



A holistic view on Safety Management

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A holistic view on Safety Management

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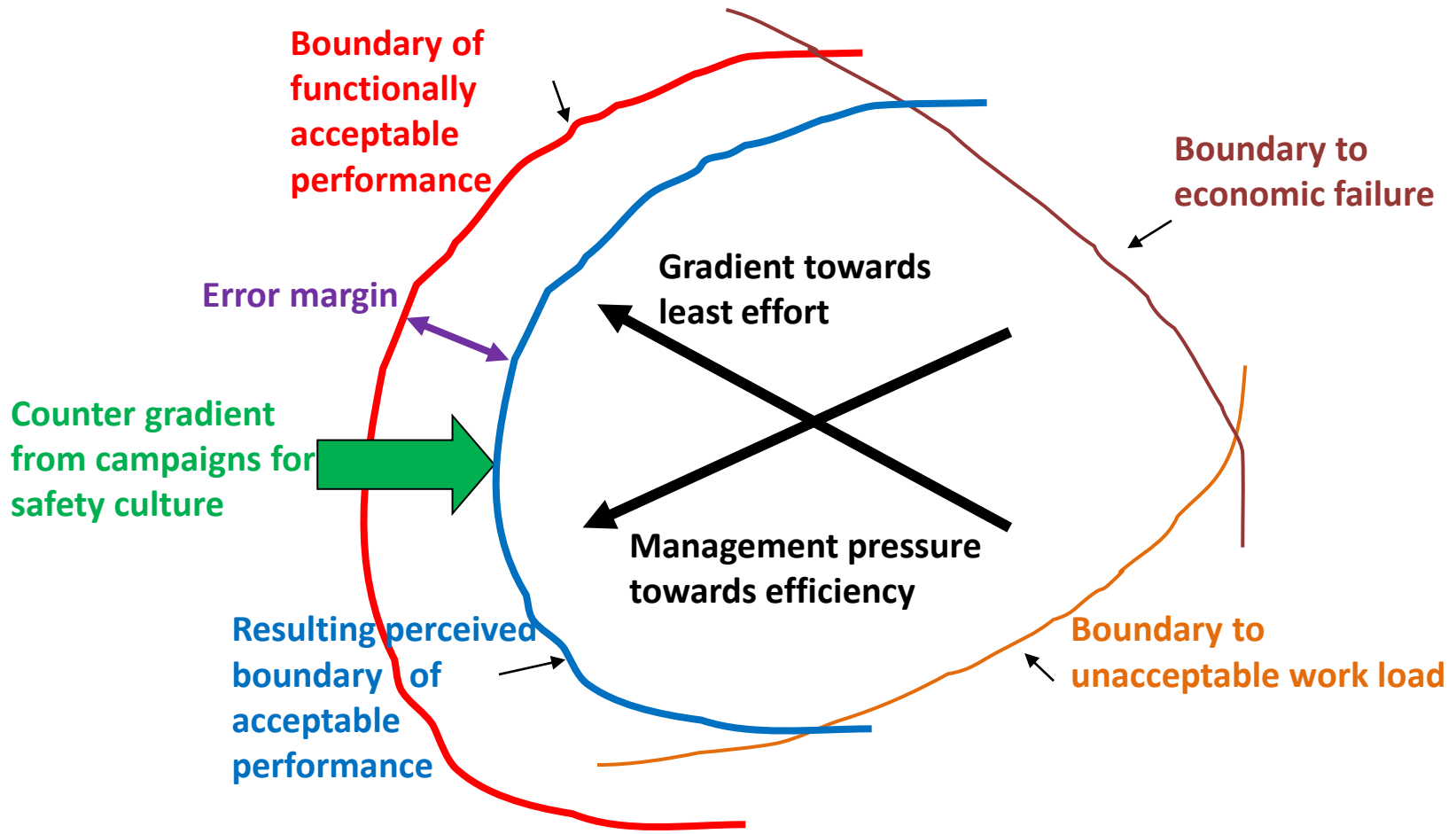
Agenda

- Why is accident prevention so difficult
- Which accident is the most common
- Focus on barriers more than hazards
- Safety management and barrier awareness

Why is accident prevention so difficult

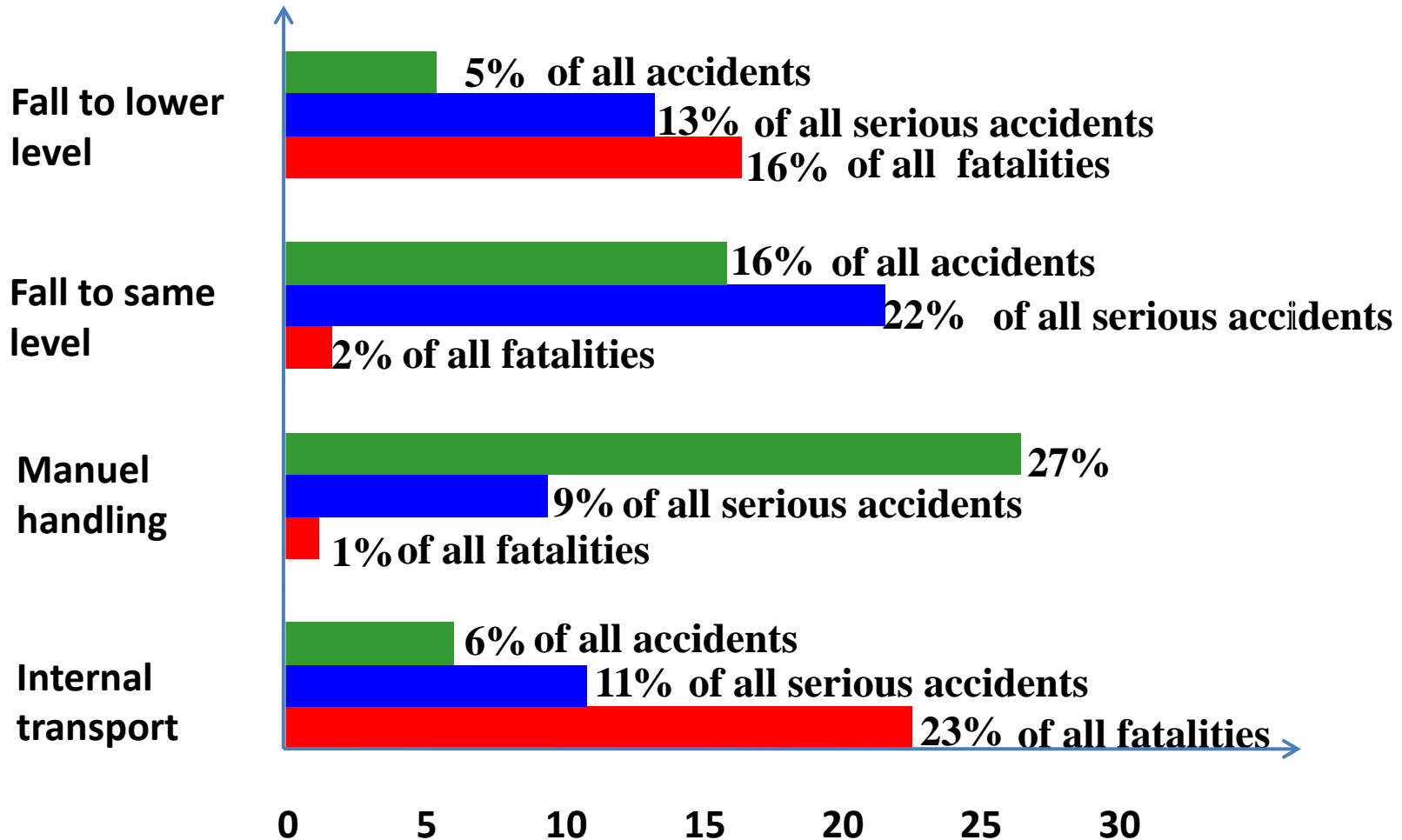
- It is first after the accident has happen it is easy to see what should have been done
- Before the accident happen it is most difficult
- The hazards and the risk situations differ from time to time
- In general the hazards and the risk situations are handled
- Most often nothing happens

The drift to danger



Jens Rasmussen
1996

Which accident is the most common



44% of all fatalities, 54 % of all serious injuries and 56 of all notified accidents

Focus on hazards

A. The activities/hazards concerning walking where there is a risk of falling

1. Working on height/falls

- Placement ladder
- Fixed ladder
- Step ladder or steps
- Rope ladder
- Mobile scaffold
- Fixed scaffold
- (De)-installing scaffold
- Roof
- Floor with different levels
- Fixed platform
- Mobile platform
- Non-moving vehicle

2. Working on same level/fall

- Working near hole in ground
- Walking on floor,
- Walking on stairs
- Walking and overloading

Focus on hazards

B. The activities/hazards concerning your surroundings

3. Working where objects can fall down

- Cranes and loads
- Mechanical lifting
- Loadings on vehicle
- Manual handling
- Other ex stored objects

4. Working where objects can be flying around you

Flying objects from machine or hand tool

Flying objects under tension or pressure

5. Working where you can be hit against, hit by or hit between objects

- Struck by moving vehicle
- Working in open air with blowing wind
- Passing round, rolling or sliding objects
- Passing others working with hand tools
- Passing others who are handling objects
- Passing nearby hanging or swinging objects
- Risk of being trapped between or against objects
- Risk of moving into objects

6. Passing or working near-by bulk mass that could skid, collapse

- Passing bulk mass

7. Working with people or animals

- Aggressive human being
- Aggressive animals

Focus on hazards

The activities/hazards concerning what you are working with

8. Technical equipment

- Handheld tools
- Operating machines
- Maintaining machines
- Clearing machines
- Cleaning machines

9. Vehicle

- In or on moving vehicle

10. Electricity

- Risk of electrocution by tools
- Electric work

11. High or low temperature/heat or cold

- Cold or warm objects surfaces
- Hot work

12. Chemicals

- Working near open containments
- Working near closed containments
- Adding, removing or opening closed containments
- Transport of closed containments
- Closing closed containments

13. Lifts and loads

- Handling heavy objects

Focus on Hazards

The activities/hazards concerning very specific and infrequent high risk

14. Risks of high voltage

- Working with high voltage

15. Risks of fire

- Working close to or with open fire
- Fire Fighting

16. Oxygen problems incl. Water, lack of oxygen and drowning

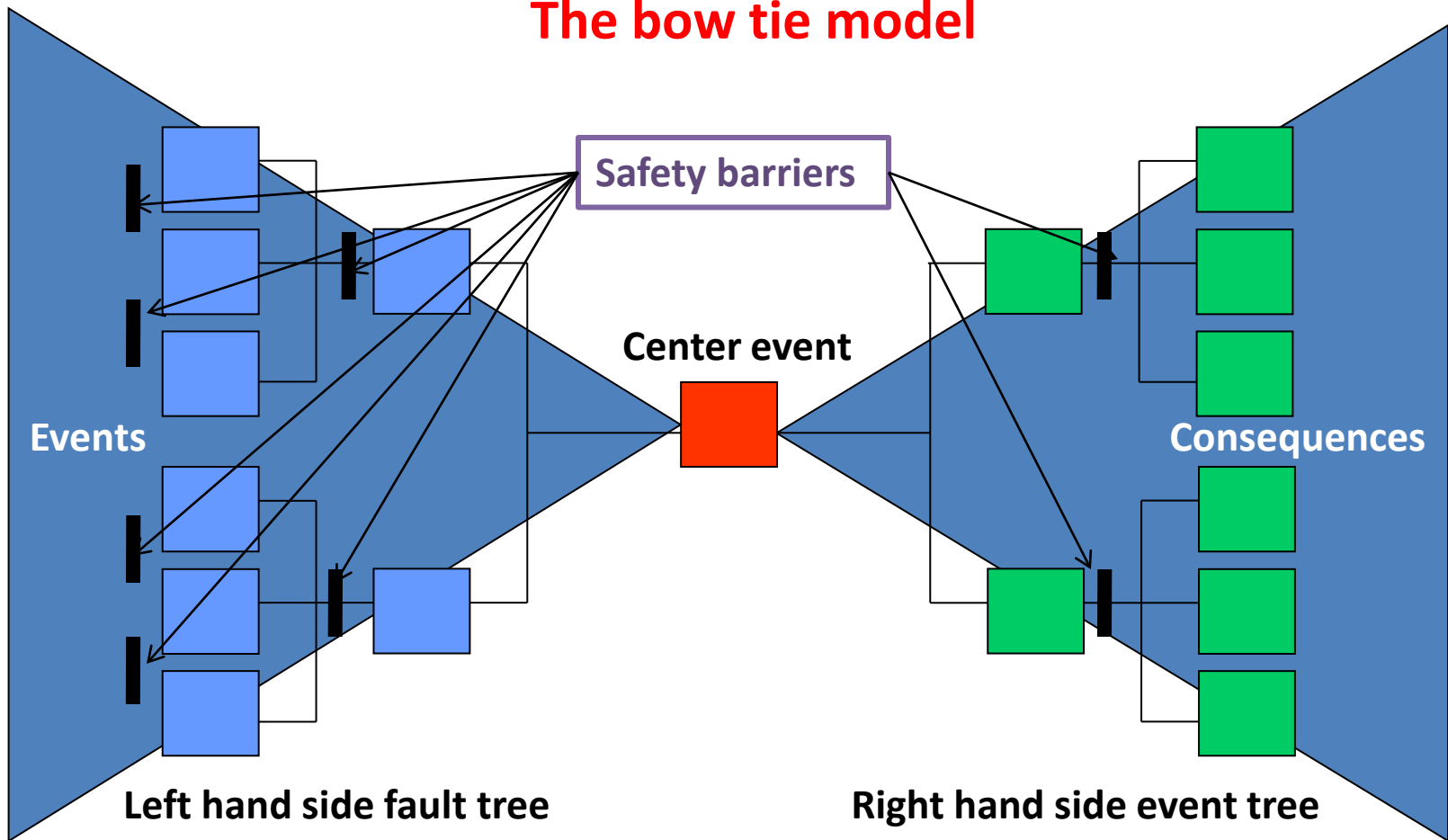
- Working in confined space with hazardous atmosphere
- Working with breathing apparatus
- Working in, on or under water
- Working close to water

17. Risks of explosion

- Nearby or working with explosive equipment, objects under pressure
- Nearby or working with explosive vapor or gas
- Nearby or working in explosive dust
- Nearby or working with explosives
- Nearby or working with chemical - including exothermic - reaction

Focus on Safety barriers

The bow tie model



What is a barrier

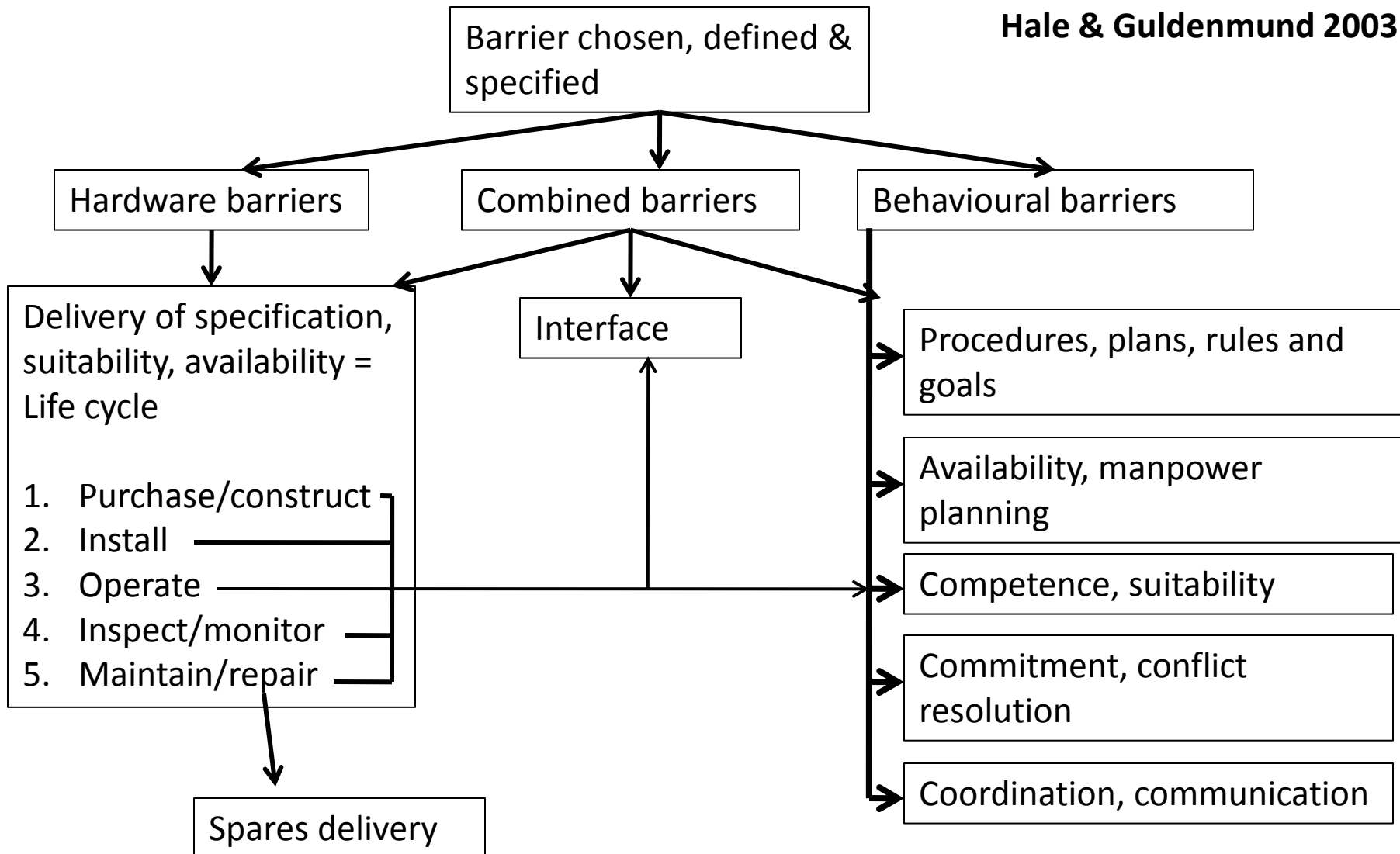
Some definitions of barrier are:

- Anything that blocks a way or separates, such as a gate
- Anything that prevents progress
- Anything that separates or hinders union
- A structure or object that impedes free movement
- Any condition that makes it difficult to make progress or to achieve an objective
- A physical block or impediment to movement or migration
- A structure that bars passage, prevents access
- A fence, wall or otherwise designated boundary
- An obstacle or impediment
- A boundary or limit

Linda Bellamy, 2009

What is a barrier

Hale & Guldenmund 2003



Safety management and barrier awareness

- Strategic, tactical and operational issue
- Concerns The top manager, all supervisors as well as the frontline workers
- A change management process and A goal setting performance and feedback system

Message maps

Barrier 4: Control over Nearby Moving Objects (includes hardware and people)		
For: Refineries and Tank Storage, Warehouses. Maintenance or Operations front line		
Activities: Normal operations, Maintenance, Start-up & Shutdown		
Information gathering	Understanding	Anticipating and Responding
How might an object or a part of me knock against a pipe or valve, tank, drum or cannister and cause LOC?	If not controlled, objects might knock against a process line or valve, tank, drum or cannister and cause LOC	Think through the task and identify what object might be moved towards a vulnerable target?
What tasks & task steps provide greatest risk of loss of control over objects that are either moving already or that I move myself?	Objects can either be moving already or I can move it myself - either way there is an opportunity for the object to move towards a vulnerable object / target	Review and communicate controls that need to be applied to prevent uncontrolled movements

Change management processes

The dynamic in organisational change is an interaction between concept, context and actors within different perspectives of the change process. Three perspectives are important:

- **the learning process**, the learning human being, the organisation's "brain"
- **the political process**, the strategic human being, power
- **the symbolic process**, the symbolic human being, culture

Goal-setting and performance feedback: motivating change

Behavioural safety interventions motivate safe behaviour by:

- Increasing individual confidence in performing work-related tasks
- Focusing on individual safety improvement goals

To be successful:

- Goals should be challenging but achievable, and
- Feedback on progress should be accurate and timely

Particularly Important factors in the program are:

- Mandatory participation
- Visible support from managers and supervisors
- Steering committee at the beginning with view to handing over role to workforce
- Context relevant training based on simple checklists

Fundamental conditions for establishing a risk awareness program and motivation for safety in a company

- **The risk awareness program** is what a company will implement to raise risk/barrier awareness.
- The program requires that **the company recognises** that they have an awareness problem and wants to learn to do better.
- **Management must prioritise** the risk/barrier awareness issue.
- Management must create **a management system** to handle initiatives, plans and control systems that can support the employees.
-
- The **awareness-raising program** has to look at the system in a holistic way.
- The Helacol reports show that the industry (in the sectors explored) did indeed recognise deficiencies in risk awareness and competences, but they did not recognise the many deficiencies at the organisational and political level

The Risk Awareness program

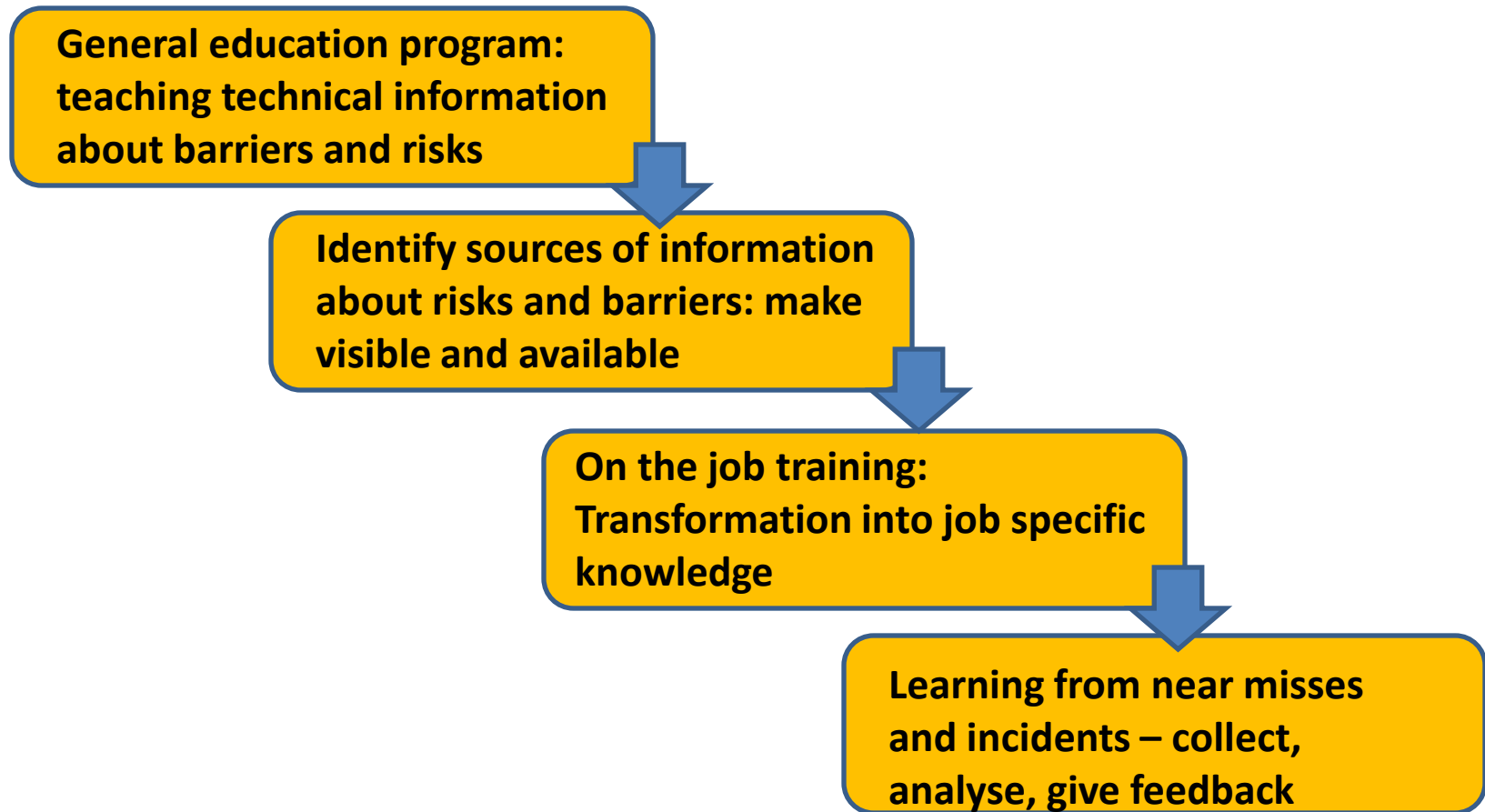
Will go through following four steps:

- **Providing barrier intelligence**, to get the available information about risks and barriers
- **Motivating information collection about risks and barriers**, to get the information collected by the manager, the supervisor and the front line worker
- **Making the information understandable through the learning process**, to get the information understood and interpreted in a correct way
- **Motivating and controlling the process of the information** being transformed into the right decisions and actions

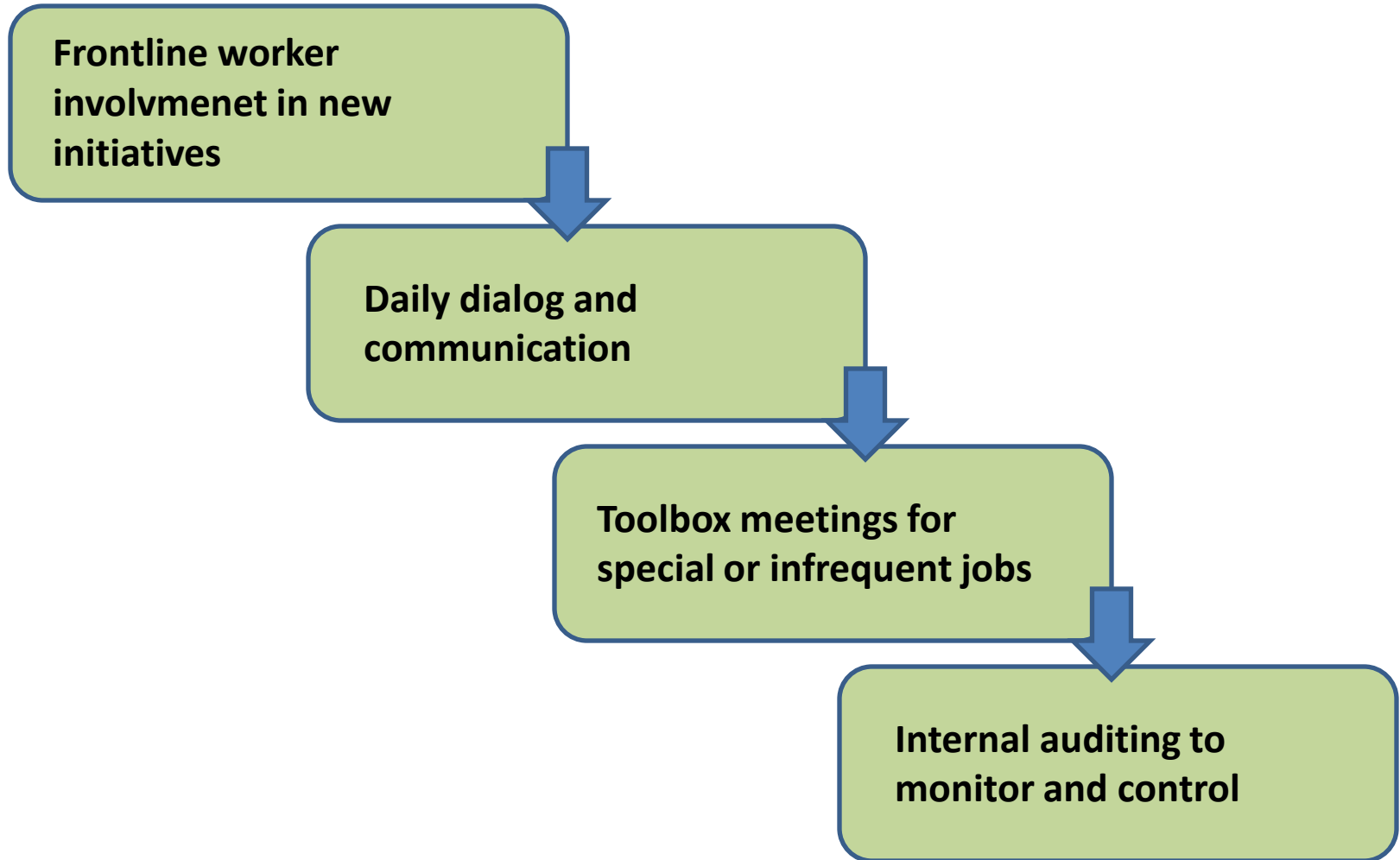
The motivational Steps



The learning process



The political or organisational process



The symbolic process

**Walk around and
acknowledgement by the
manager**



**A feed back and reward
system with symbols, stories,
events**

Thank you for your attention