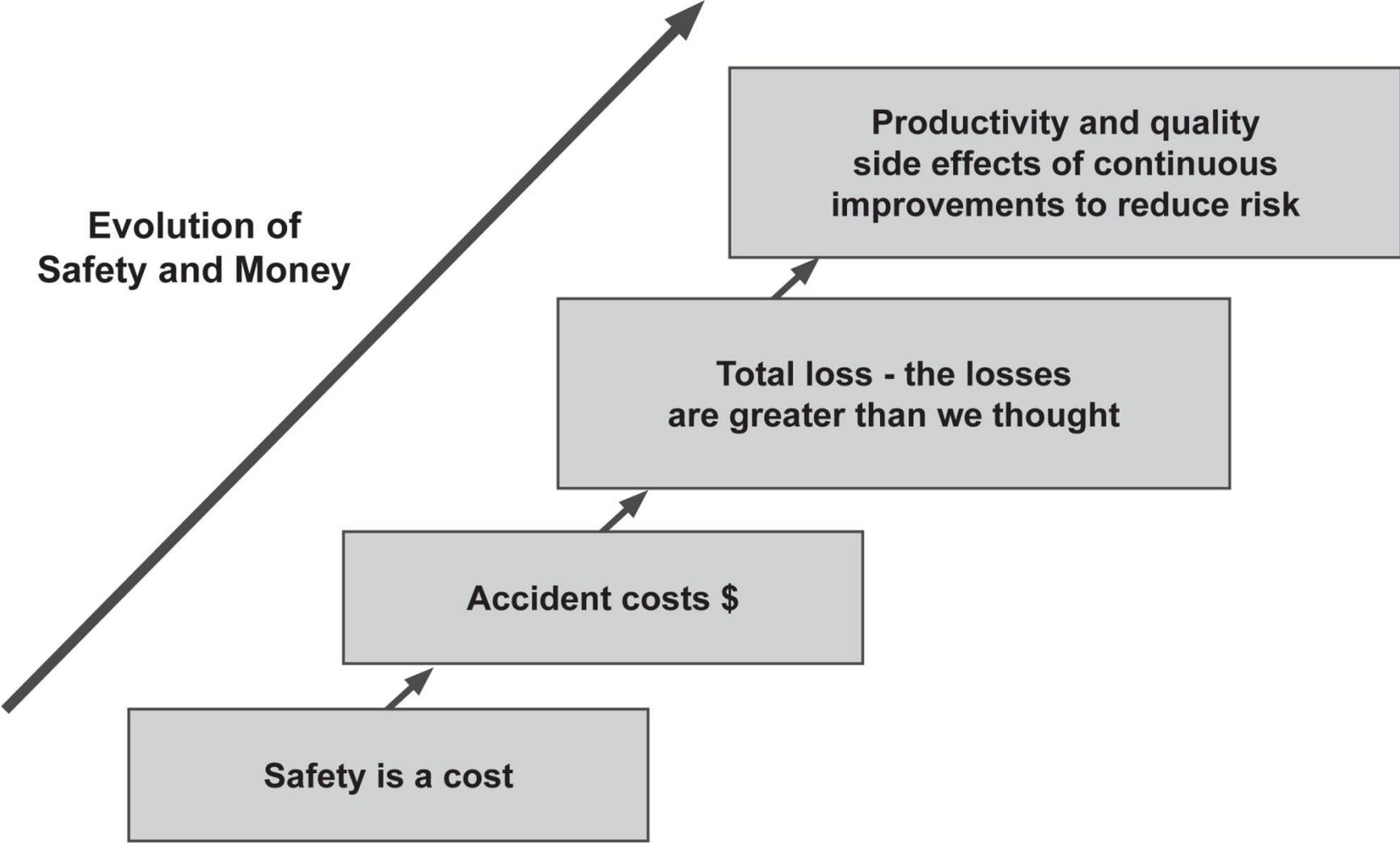
# System Integration



# Understanding of Risk



# Understanding of Safety and Money



# Safety Culture – Behaviour

Too often today we hear “safety culture” described in terms of behaviours alone. Safety culture is “what we do about safety”.

But it is also important WHY people engage in safety activities.

# THE VALUES-BASED SAFETY PROCESS

Improving Your Safety Culture  
with a Behavioral Approach

TERRY E. MCSWEEN

# Safety Culture – What is it?

- Are people doing safety for the right reasons. Important distinction between internal and external motivation.
- Are we doing safety because we believe it's the right thing to do. We desire to protect life and health. We aren't engaging in safety because of external forces.

# Motivation Matters

Motivation matters if you want:

- People to behave when they are not being watched.
- People to think and be creative about reducing risk.
- “Contagion” and leadership at all levels.

# Motivation

**Generally,  
what motivates people?**

- Just the facts?
- Pure reason?
- Emotion?
- A combination of reason and emotion?

# Motivation

**Generally, what motivates people?**

- Greed?
- Fear?
- A sense of right and wrong?
- Values?

# Motivation

- Are people unique individuals?
- Unique histories, experiences?
- Unique personalities, temperament?
- Does everyone bring a unique concatenation of motivations to a particular situation?

# What do We Want People to Do?

- Pay attention
- Think ahead; plan; foresee (about risk)
- Follow procedures
- Not just see, but to recognize hazards, defects and anomalies
- Inspect, check
- Think up solutions, controls
- Fix
- Report
- Co-operate

# Motivating Individuals About OHS

- If we want to motivate individuals about OHS, is it a real challenge?
- Is it complex, subtle, difficult?

# Motivating Individuals About OHS

The Maslovian Theory of Motivation tells us:

If people feel safe (even if they are wrong), then their need for safety has been fulfilled and they move on to other un-met needs. Safety itself is no longer a motivator.

If you want people to do something about safety, you have to motivate them with something other than “safety”.

# Motivating Individuals About OHS

- We seek to stimulate powerful forces for specific cognitive states and behaviours.
- We've tried many motivations, but have we put enough thought, time and energy into using values as a motivating force?

# Internal versus External Motivators

## External Motivators:

- Discipline, penalties
- Rewards, incentives

## Internal Motivators:

- Happiness, satisfaction
- Pride
- Self-esteem
- Morality

# Internal versus External Motivators

Which works best for OHS; for risk reduction?

External motivators?

Internal motivators?

# Internal versus External Motivators

## External motivators:

- Takes a lot of effort, vigilance
- Unpleasant
- Doesn't treat people with respect
- Basically negative; aura of distrust
- A bad taste of manipulation
- Doesn't last
- Not effective when you're not watching

# Internal versus External Motivators

## External motivators:

If people are engaged in OHS activities because of external motivators, what happens when:

- a person knows they aren't being watched?
- the motivators stop?

Theory is... we've created a habit, so the behaviours should continue...

# Internal versus External Motivators

## Internal motivators:

- Initially expensive
- Eventually “cheap”; less energy needed
- People are motivated when they aren’t being watched
- You can trust people; and you get the positive effects that flow from people knowing they are trusted

# Internal versus External Motivators

## Internal motivators:

- They result in persistence
- They result in consistency
- They are self-reinforcing
- They are contagious

# Internal versus External Motivators

For external motivation, reality is:

- The motivation rapidly wears off
- People take short cuts
- People become deceptive
- People get resentful for being manipulated
- People retaliate and become subversive
- Worse, they discount the activities they engaged in

# Internal Motivation -- Values

If people engage in OHS activities because they believe those activities are the right thing to do ... the motivation comes from within ... then we have one of the most powerful forces possible in our efforts to drive down risk and prevent losses.

# Dilemma

The more the OHS management system is prescriptive and detailed, the more that motivation shifts to external factors.

The greater the opportunity for individuals to set goals, use discretion, develop skills, voluntarily take on new responsibilities, the more that motivation is operating via internal factors.

# Value Based Safety

## Ensures:

- Internalization
- Empowerment
- Guidance for improved decision-making
- Little need for observation

# Value Based Safety

Ensures:

- Expectation of creativity
- Consistent approach
- Persistence in action
- Performance is contagious

# Value Based Safety

## **We should be able to:**

- Clarify what we mean by our basic values;
- Be able to articulate them ... discuss them;
- Apply them so as to produce value-based practices;
- Incorporate them into training, safety talks, audits, coaching, etc.

# Value Based Safety

## **We should be able to:**

- Consider them as factors when investigating;
- Exemplify them through leadership practices;
- Recognize situations of conflict;
- “Weigh” the relative importance of values in specific circumstances so as to assist in decision-making.

# Value Based Safety

What are we trying to do with OHS?

What's the point of OHS?

# What's the Point of OHS?

- Protect and promote human life and health.
- Drive risk down as low as we can reasonably get it.
- Compliance – avoid penalties.
- Protect reputation.
- Protect property, generate wealth, improve productivity, secure employment.

# Value Based Safety

- Life and health are clearly values. But very broad.
- Is “low risk” a value?
- Is ownership of responsibility a value?
- Is “practicable reasonableness” a value?
- Can there be conflicts between protecting life and health and other objectives (cost, production)?

# Value Based Safety

- Not enough just to “declare values”
- Must be able to engage in ethical reasoning using the values.
- Not mechanical or easy.
- Have the perspective of one or more ethical theories, consider how a broad value can become a specific practice, set out reasons for options, “weigh” reasons, choose optimal path.

# Moral Motivation

It's not a perfect “silver bullet”, but ... the position is that people are more likely to behave morally when:

- They have the intellectual tools to think clearly about ethics;
- They have the ability (maturity, patience) to attend to their moral sentiments;
- They practice ethical thinking;
- They are aware of the nature of “moral rationalizations”;
- They are supported socially in their ethical thinking and moral behaviour.

# Ethical Theories and OHS

- Our key values are supported by main ethical theories.

**Life**

**Health**

- But there are differences in how we think about problems using the different theories.

# Common Virtues

- Competence
- Self-control
- Goes beyond self-interest; altruism
- Caring/Kindness/Compassion
- Honesty
- Openness in communication
- Integrity (a meta-value)
- “Practicable reasonableness”

# Virtues and Leadership

“A critical component for success in OHS is commitment from senior management.”

Agree? Disagree?

# Virtues and Leadership

If you agreed, why did you agree?

Imagine a workplace with such commitment and one without ....

What would be the signs of commitment?

# Leadership

Motivating people to move towards the goal or vision of the leader.

# Management and Leadership

Can't really manage without motivating people and you can't really lead unless you have a good and proper goal and you know how to get there.

Management and leadership are entwined together.

# Management and Leadership

## Ethical Leadership:

Motivating, inspiring others to improve their ethical thinking and therefore raise the level of performance.

## Managing Ethics:

Developing, implementing, monitoring programs, policies, practices to improve ethical thinking and performance

# Leadership as Persuasion

The research is in. If you want to persuade people to do something (or not), you need:

1. Credibility (competency, honesty, integrity, caring, courage... values)
2. Reasoned argument (why you ought to do certain good things ... values)
3. Emotion, sentiment – some prescription with bite (values)

# Leadership Actions

- should result in followers' actions
- should affect followers' beliefs and values
- should inspire leadership in others
- should trigger "intrinsic motivators"
- should trigger creativity and initiative

# Leadership Actions

- have to be authentic
- have to be non contradictory
- have to be clear
- have to be about the right things (IRS, due diligence, OHS system)
- have to be about doing those things right

# Leadership

Did Churchill wake up in the morning and say “I’m going to do some leadership today”.

Leadership is a product of other factors. What are they?

# Leadership

In your life, you have known good leaders.

Shut your eyes and picture someone you've known who was a good leader.

What characteristics did they have?

# Leader -- What do you see?

- Energy, dynamism
- Very positive, not cynical
- Initiative, not passive
- Creative
- Confident
- Knows what they want

# Leader -- What do you see?

- Honest, straightforward, open
- Serious, firm, focused
- Courageous
- Cares for people, compassionate
- Loyal to his/her people
- Wants his/her people to develop
- Fair, just
- Integrity

# Leader -- What do you see?

Are these?

- a. Genetically ingrained personality traits
- b. Learned behaviours
- c. Character – a combo of a&b
- d. You lost me....

# Virtues and Leadership

A person's character is strongly influenced by their inherent personality, but is also susceptible to development and change through learning, experience, insight.

# Virtues and Leadership

- In OHS, do we want “leadership at all levels”
- So we are not just talking about the CEO
- Should we incorporate discussion of values, virtues and leadership practices into supervisor and manager training?
- Why not for everyone?

# Virtues and Leadership

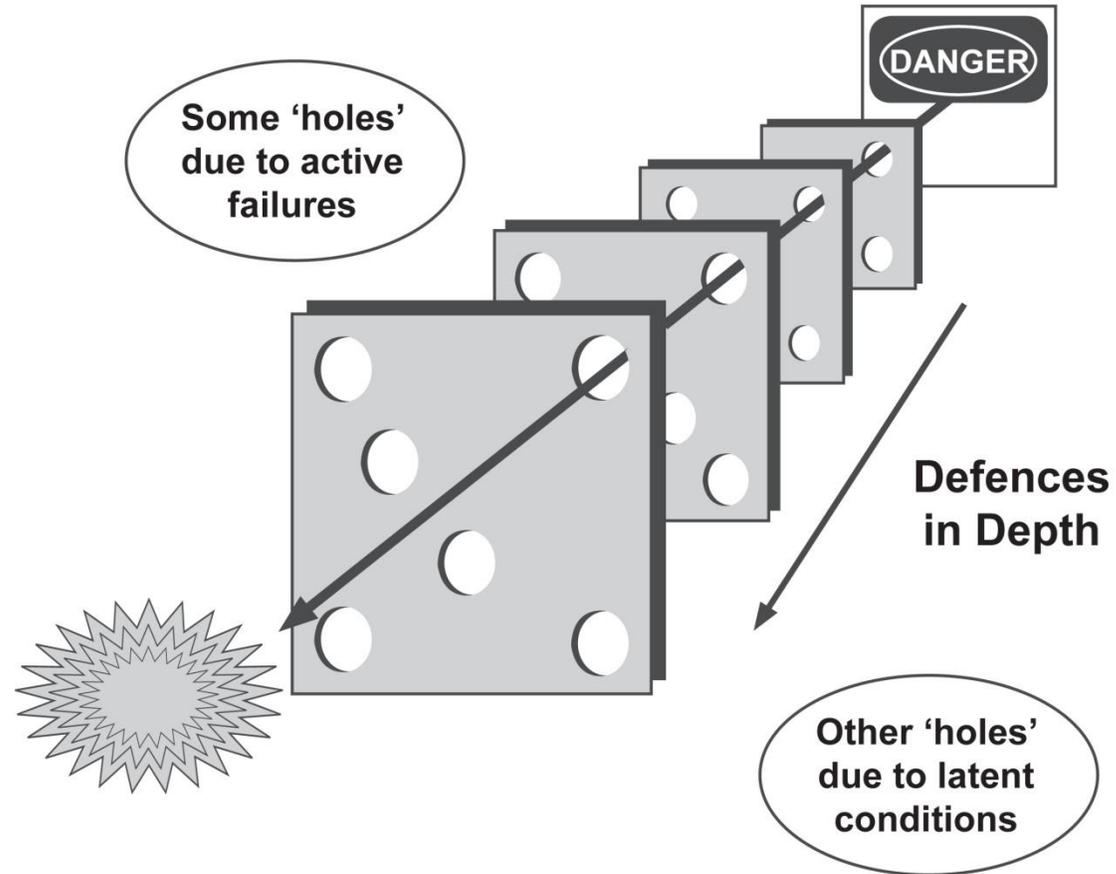
- How do you train about leadership virtues?
- Story-telling a traditional technique
- Brain-storming, as a group activity when working through problems.
- Learning from examples, mentors, observation.

# Top Down Bottom Up

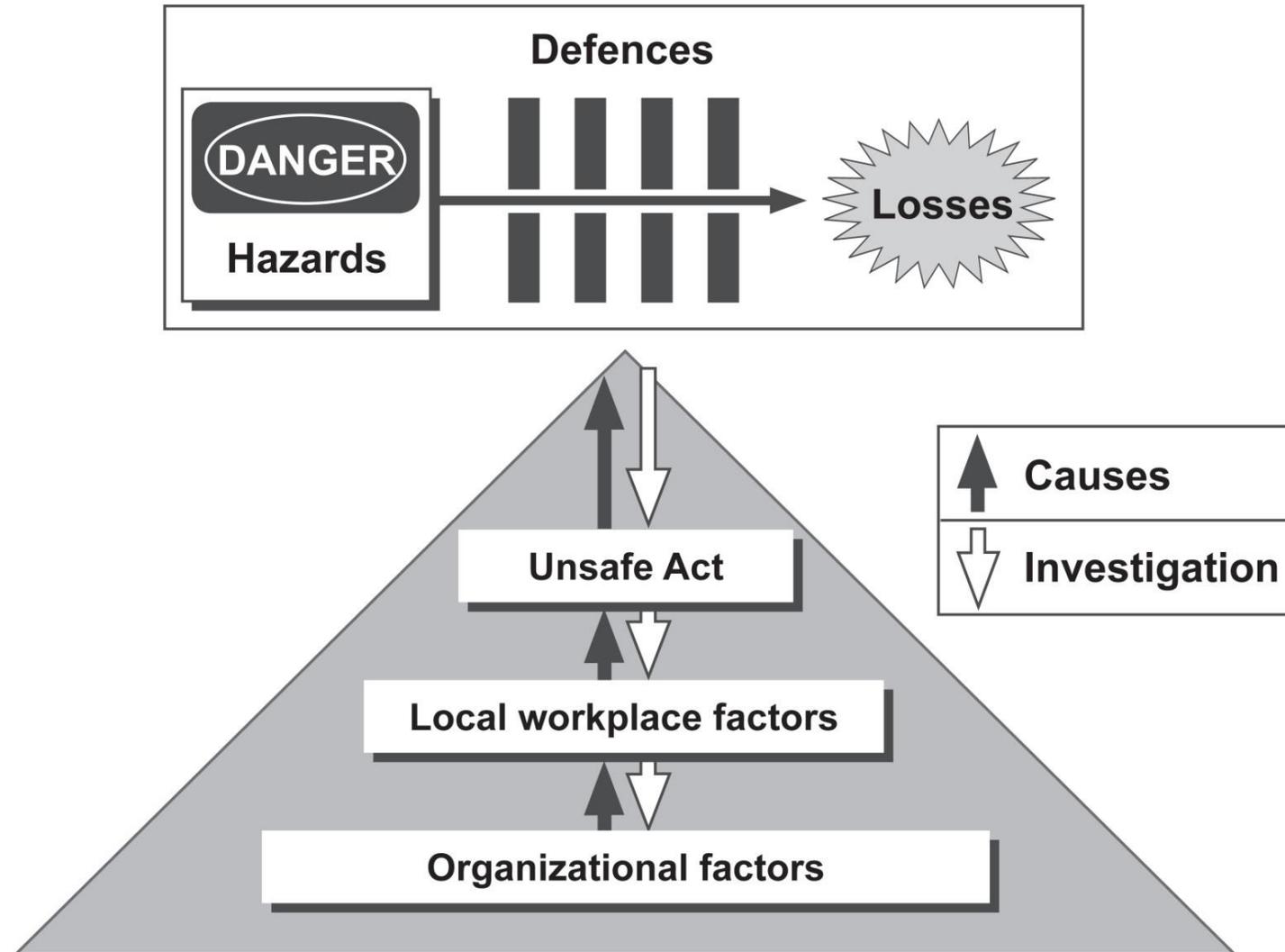
- Some versions of safety culture have all good things emanating from senior management.
- Senior leadership about values leads to behaviour.
- More effective to have leadership about values at all levels.

# **Safety Culture and Accident Causation**

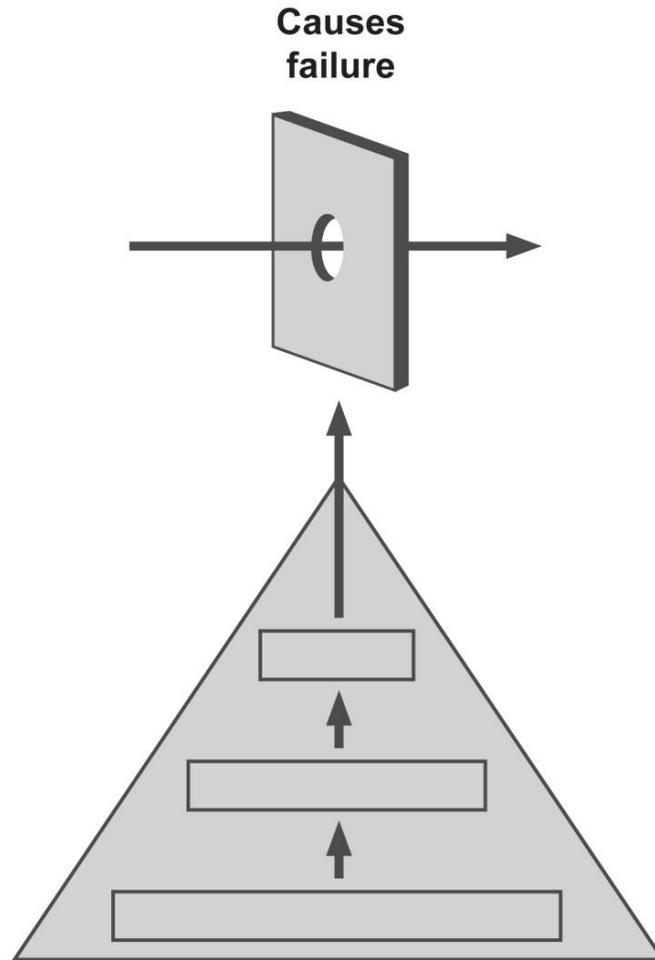
# James Reason's "Accident Trajectory"



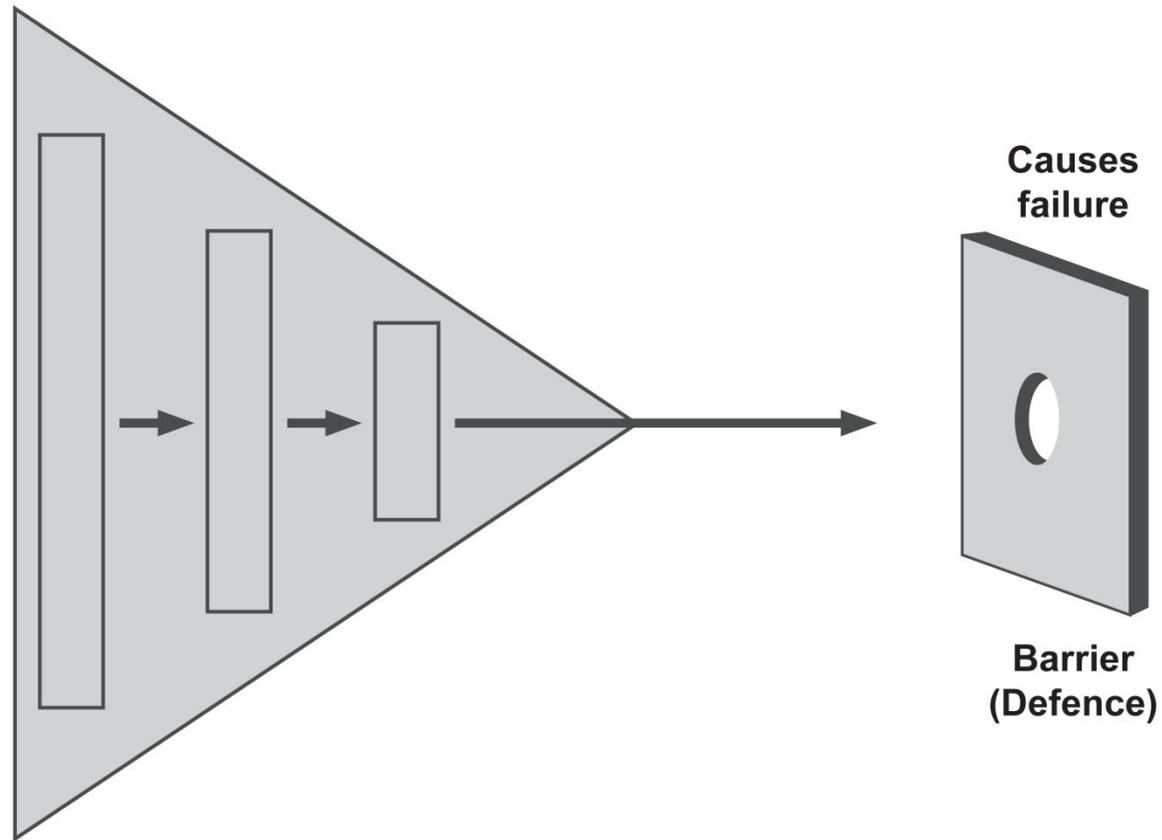
# James Reason's Model



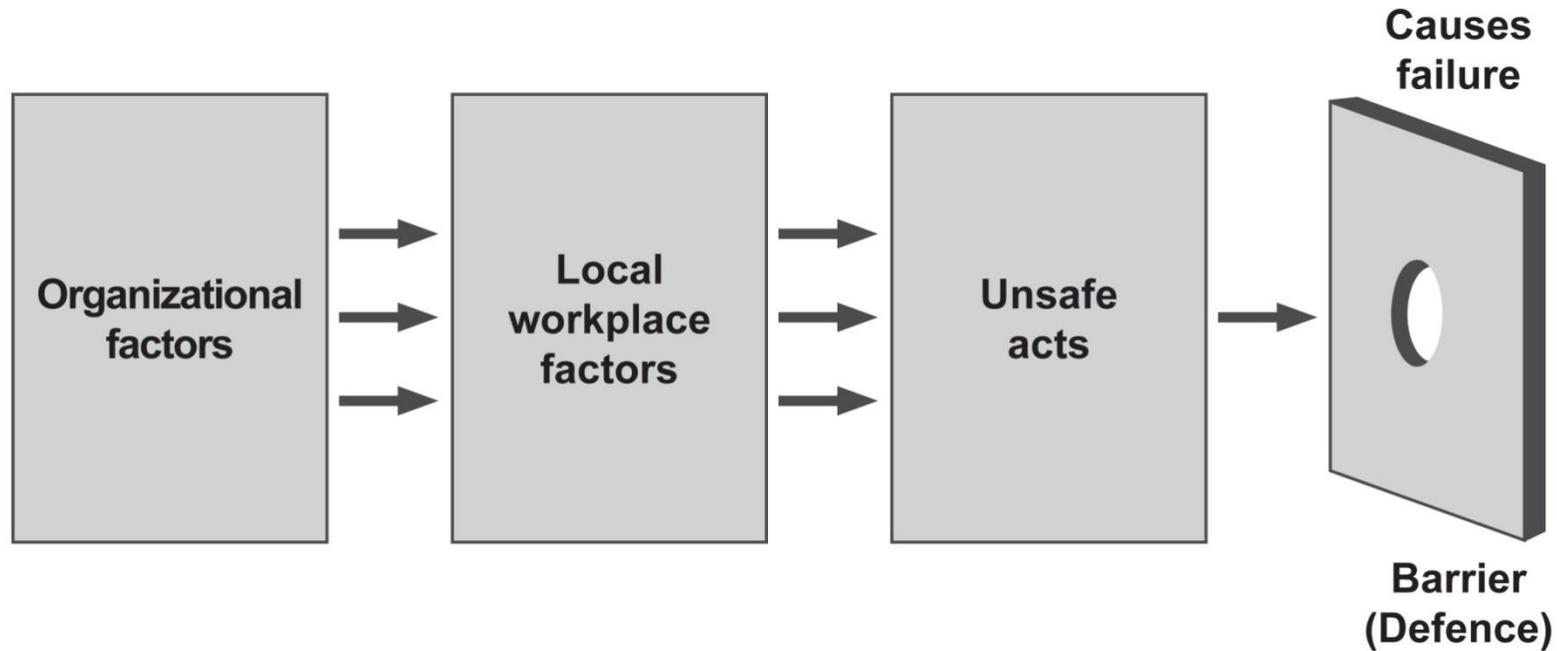
# Causes of barrier failure.



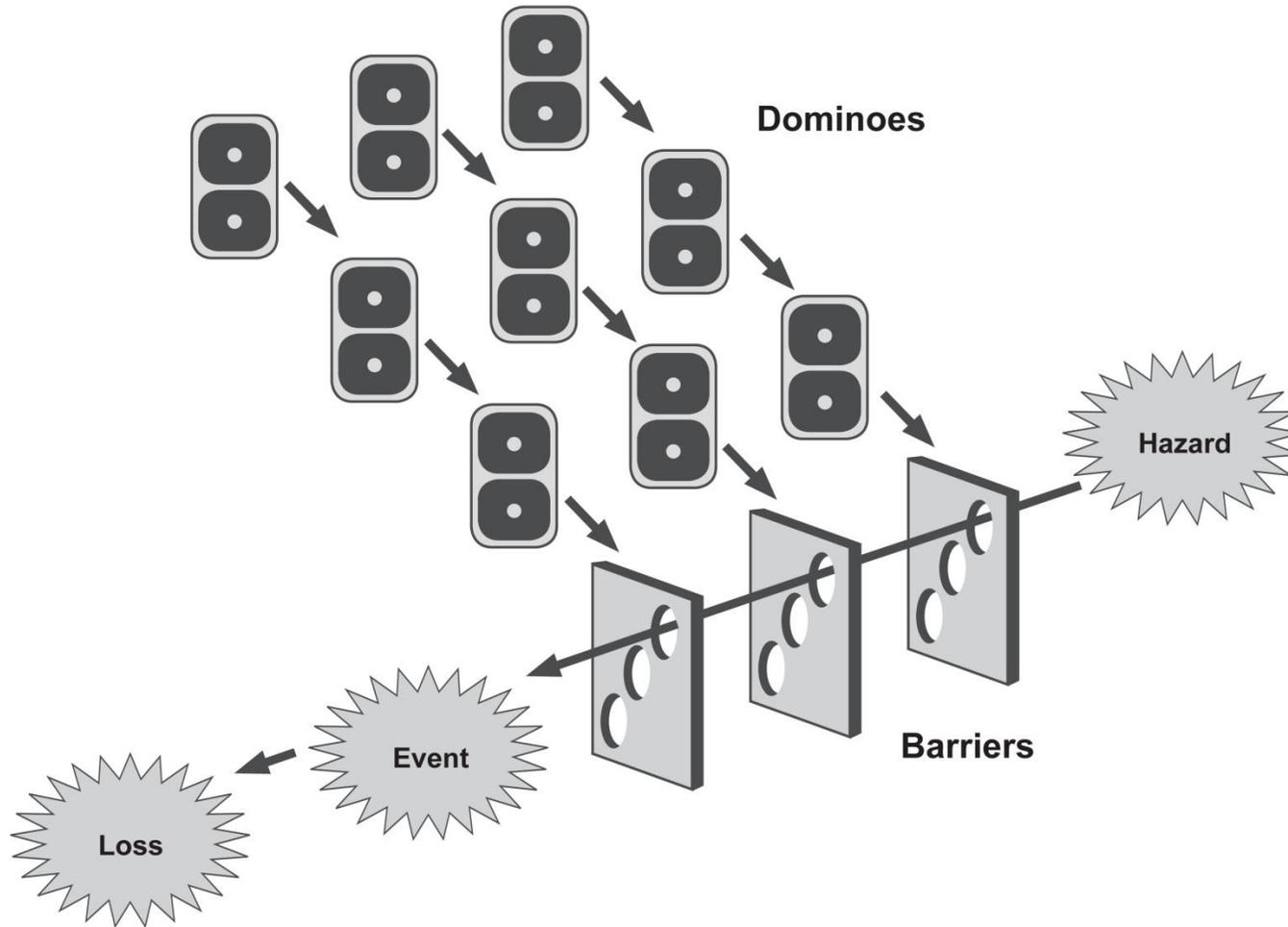
Rotate 90 degrees, causes are “dominoes”.



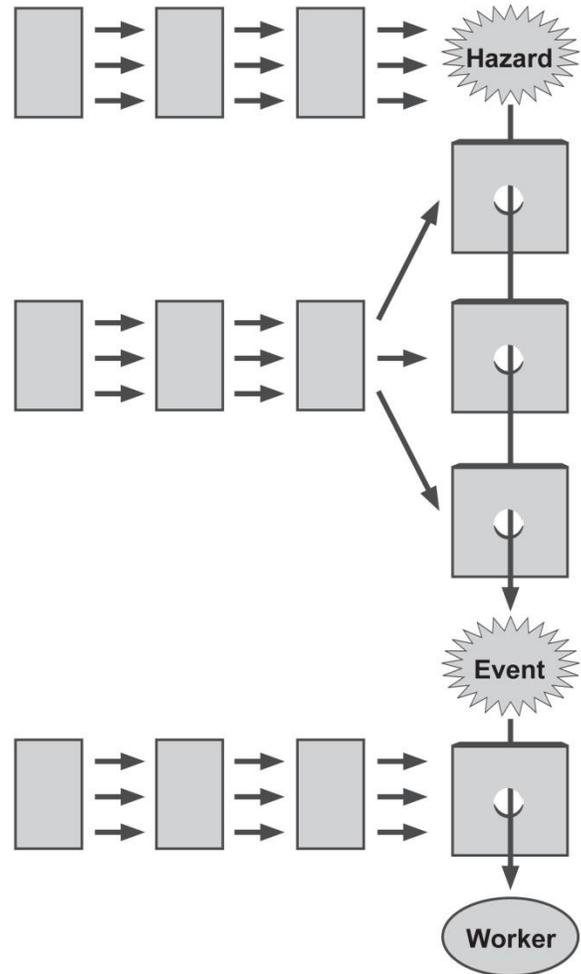
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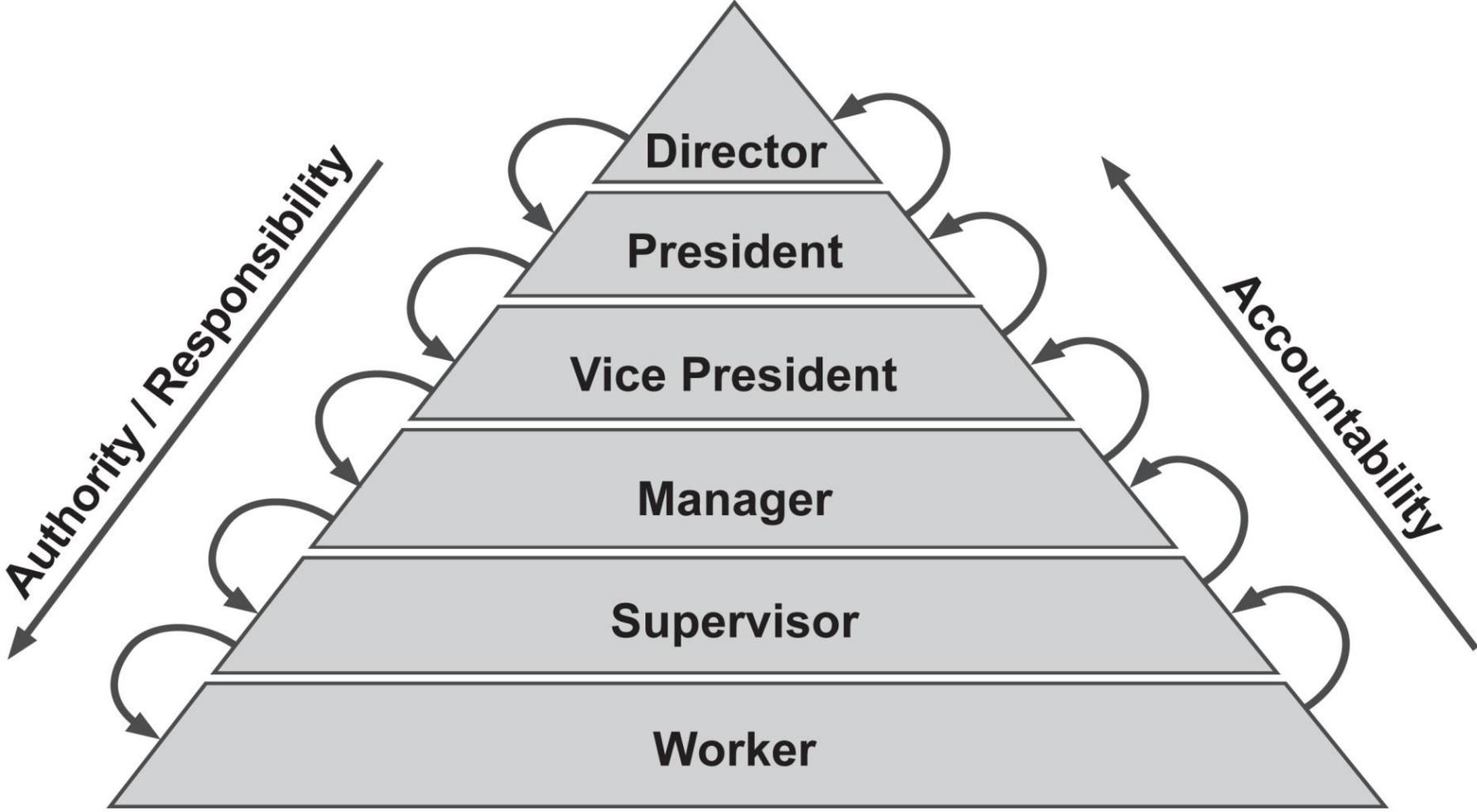
# Causes have causes.



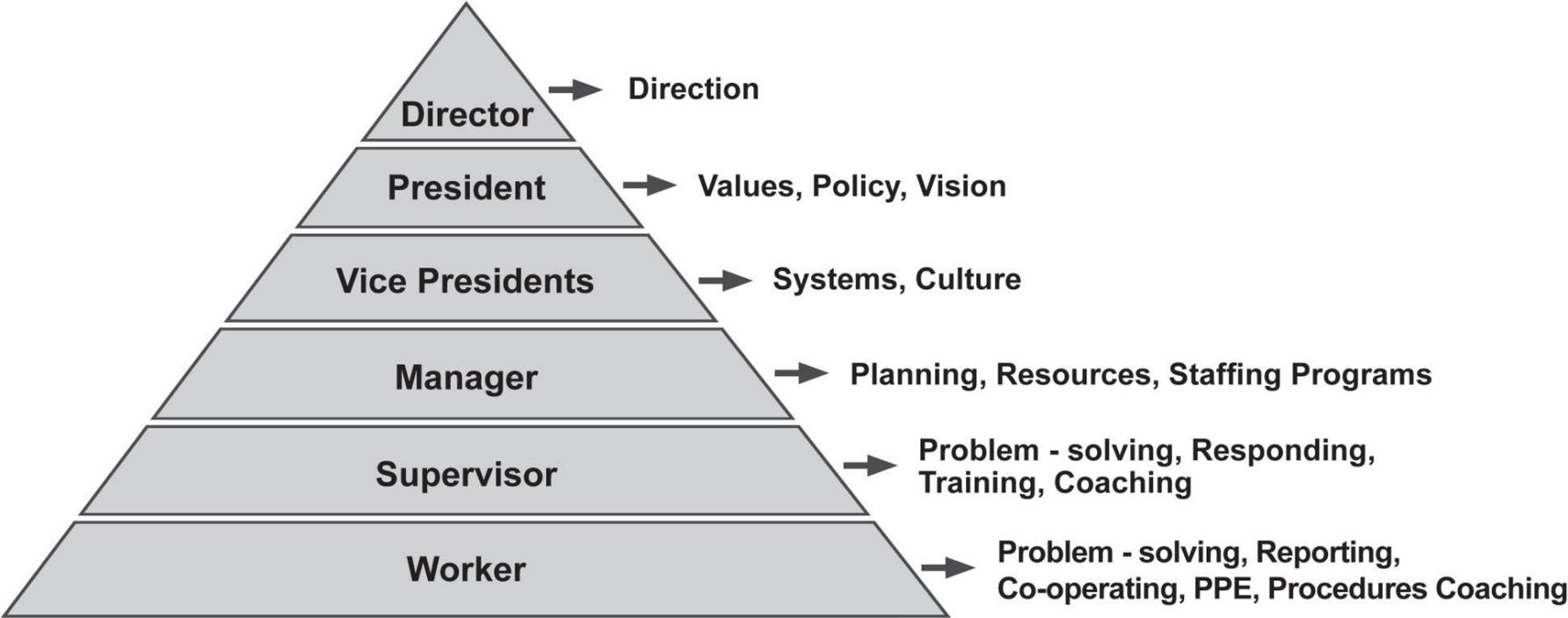
Each barrier has a line of defence.

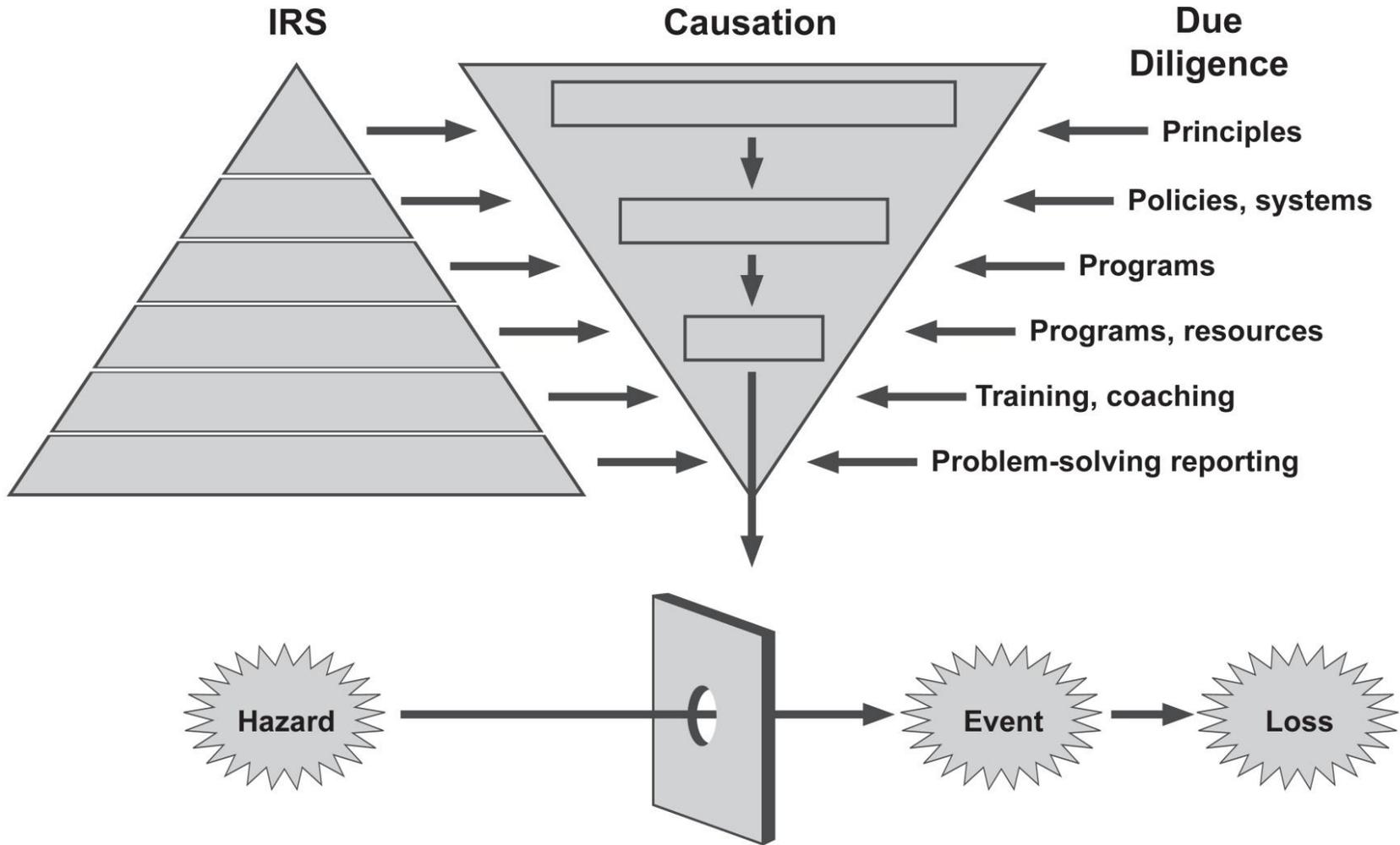


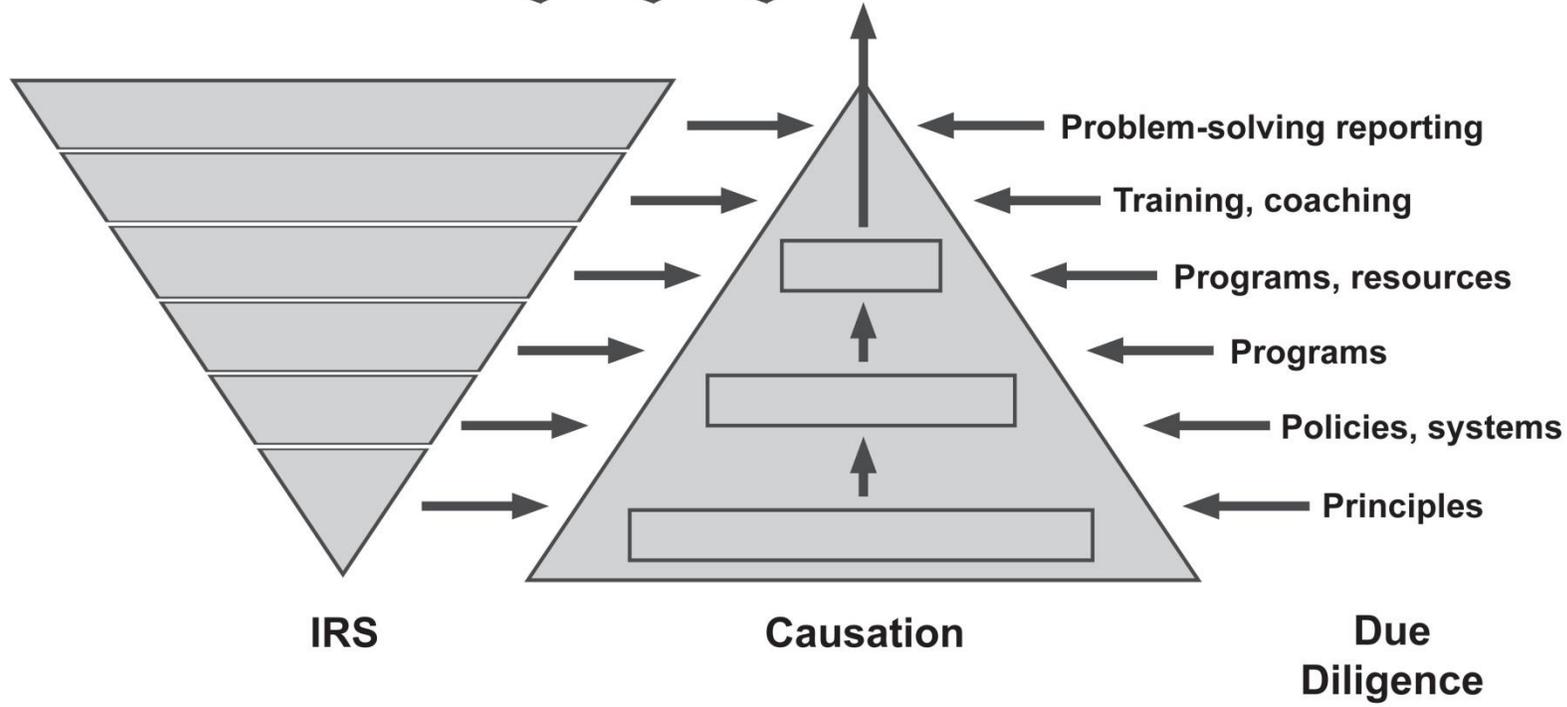
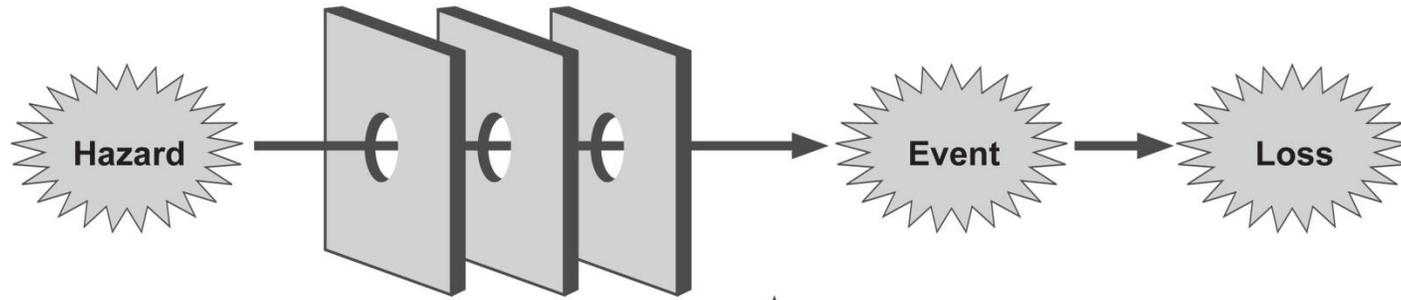
# Basic Structure of the IRS

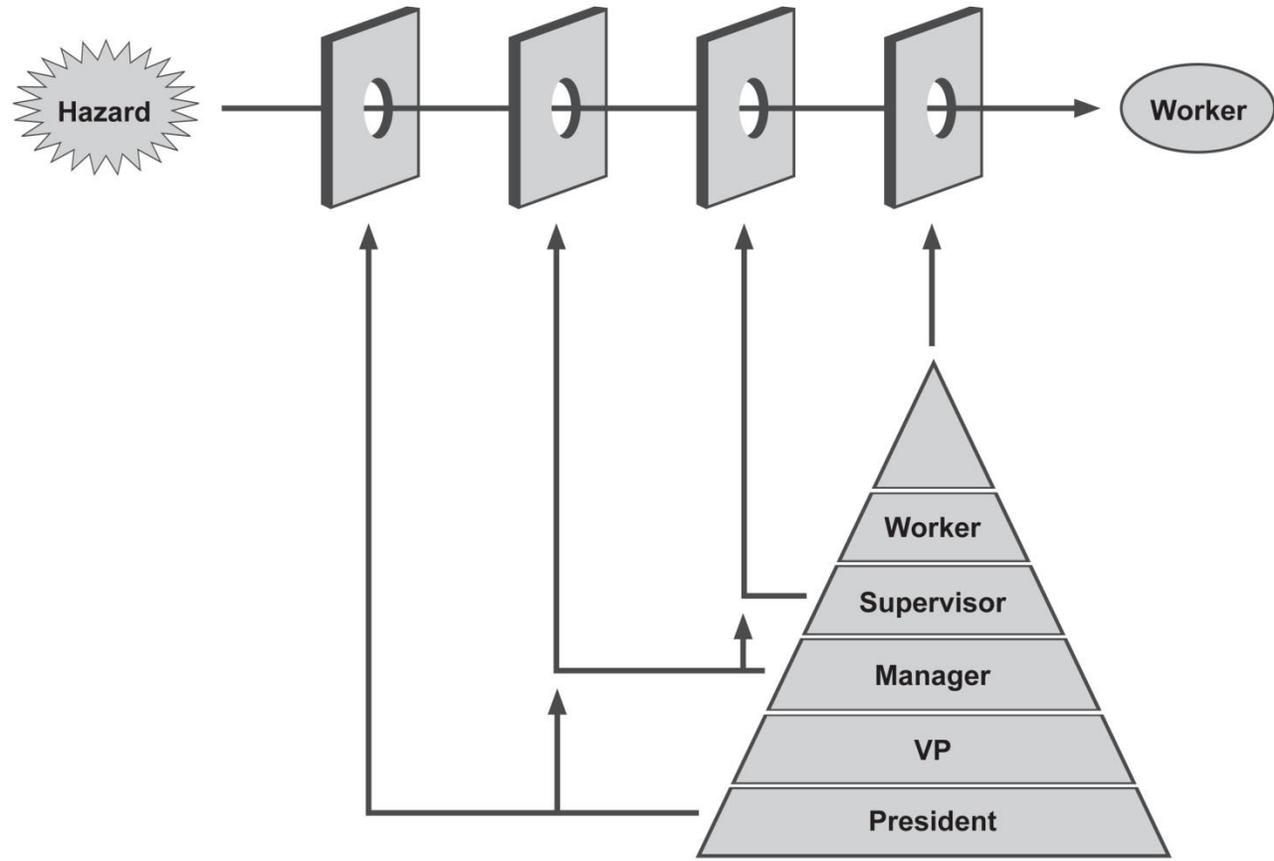


# Activities Match Authority & Control

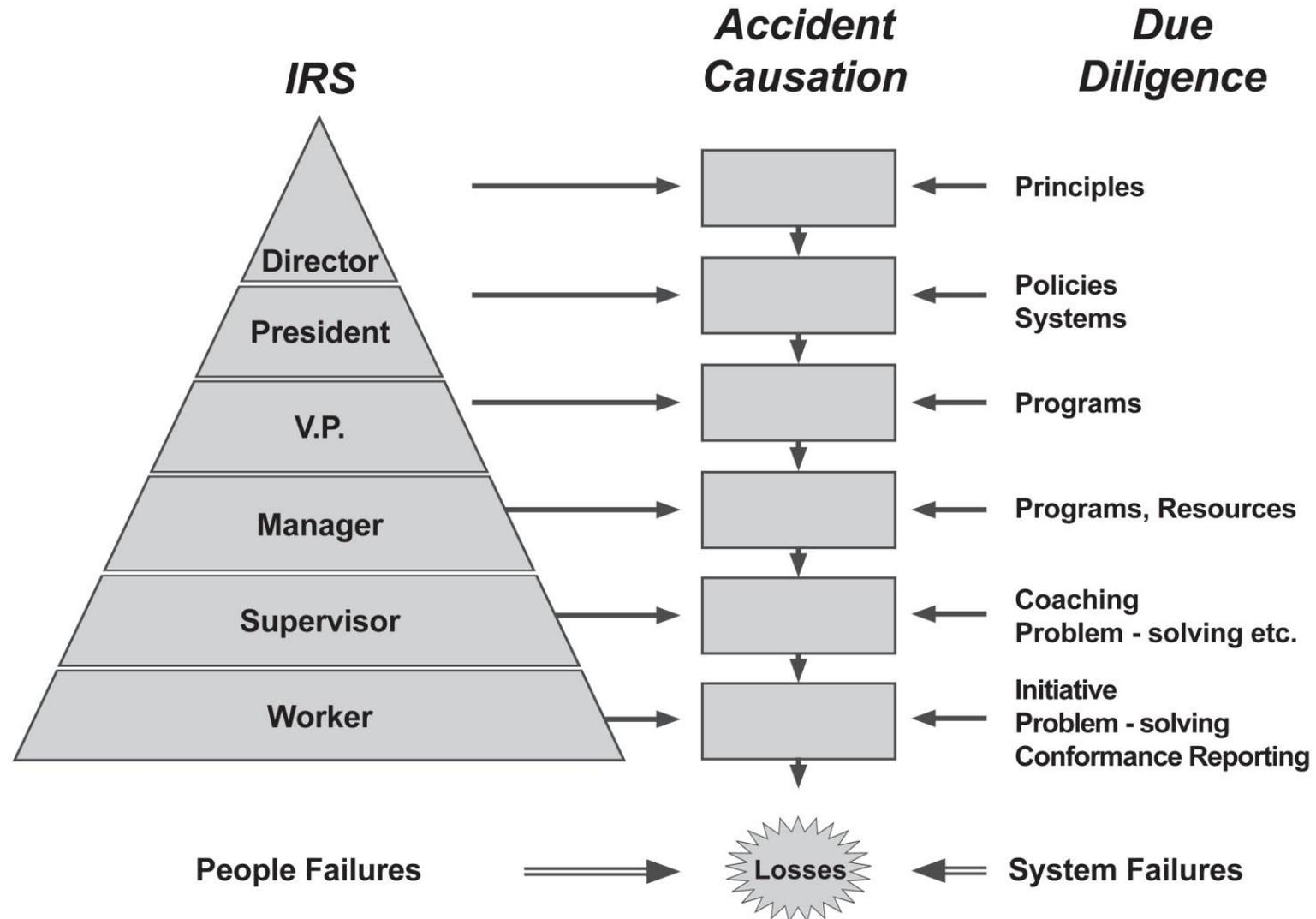








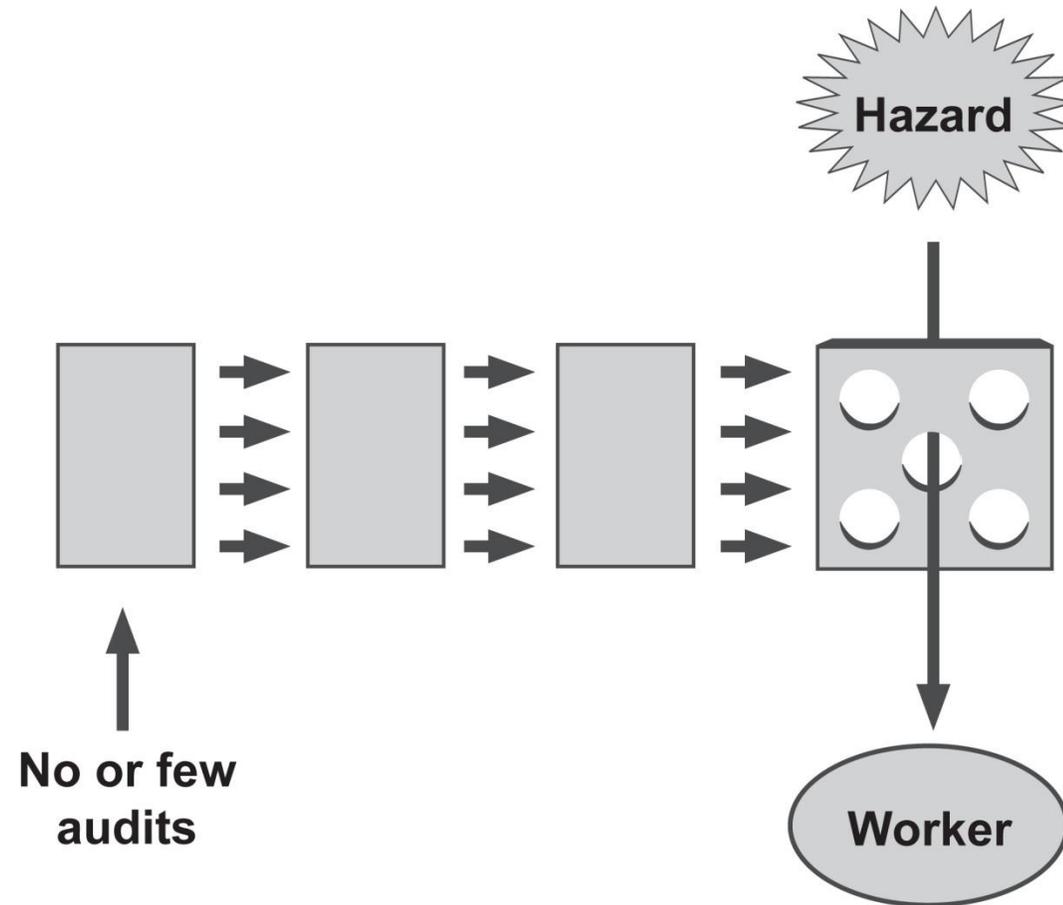
# Integrating Systems and People



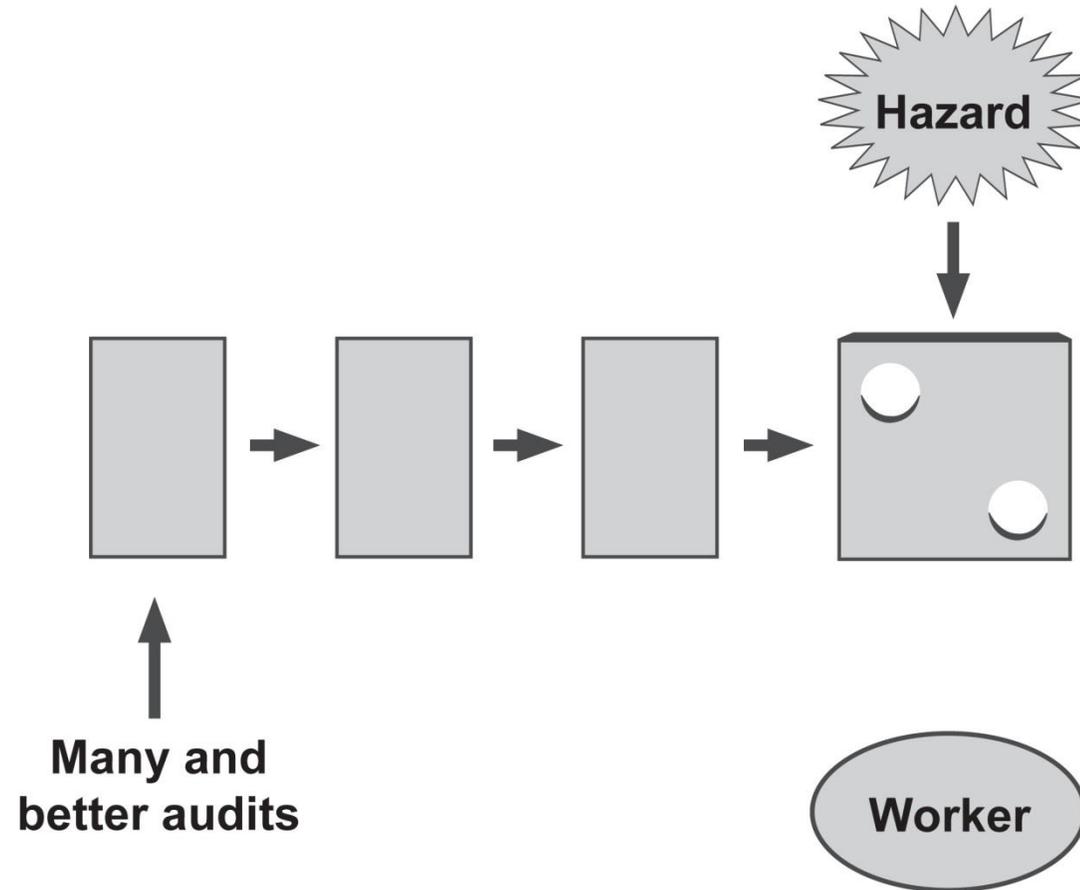
# Integrating Systems and People

If everyone is doing everything they can reasonably do in their circumstances (authority, control, system elements), then chains of causation are broken, risk is driven down as low as it can reasonably go, and we can have longer and longer periods without losses.

No audits. Few audits. Poor audits.  
Many failures in barrier.



Many and better audits.



# Failures in the IRS

# Failures in the IRS

- At what level can it fail?
- Workers disengaged, unmotivated, cynical, untrained in OHS, frustrated
- Supervisors discourage reports, discount risk, production first, pass on problems without attempting solution

# Failures in the IRS

- Managers don't want to hear about problems, bounce issues back to supervisors, take long time to analyze without status reports to workers
- Executives ignorant of systems approach, OHS solely for the little people, poor leadership skills, delegate OHS entirely to the experts, don't prioritize OHS

# Failures in the IRS

- Directors don't hire interested executives, don't ask questions except in a *pro forma* superficial way, don't ask for system audits
- OHS professionals behave like "Mr. Safety"
- JHSC committees try to do work of everyone in IRS
- Worker reps encourage workers to come to them, not to their supervisors

# Major Failures in the IRS

## *Corruption by Labour Relations Views*

- Not about individuals, but groups
- No common interest
- Adversarial atmosphere
- “Us versus Them”
- Poor trust and communication
- Supervisors circumvented
- Over-reliance on worker reps and JHSC

# Major Failures in the IRS

## *Corruption by Labour Relations Views*

- Over-emphasis on rights
- JHSC seeks direct power
- Management accustomed to saying “no”
- Complaints based, not suggestions for improvement
- Resistance to “quality thinking”
- Over-reliance on threat of MOL inspectors
- Worker reps in competition with OHS professional

# Major Failures in the IRS

## *Result*

- Abdication of responsibility by individuals in the IRS
- Over-burdened HS Committee grinds to a halt
- Delay in decision-making about risk
- Risk increases

# IRS and LR

Direct correlation between poor IRS and poor labour relations.

Poor labour relations causes poor OHS performance.

Yet, improving the IRS can improve labour relations.

# **How Does the IRS “Self-Correct”?**

# Internal Self-Correction

Main self-correction:

- Each person holds the person below them accountable for their performance in the IRS.
- Each person evaluates the people above for their performance in the IRS.
- Senior people monitor the entire IRS for results of such evaluation.

# Internal Self-Correction

Ultimately senior management personally responsible for the health of the IRS as part of their mandate to get the “corporate culture” right.

OHS professionals also monitor the IRS performance at all levels and advise corrective measures.

# “Failsafe Devices”

James Ham aware that the IRS could fail. The “Three Rights” originally seen as “failsafe devices” to ensure correction of the IRS.

- Right to know about hazards and controls
- Right to refuse unsafe work
- Right to participate in OHS through worker reps and Committee

# **Auditing Safety Culture and the IRS**

**It can be measured.**

**It can be improved.**

# Safety Culture and the IRS

The IRS is 90% of what people mean when they talk about a “safety culture”

Most “perception surveys” are attempts to measure the IRS.

We do a better job with both with a clear understanding of the IRS.

# “IRS Analysis”

IRS Phase One:

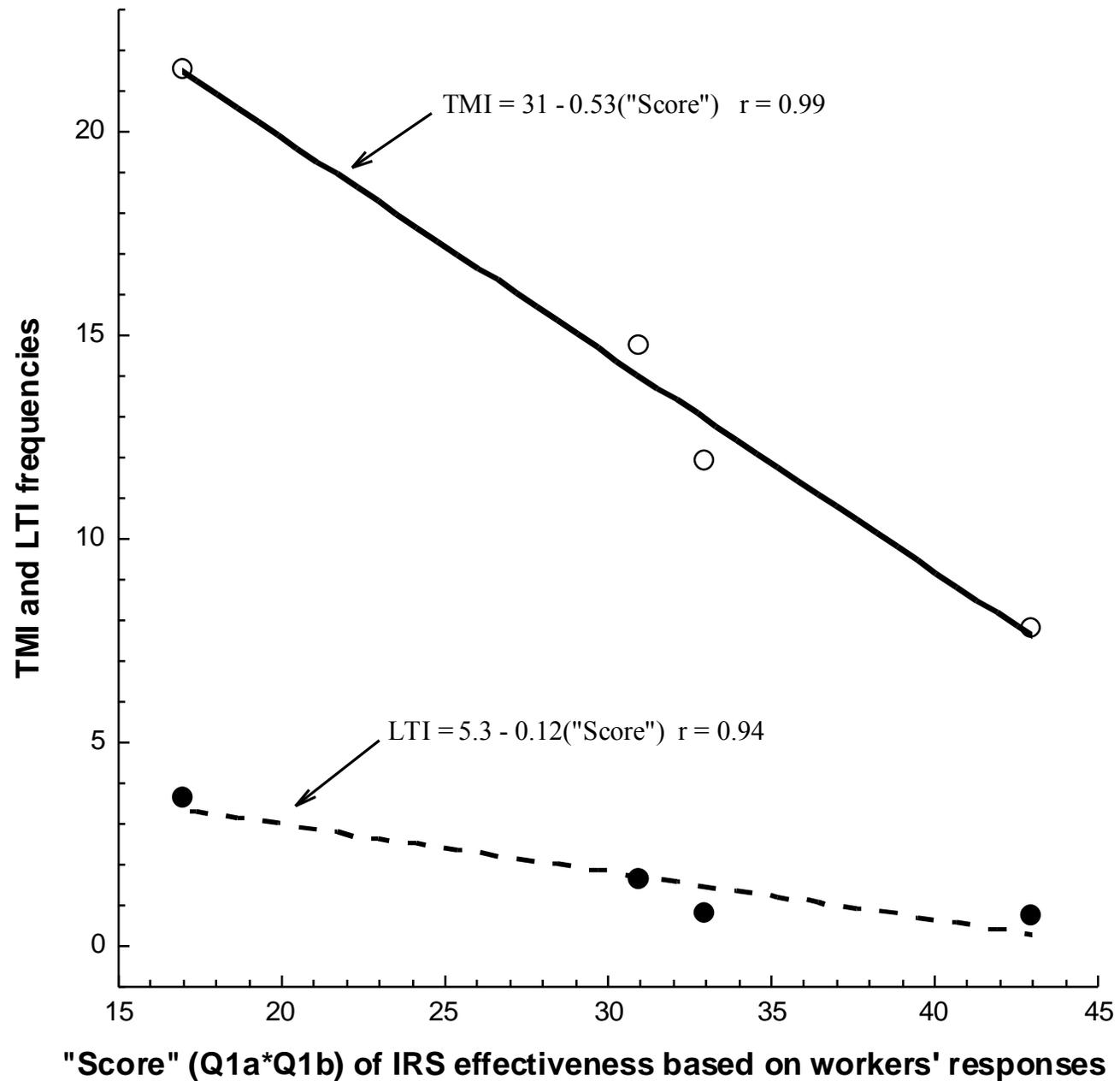
We think of failures in the IRS as failures to raise problems about defects, contraventions and hazards.

IRS Phase Two:

We think of failures in the IRS as failures to be creative, to seek improvement.

# Ontario Mining IRS Study

IRS audit in Ontario mines showed that an IRS audit can measure the IRS and that a high IRS score goes with a low accident rate, while a low IRS score means more accidents.



# IRS Audits

Surveys, interviews and observations to measure the health of the IRS at each level of the organization; identifying strengths and weaknesses with a view to correction

# IRS Audits

Ask questions about:

- understanding
- beliefs
- cooperation
- communication
- involvement
- response time
- recognition for initiative

# IRS Audits

Ask questions about:

- individual's perception of how **others** are performing in the IRS
- whether “IRS analysis” is applied to problems
- whether internal failsafe devices are working
- about behaviour in addition to beliefs

# IRS Audits

- We can measure the climate for the IRS Phase Two
- We ask questions about being encouraged to come up with new ideas, about what happens to new ideas, about senior management's perceived commitment to creativity.

# IRS Audits

- Usually takes a week of on site interviews and questionnaires
- A dozen different questionnaires depending on role
- Questionnaires take 20-30 to complete
- Follow-up discussion/interviews to obtain examples and background to answers

# IRS Audits

- Review HS Committee minutes, policy, existing role descriptions, etc. document review
- Analysis of data takes 2 months
- Result is detailed report analyzing specific strengths and weaknesses and making specific recommendations for improvement
- Provide presentation on results

# Worker

Within the last year, has your supervisor emphasized how important it is to bring your health and safety complaints directly to him or her?

Within the last year, has your supervisor asked you to ***go beyond*** concerns and complaints and ***actually come up with new ideas*** to improve health and safety your work?

# Worker

Within the last three months, have you made complaints to your supervisor about health and safety:

Within the last three months, have you given any *new ideas* to your supervisor on how to improve the work process?

# Worker

My supervisor responds promptly and appropriately to every complaint by me about health and safety:

My supervisor responds promptly and appropriately to my *new ideas* on how to improve work processes:

# Worker

Management has effective ways of sharing new ideas about improving the work between different areas and work crews:

# Supervisor

Within the last year, has ***your*** supervisor discussed with you ways of improving how you can encourage your people to take initiative and come up with ***new ideas*** to improve work practices so work will be safer?

Have you taken steps to ensure that your people understand that you want them to do more than just follow the safety rules—that is, that you want them to think of ***new ideas*** to improve work practices so work will be safer?

# Supervisor

Within the last month, has at least one of your people taken initiative (without your asking) and suggested *new ideas* to improve health and safety performance?

Within the last three months, have you taken the initiative (without *your* supervisor asking) and suggested to *your* supervisor *new ideas* to improve health and safety performance?

# Senior Manager

Within the last month, has at least one of your people taken the initiative (without your asking) and suggested ***new ideas*** on how to improve health and safety performance?

# Senior Manager

We have effective ways of sharing, between different areas and work crews, *new ideas* about improving the work:

# Audit Recommendations

- Very specific to the organization
- Usually IRS training for supervisors and managers, includes ways to stimulate IRS at worker level
- Leadership activities regarding the IRS for senior people
- Re-orientation of HS Committee
- Re-orientation of OHS staff

# Audit Recommendations

- Sometimes issues about lateral support
- Sometimes issues about contractors and their interactions with IRS
- Recommendations regarding specific programs in the OHS management system: housekeeping, investigations, inspections, etc.

# Audit and Mini-Audit

- An IRS “mini-audit” consists of 2 questions.
- Question 1 is a set of statements about the IRS, “true” or “false”. Answers are group by organizational level: FL workers, FL supervisors, Managers, Senior personnel, Committee, OHS professionals.
- Question 1 simply tells us the degree of understanding of the IRS at each level.

# Audit and Mini-Audit

- Question 2 asks “given your understanding of the IRS, how well is it doing?”
- Very importantly, there is a weighting scheme. An individual who does not understand the IRS as revealed by Question 1 does not have their opinion on Question 2 count.

# Audit and Mini-Audit

- Little information comes from a mini-audit.
- The score can be used broadly to measure progress over time, and to compare workplaces.
- The score can be plotted on a graph against lost time and medical aid statistics.
- The better the IRS score the lower the lost time, etc.

# Audit and Mini-Audit

- If all employers in a sector (e.g. mining) have their data grouped, then the excellent and poor workplaces are obscured.
- We have found a wide variation in scores, sometimes even within the same company, but different locations.

# Disadvantages of an IRS Mini-Audit

- It cannot tell us where the strengths and weaknesses are located in the organizational structure.... At what level, department, location.
- It cannot tell us whether there are particular problems with ownership, communication, leadership, circumvention, etc.
- It cannot form the basis for specific recommendations.

# Full IRS Audit

- 10-14 different questionnaires depending on organizational structure.
- 35-40 questions per questionnaire.
- Some questions added or omitted depending on circumstances. (e.g. add questions about the employer-contractor interaction if such is significant).

# Full IRS Audit

## Questions about:

- Personal responsibility
- Accountability
- Integration of OHS into the work, e.g. job planning
- Understanding of risk
- Anonymous ... but ask for assessment of others, e.g. FLSs, managers.

# Full IRS Audit

## Questions about Communication:

- Encouraging concerns and ideas
- Responding to concerns and ideas
- Vertical and lateral information flow about hazards, risks, controls
- Between employer and contractors

# Full IRS Audit

## Questions about Circumvention:

- Concerns going to Committee or Rep prematurely
- Concerns skipping levels of the organization
- Concerns going to OHS professionals prematurely
- Concerns going to Inspector prematurely

# Full IRS Audit

## Questions about Innovation:

- Whether OHS is reactive or proactive
- Encouragement of creativity, innovation
- Going beyond the regulations
- At all levels
- Responding to innovations

# Full IRS Audit

## Questions about Contributors:

- Understanding role of Committee and Rep
- Understanding role of OHS professionals

# Full IRS Audit

## Questions about Leadership:

- Leadership activities
- Commitment
- Perceived sincerity
- Integration
- All levels

# Full IRS Audit

## Questions about High Risk:

- Understanding of “risk” and “high risk”
- Personal actions
- Actions of others
- Knowledge of unaddressed high risk

# Full IRS Audit

## Questions about Contractors:

- Assessment of contractors' IRS
- Communication with employer and individuals
- Responding to concerns – both ways
- Interaction with contributors

# Full IRS Audit

- Questionnaires have space for written comments and examples
- Period of interviews after questionnaires have been filled out
- Provides rich detail as to why questions were answered the way they were

# Full IRS Audit

## Recommendations:

- Specific to organizational level, and between levels
- Concern education, job planning, inspections, safety talks, coaching, reporting, time of response, etc.

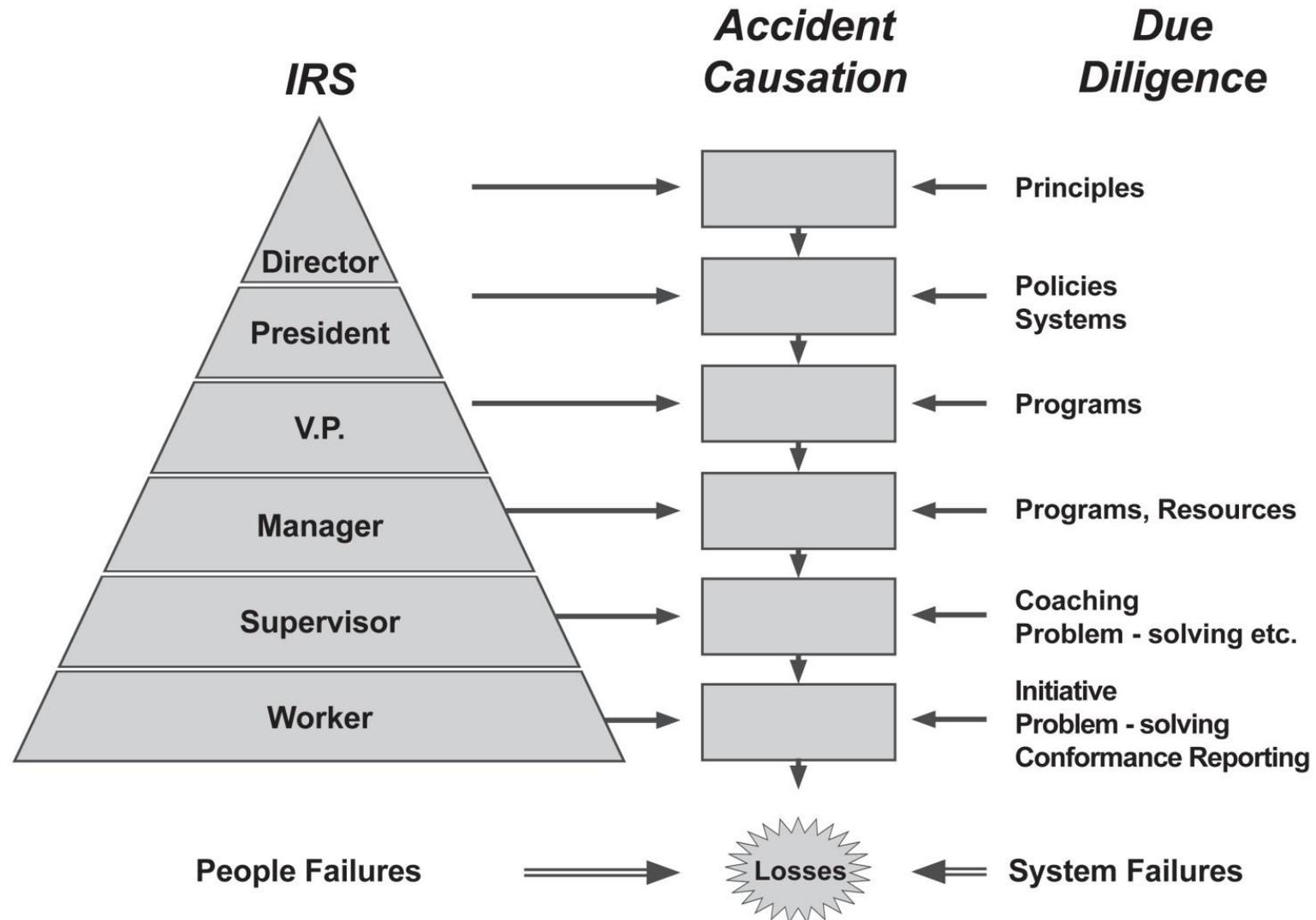
# Full IRS Audit

- Employers often looking for quick fixes
- Do not always have a plan of action with timetable
- Employers do not approach it “scientifically” with an IRS audit as a baseline, then an intervention, then a second audit to see if improvement have been made

# Linked Concepts

- Incident/accident causation
- The Internal Responsibility System (IRS)
- Due diligence
- Risk
- The OHS management system
- Leadership
- Safety Culture

# Integrating Systems and People



# Safety Culture, IRS and Risk

If everyone is motivated to do everything they can reasonably do in their circumstances (authority, control, system elements), then chains of causation are broken, risk is driven down as low as it can reasonably go, and we can have longer and longer periods without losses.

# Safety Culture, IRS and Risk

- Understand the complexity of safety culture in terms of demographics and level of organization.
- Many ways to analyze the evolution of safety culture.
- Appreciate the importance of individual values.
- Effective way to measure safety culture is to audit the IRS.
- Healthy IRS = excellent safety culture = zero loss.

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