

Strategic HSE Management Workbook



Fire Alarm, Test and Evacuation



Welfare Facilities



Breaks and Refreshments



Messages and Mobile Phones



Timetable	
08:30	Introduction
08:40	HSE Management Strategy - Why do we need an HSE strategy and what should it contain?
10:00	Break
10:30	HSE Management Systems -What are the components of an effective management system? -How do I assess risk and prioritise action? -How do I allocate HSE risk management responsibilities?
12:00	Lunch
13:30	HSE Culture - What is it and why is it important? - How do I assess it? - How do I improve it?
15:00	Break
15:30	Group Exercise – Assessing HSE Management Arrangements
17:00	Close

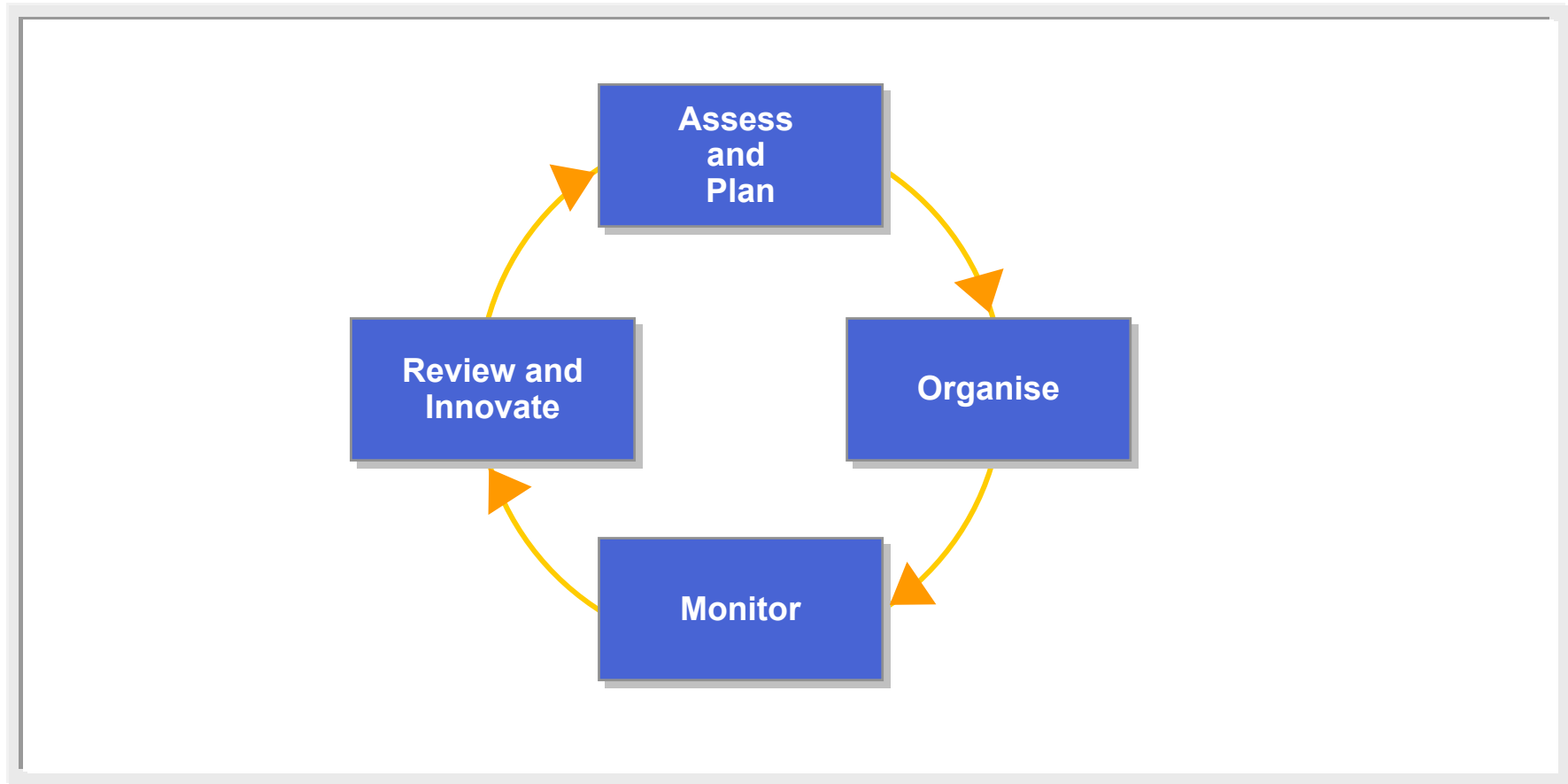


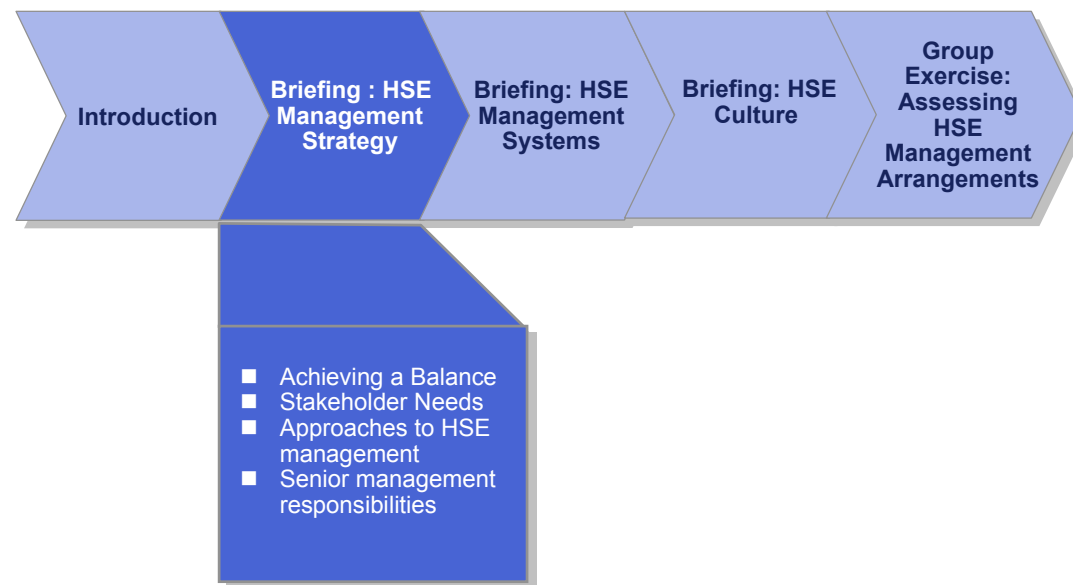
What I need from today's training is:

A large, empty rectangular box with a thin grey border, intended for the user to write their needs for the training.



This Programme is structured to provide an understanding of strategic approaches to HSE management





Key Questions to be answered in this session:

- Why do we need an HSE Strategy?
- What should it contain?



HSE can present significant risk to business performance

Toxic Release at Bhopal - 1984

Impact - harm and damage:

- Over 2000 fatalities and 200,000 injuries
- Production ceased
- Compensation claims ran into millions of US dollars. Stock value of Union Carbide crashed, causing financial crisis.

Union Carbide fell from being the 37th largest company in the world to below 200.

*Ref.: Geoff Wells - Major Hazards and Their Management
Institution of Chemical Engineers.*

BP admits failures led to deaths at US plant

May 2005

By Sheila McNulty in Houston and James Boxell in London

BP admitted yesterday that "a series of failures" by staff led to an explosion at its Texas facility, which killed 15 people and injured more than 170 in the deadliest refinery accident in more than a decade.

The admission is not only embarrassing for the UK oil and gas group, signalling short-sightedness by numerous staff at various levels, but it will cost the company dearly in compensation and any lawsuits those pay-outs fail to halt.

"The mistakes made during the start-up of this unit were surprising and deeply disturbing," said Ross Pillari, president of BP products North America.

Mr Pillari said that unit managers and operators at the Texas City refinery on March 23 "greatly overfilled and then overheated" a tower. "The fluid level in the tower at the time of the explosion was nearly 20 times higher than it should have been," he said.

The presence of water or nitrogen in the tower at start-up might have contributed to the release of a vapour cloud ignited by an unknown source, BP said, adding that electrical connections in nearby mobile offices were potential triggers.

The casualties were greatly increased by the failure to evacuate personnel from the mobile offices when it became clear that pressure was building in the tower and vapours were being released. A "hazard review" failed to recognise that the offices were in danger.

"The failure of supervisors to provide appropriate leadership and the failure of hourly workers to follow written procedures are among the root causes of this accident," Mr Pillari said.

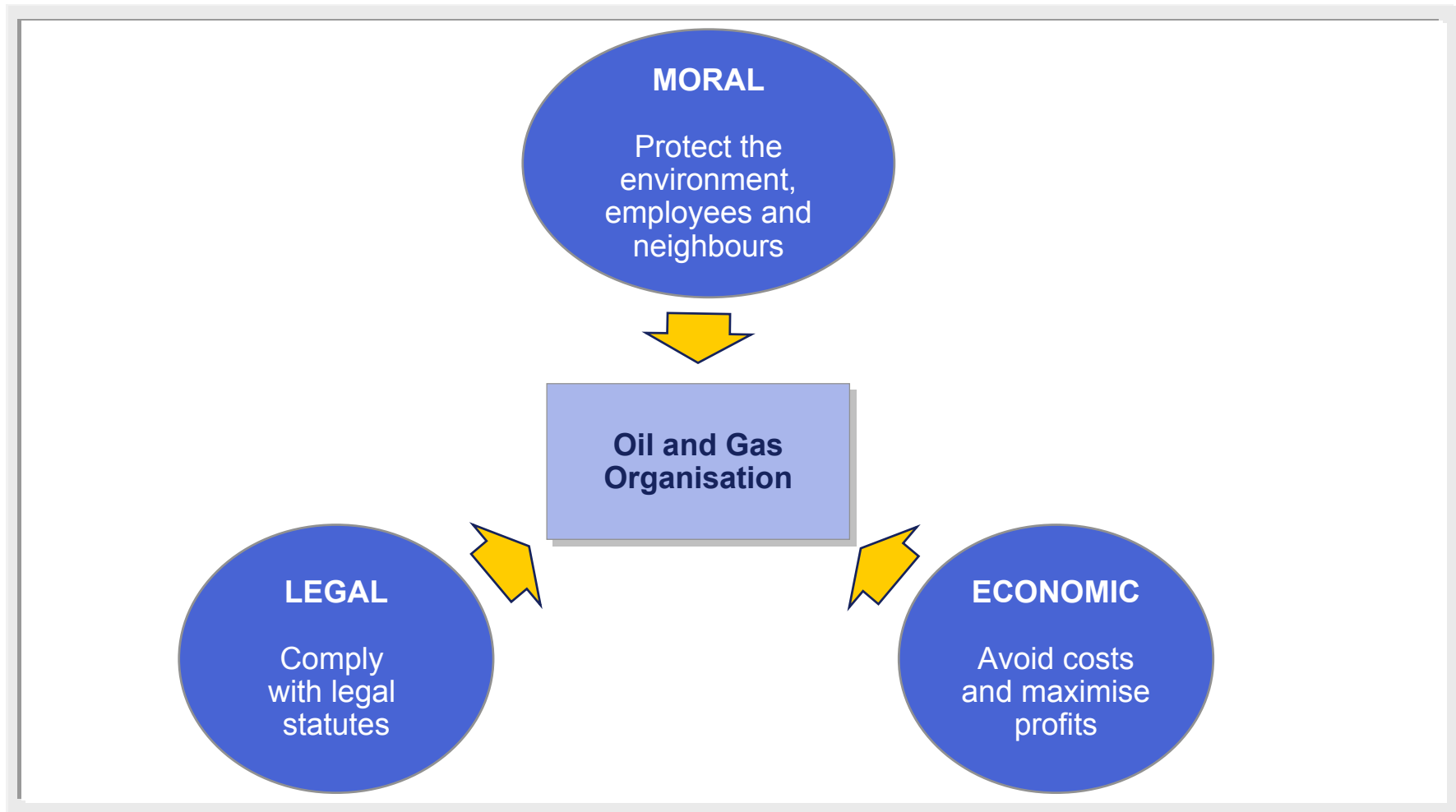
BP is taking disciplinary action against supervisory and hourly employees, ranging from warnings to terminations. It is contacting the families of the deceased to begin evaluating and settling claims.



Why should we spend time and money on HSE Management?

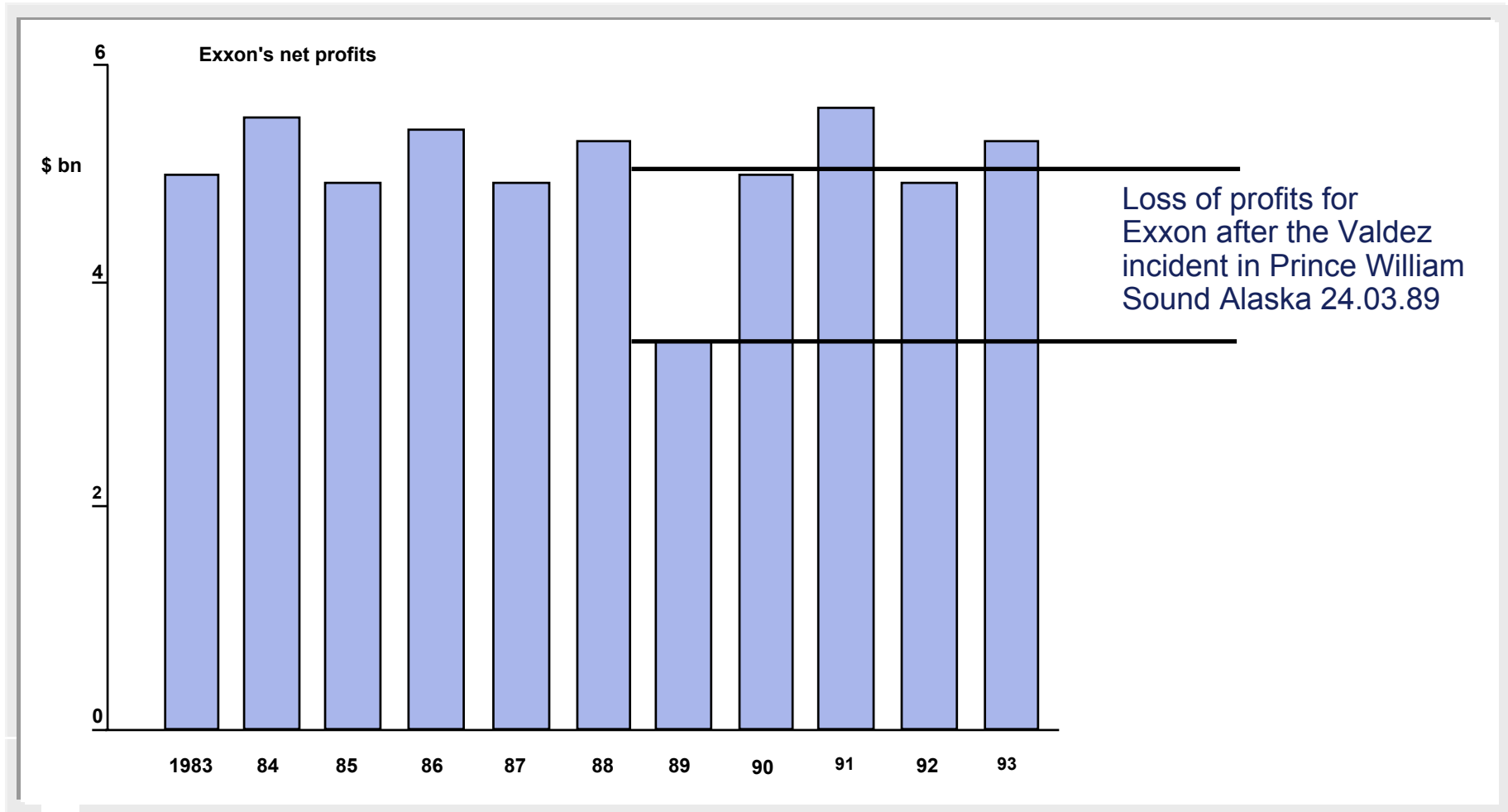


Drivers for HSE Management fall into three categories





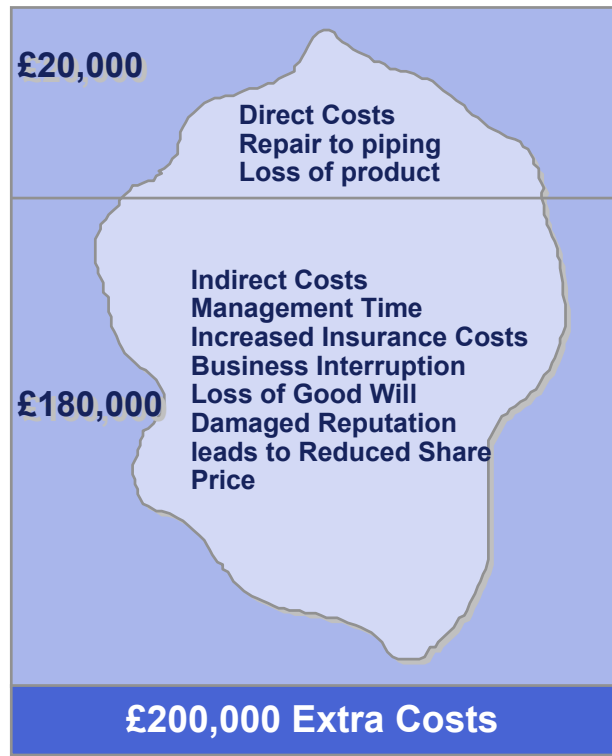
Economic – information published in other industries shows how poor management of HSE can have a devastating commercial impact on a company





Economic (continued) – Work by the UK Health and Safety Executive (UK HSE) demonstrates how poor management of HSE can lead to considerable losses

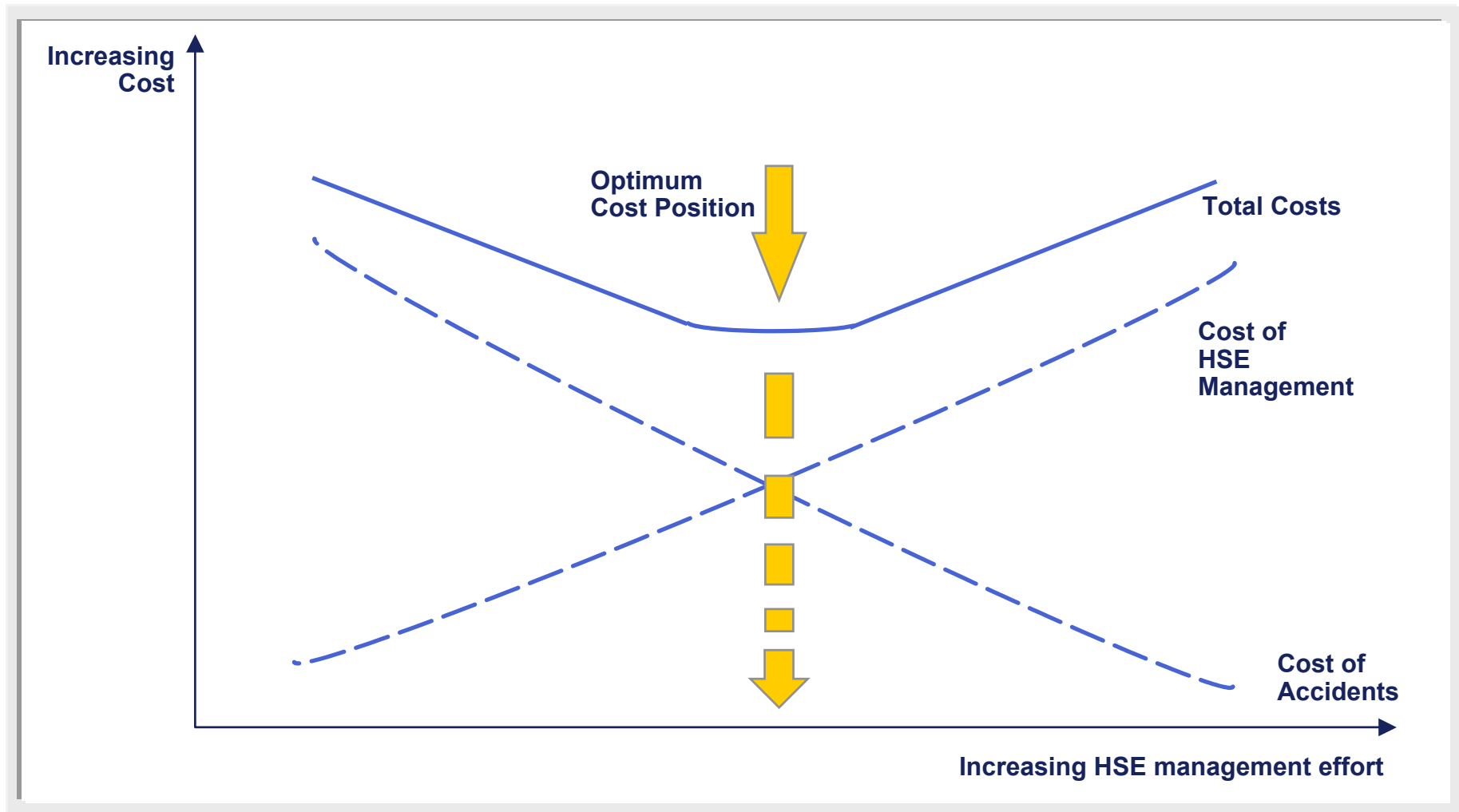
Example: A pipeline fails due to corrosion, releasing hazardous chemicals



UK HSE Research suggests that Direct:Indirect costs are in the range 1:6 to 1:10



Economic (continued) – UK HSE’s work also suggests that from a cost viewpoint, HSE management can be optimised





Moral – We all have a moral obligation to manage the health and safety of our employees and neighbours and to protect the environment



■ Our moral obligations include:

- Safety at work
- Safety of our neighbours
- Preservation of valuable resources
- Protection of habitats and species
- Minimisation of pollution to preserve a clean atmosphere and water supply
- Being a good neighbour and a responsible member of the community



Legal – In Iran the legal instruments concerning HSE management requirements include the following:

Environmental Regulations

Year	Regulation	Description
1967	Game and Fish Law	According to this act, the Department of Environment (DOE) is responsible for protecting and preserving wildlife. The purchase, sale, breeding and raising of non-native wild animals requires licensing and approval. However, in some circumstances the DOE issues free approval for fishing.
1974	Environmental Protection and Enhancement Act	In accordance to the above Act, the DOE is responsible for the protection and enhancement of the environment, the prevention and control of any form of pollution, degradation and conducting matters related to wildlife.
1976	The Law of Sea and Border Rivers Protection against the Oil Pollution	According to Article 2 of this Law, polluting the rivers or seas in the Iranian territory with oil by vessels, drilling platforms, pipelines, both offshore and onshore is prohibited. The law in effect covers the waters of the Persian Gulf and Oman Sea. Additionally, according to Article 13 of this act, if the industry damages Iranian ports, coasts or marine environment the court will fine the offender as a compensation for damage.
1976	Executive By-Law on the Environmental Protection and Enhancement Act	According to this Act, national parks, wildlife refuges, national nature monuments and protected areas are protected from any activity, which will affect these areas. Any activities such as hunting, fishing, exploration and exploitation require a special permit from the DOE.
1979	Article 50 of The Constitution Of Iran (Preservation of the Environment)	It is considered a public duty in the Islamic Republic to protect the natural environment in which the present as well as future generations shall have a developing social life
1982	Fair Water Distribution Law	The well owners are responsible for pollution prevention and should comply with health regulations. According to this law, polluting water is prohibited. The responsible party for setting rules and definitions for water pollution prevention is the DOE.



Legal – In Iran the legal instruments concerning HSE management requirements include the following:

Environmental Regulations (continued)

Year	Regulation	Description
1987	The Petroleum Act	According to this act, the Oil Ministry is responsible for monitoring the oil field operation to preserve oil resources and the surrounding environment. In addition the petroleum resources of the country will be safe guarded and protected as the part of public domain.
1993	The Law of Iranian Marine Areas in the Persian Gulf or Oman Sea	According to article 6 of this act, if foreign vessels produce any marine pollution in the Persian Gulf they will be liable to criminal and civil laws. The Government of the Islamic Republic of Iran is responsible for investigating any harm to the region caused by foreign vessels and submarines.
1994	Executive By-Law on Prevention of Water Pollution	Initiation of any act that causes water pollution shall be prohibited. The DOE, through consultation with the Ministry of Energy, Agriculture, Jihad-e Sazandegi, Health and Medical Education, will inspect and identify the quality of waters in Iran for any pollution incident.
1995	Air Pollution Abatement Act	Any action leading to air pollution is prohibited. Sources of air pollution covered by this Act are: motor vehicles, factories, workshops, power plants, and commercial and residential sources. In addition, this act requires the above sources to comply with relevant standards and regulations. In the case of non-compliance with air standards, the DOE is responsible for enforcing any penalty.
1997	High Council Environment Protection Organisation (EPO) Regulation of EIA	According to Approval No.138 and Approval No. 156 all development projects, such as petrochemical plants and refineries, are obliged to prepare an EIA report before development.



Legal – In Iran the legal instruments concerning HSE management requirements include the following:

Regional Environmental Regulations (ROPME Protocols)

Year	Regulation	Description
1978	Kuwait Convention - Regional Convention for Cooperation on the protection of marine environment from pollution	The convention is the basic legal instrument binding the eight states (Iran, Qatar, Bahrain, Emirates, Kuwait, Saudi Arabia, Oman, Iraq) of the region to coordinate their activities towards protection of Persian Gulf.
1978	Kuwait Protocol - Protocol Concerning Regional Co-operation in Combating Pollution by oil and other harmful substances in cases of emergency	The objective of the protocol is to provide cooperative and effective response measures to deal with marine emergencies caused by oil and other harmful substances.
1989	Kuwait Protocol - Protocol Concerning Marine Pollution resulting from Exploration and Exploitation of the continental shelf	The objective of the protocol is to coordinate regional activities towards protection of the marine environment against pollution from exploration and exploitation of oil and gas in continental shelf.
1990	Kuwait Protocol - Protocol for the protection of the marine environment against pollution from land-based sources	It stipulates that the contracting states shall take all appropriate measures to prevent, and control pollution by discharges from land reaching the sea. In addition, this protocol addresses the required permits for discharging wastes into the sea.
1998	Kuwait Protocol - Protocol on the control of marine trans-boundary movements and disposal of hazardous wastes and other wastes	The objectives of the protocol are to protect the marine environment of the protocol area from detrimental effects of hazardous wastes, and to assist contracting states in environmental waste management.
2003	Tehran Convention - Convention on Protection of Caspian marine environment	According to this convention all Caspian countries are committed to take all necessary measures, individually or collectively, to reduce and control pollution of the sea.

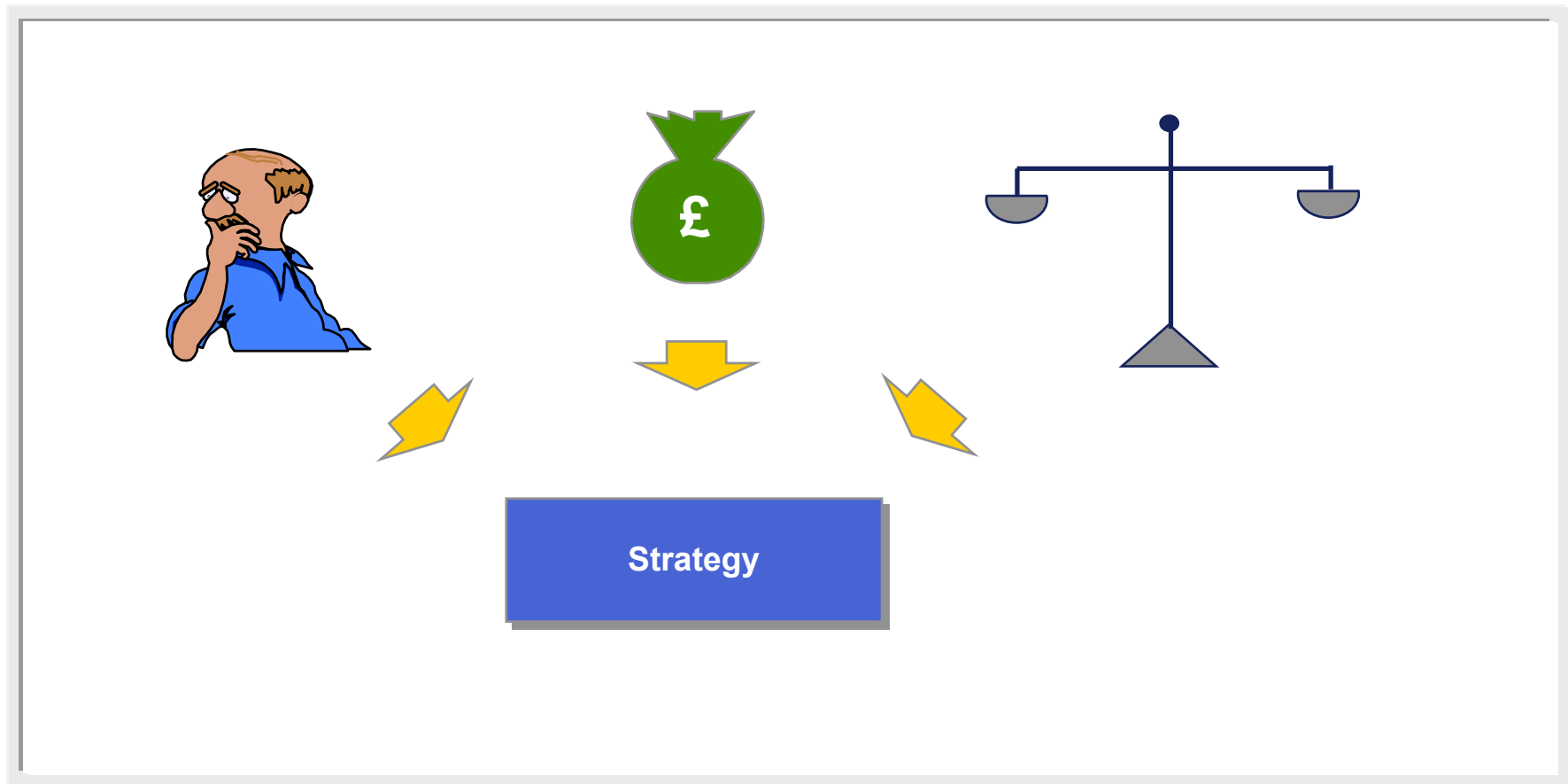


Legal – In Iran the legal instruments concerning HSE management requirements include the following:

Health and Safety Regulations		
Year	Regulation	Description
1990	Labour Law/code	This is the first labour code in Iran. It has 203 sections which cover contracts, conditions of employment, occupational health and safety, training, employment welfare services and mediated dispute settlement.
1993	Regulation to implement Articles 85 and 96 of the Labour Code	Regulation promulgated by the High Council for Occupational Safety and approved by the Minister of Labour and Social Affairs providing technical and security measures to prevent accidents and ensure the use of protective equipment by workers in the construction industry.
1996	Labour Code: Regulation of the Islamic Republic of Iran Labour Code concerning occupational safety and health	Regulates the requirements and conditions of employment for private advisors who are responsible for ensuring the application of health and security standards in workplaces. Covers employment requirements such as education, skills, morality, and regulates wages, duration of permits, and disciplinary matters.
1996	Regulation to apply section 93 of the Labour Code	Provides for the creation of occupational safety and health committees to supervise the implementation of safety and health standards at the workplace and to promote worker participation in such committees.

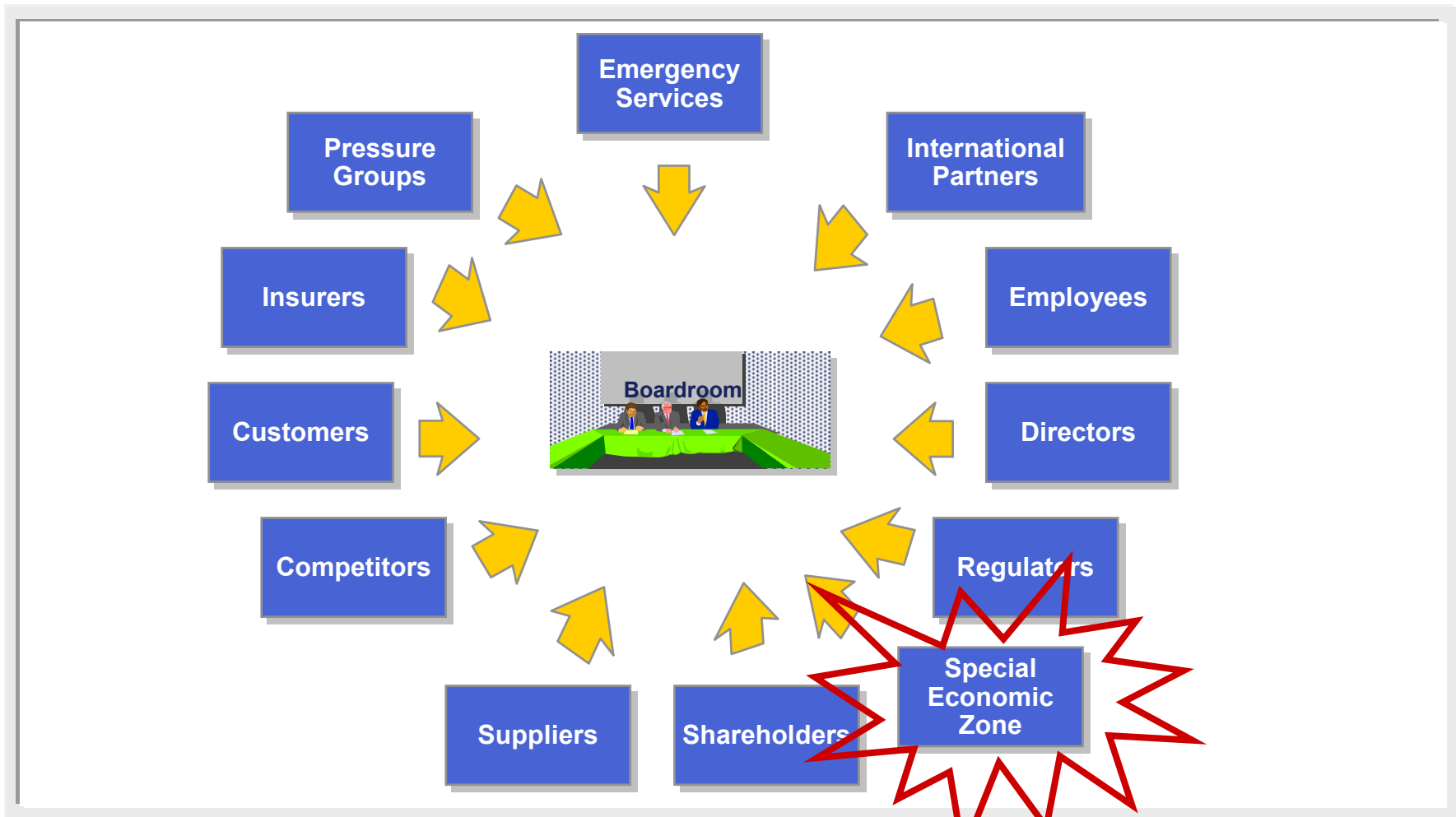


An HSE Strategy can help to achieve a balance between moral, economic and legal demands





An assessment of stakeholder expectations should drive the development of an HSE management strategy





What is the likely impact of not meeting or exceeding stakeholder expectations on managing HSE?

Stakeholder	Expectations Not Met	Expectations Exceeded
Internal		
Shareholders		
Directors		
Employees		
External		
International Partners		
Regulators		
Suppliers		
Customers		
Insurers		
Emergency Services		
Pressure Groups		

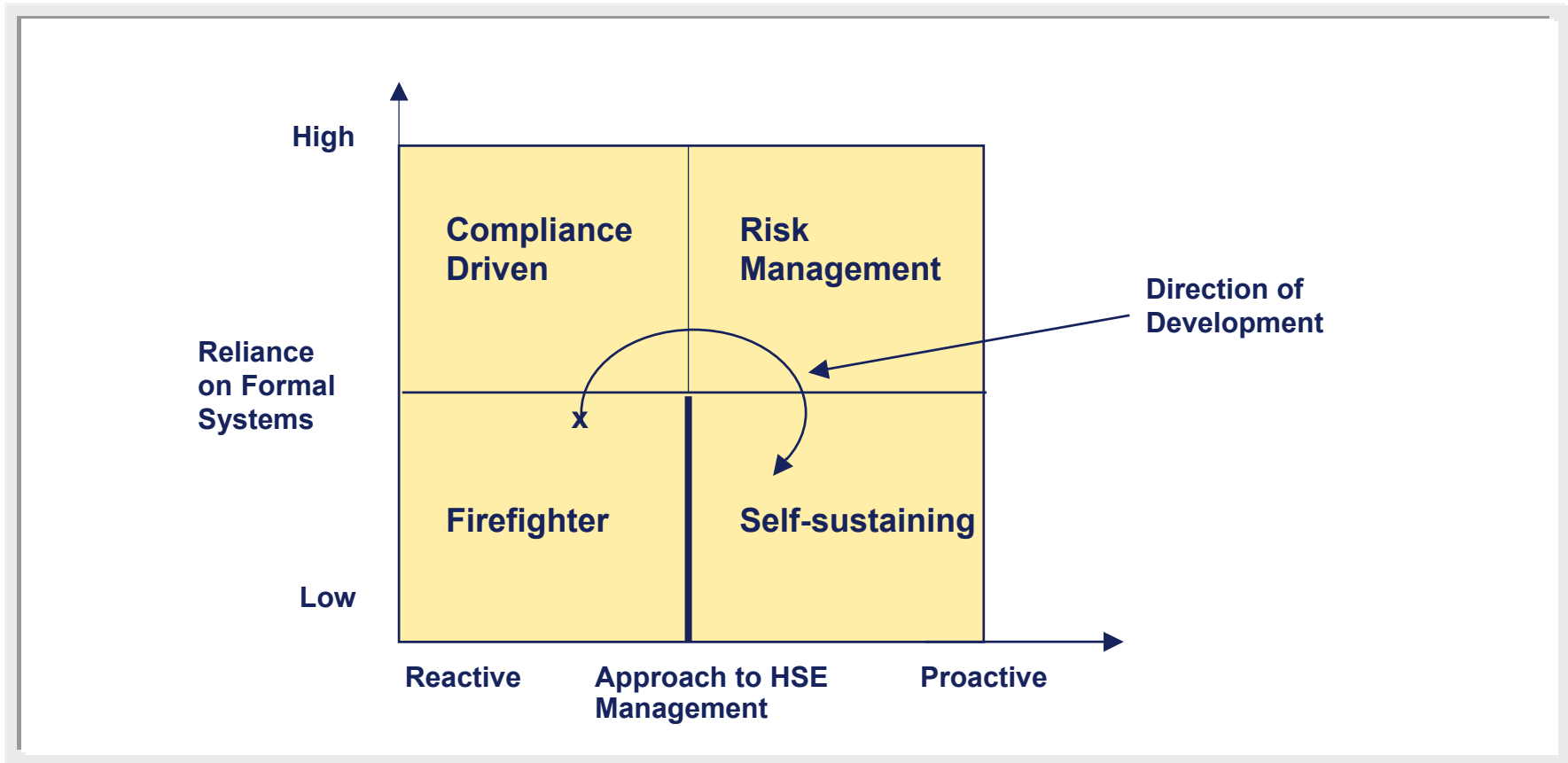


Likely impacts of not meeting, or exceeding, stakeholder expectations on managing HSE should be assessed

Stakeholder	Expectations Not Met	Expectations Exceeded
Internal		
Shareholders	Falling share price, vulnerability to take-over	Rising share price, more investors attracted
Directors	Potential liability, de-motivation. Liable to prosecution, shareholder pressure	Time to address other issues Increased influence on industry future
Employees	Lack of corporate concern, de-motivation	Attracted to working for XYZ
External		
International Partners	International operators reluctant to enter partnership deals	Attract capital, resources, partnerships, international best practices and opportunities
Regulators	Consider/develop legislation to achieve level of public expectation	Corporations self regulate. Companies assist in the forming of legislation
Suppliers	Lack of safety requirements tempts suppliers to provide low quality product	Demand high quality from suppliers
Customers	Loss of business – choose alternatives	Customer confidence
Insurers	High insurance rates to cover risks	Lower risk premiums
Emergency Services	Close monitoring of an organisation's activities	Assistance in developing better methods with emergency services
Pressure Groups	Public campaign against organisation	Groups focus attention on others



The evolution of any organisation's approach to HSE management can be considered with respect to two parameters – the level of reliance on formal systems, and the nature of the approach



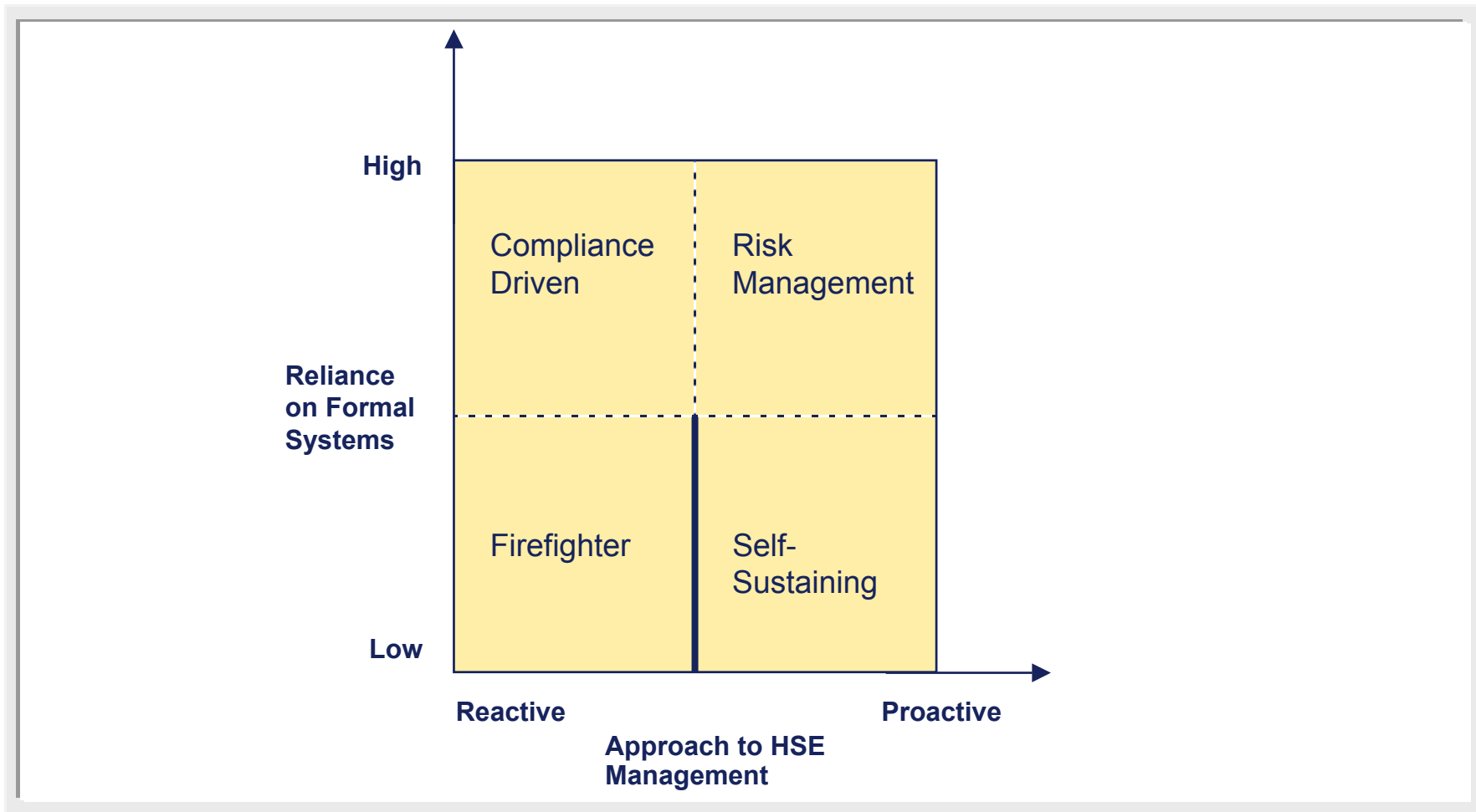


Four stages of evolution in HSE management are considered

Stage	Drive	Emphasis
Firefighter	Accident-driven	Emphasis on individual response to safety
Compliance Driven	Rule-driven	Emphasis on management control and discipline
Risk Management	Systems-driven	Emphasis on control through 'hard' aspects of safety management systems, control based on risks
Self-Sustaining	People-driven	Emphasis on control through the interaction of 'hard' and 'soft' aspects of safety management systems



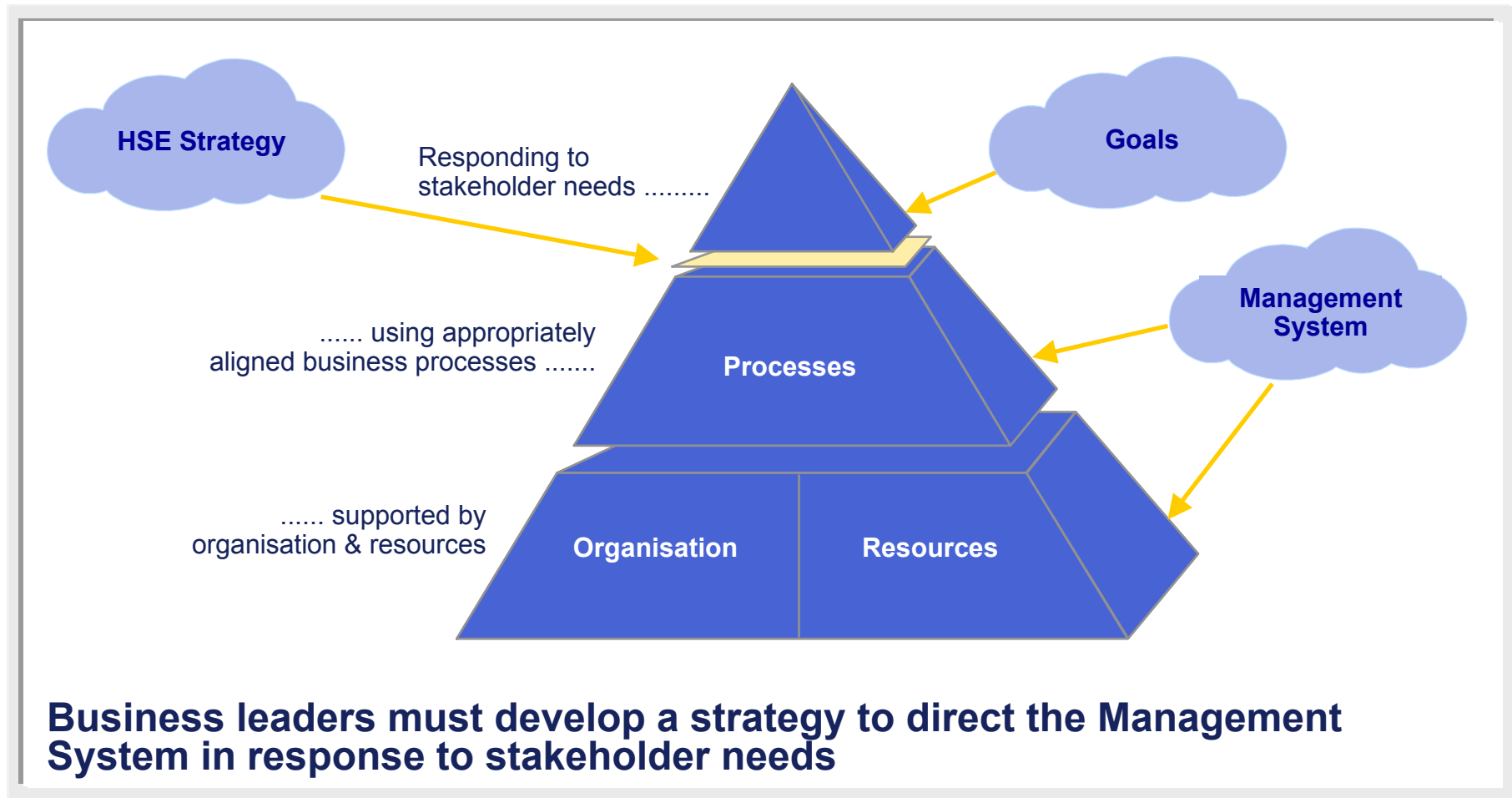
Where are you now and where do you want to be?



What is the biggest constraint to progress?



Stakeholder needs determine the goals for the Management System





Strategic leadership and visible commitment are required to continuously improve HSE management

- Strive for continuous improvement in HSE performance
- Engage in activities that demonstrate HSE leadership
- Ensure that the key HSE processes are aligned and reinforced through effective two-way communication
- Retain a sustained focus on progress against HSE objectives at both departmental and individual performance reviews
- Encourage a learning environment
- Support the existing HSE leadership and culture change programmes



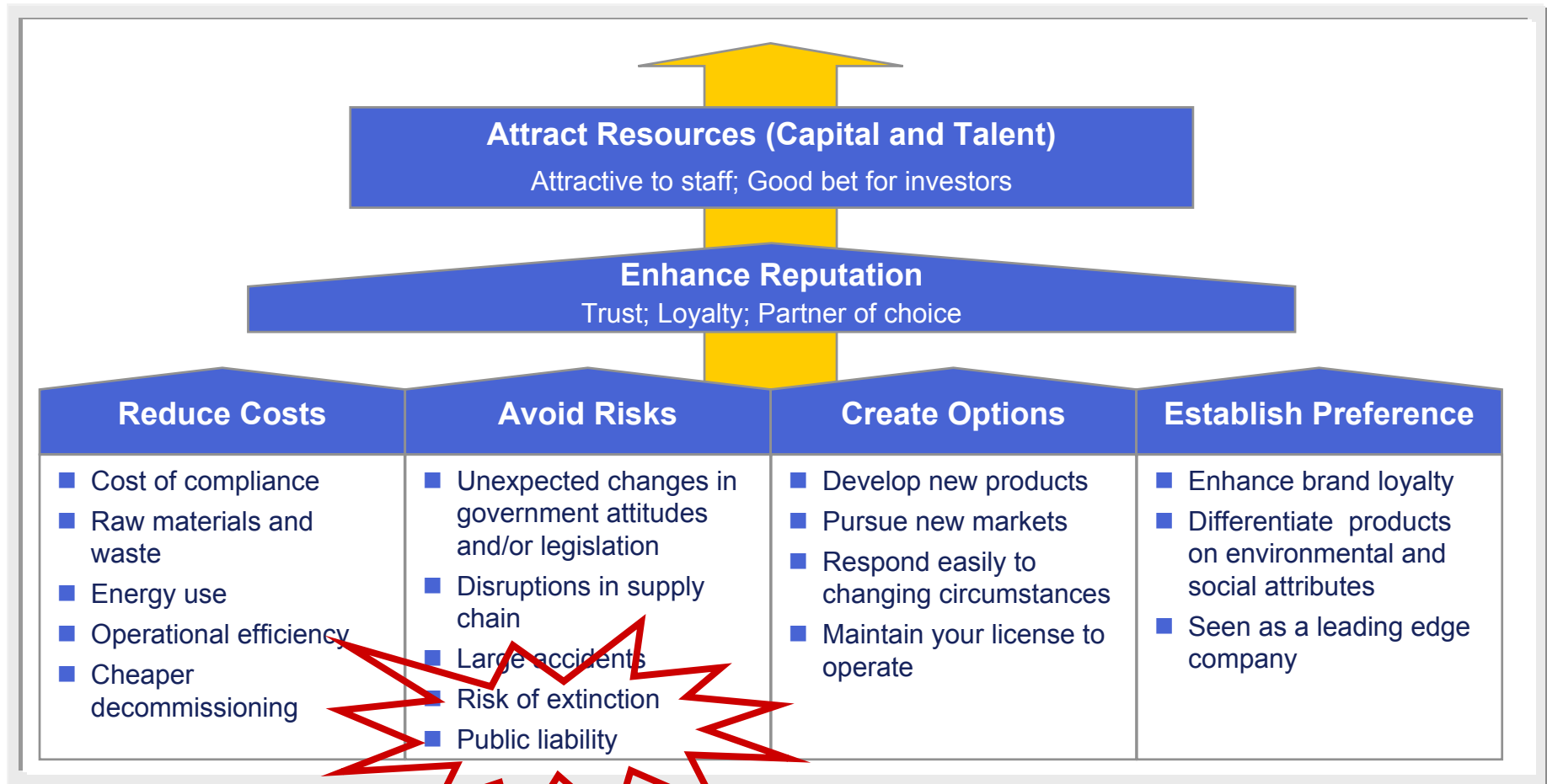
In the UK, the Health and Safety Commission have proposed the following action plan:

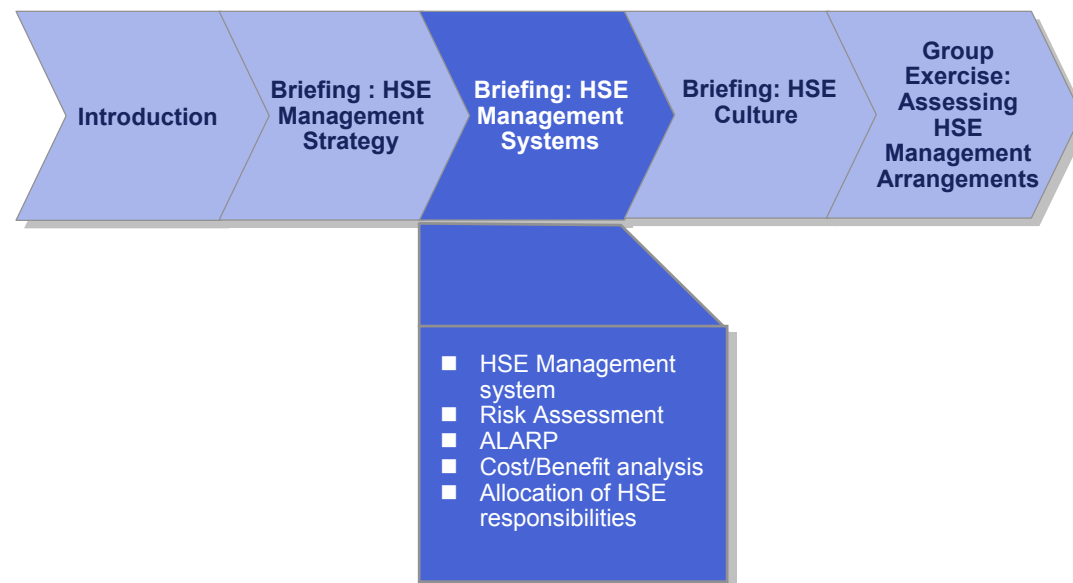
- Action Point 1: The board needs to accept formally and publicly their collective role in providing health and safety leadership in its organisation
- Action Point 2: Each member of the board needs to accept their individual role in providing health and safety leadership for their organisation
- Action Point 3: The board needs to ensure that all board decisions reflect its health and safety intentions, as articulated in the health and safety policy statement
- Action Point 4: The board needs to recognise its role in engaging the active participation of workers in improving health and safety
- Action Point 5: The board needs to ensure that it is kept informed of, and alert to, relevant health and safety risk management issues. The Health and Safety Commission recommends that boards appoint one of their number to be the 'Health and Safety Director'

How do your organisational arrangements compare with this guidance?



Effective HSE Management reduces cost, enhances your reputation and thereby attracts the capital and talent required for growth and profitability



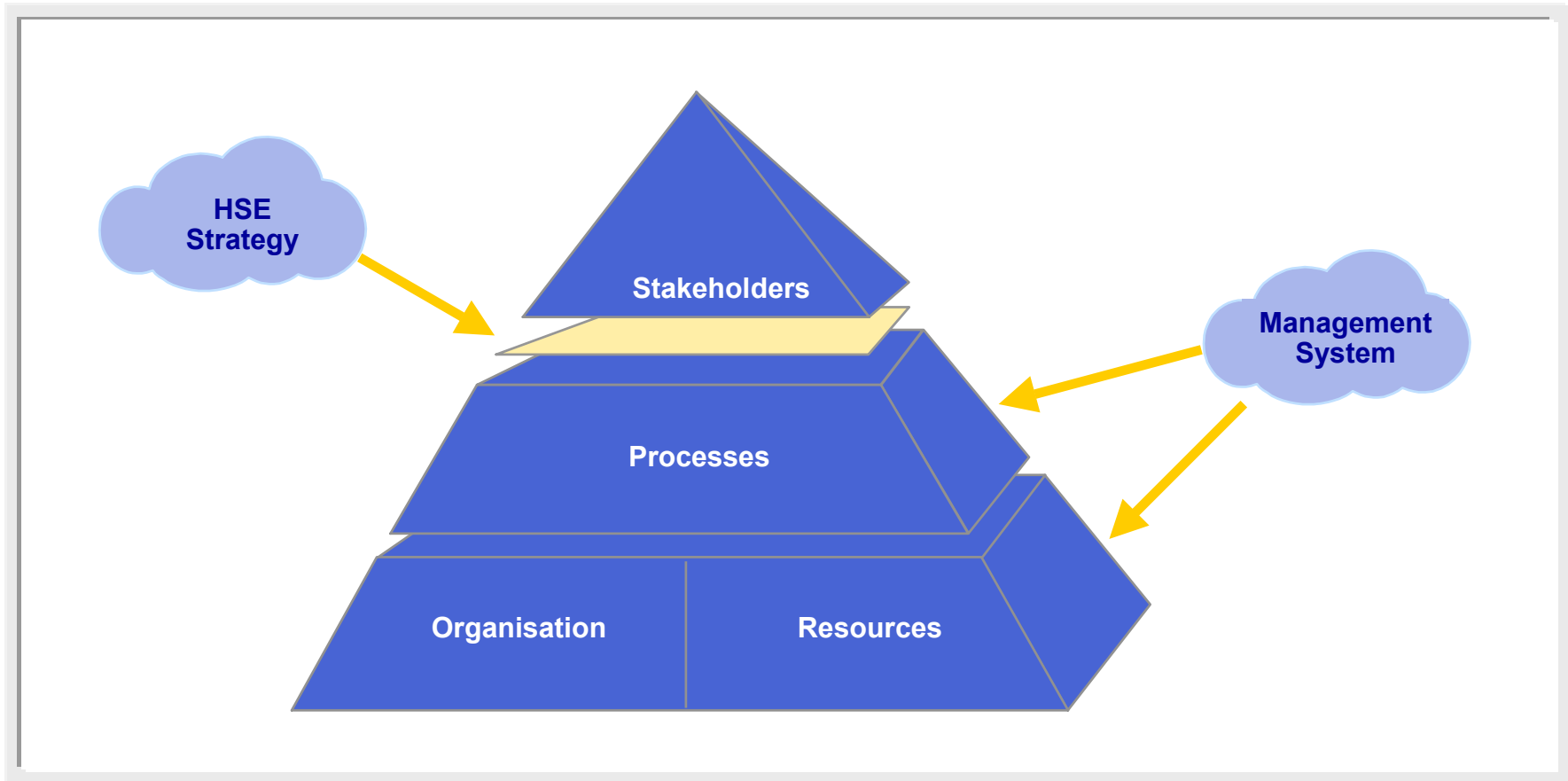


Key Questions to be answered in this session:

- What are the components of an effective management system?
- How do I assess risk and prioritise action?
- How do I allocate HSE risk management responsibilities?

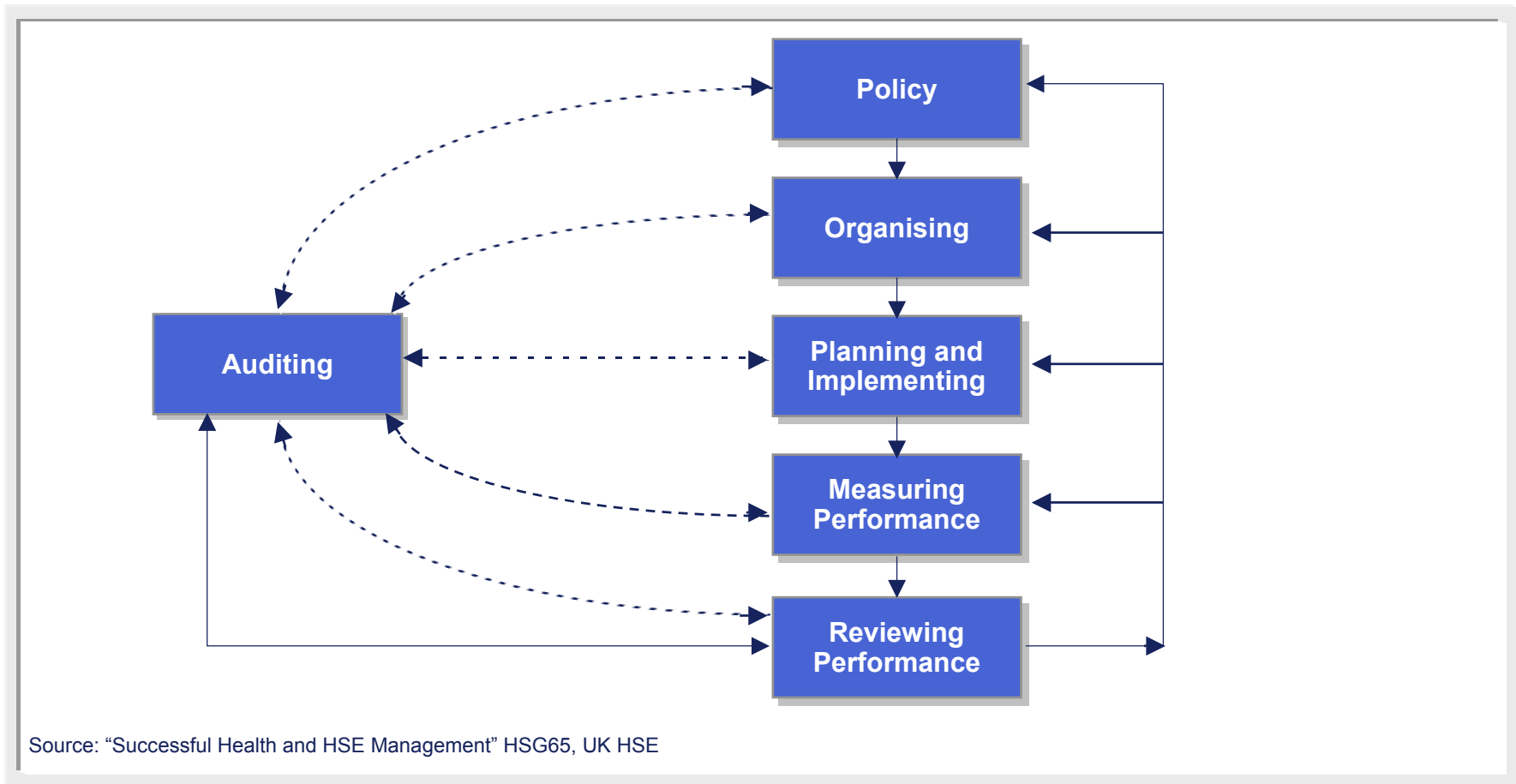


A management system is required to ensure that the HSE strategy is delivered



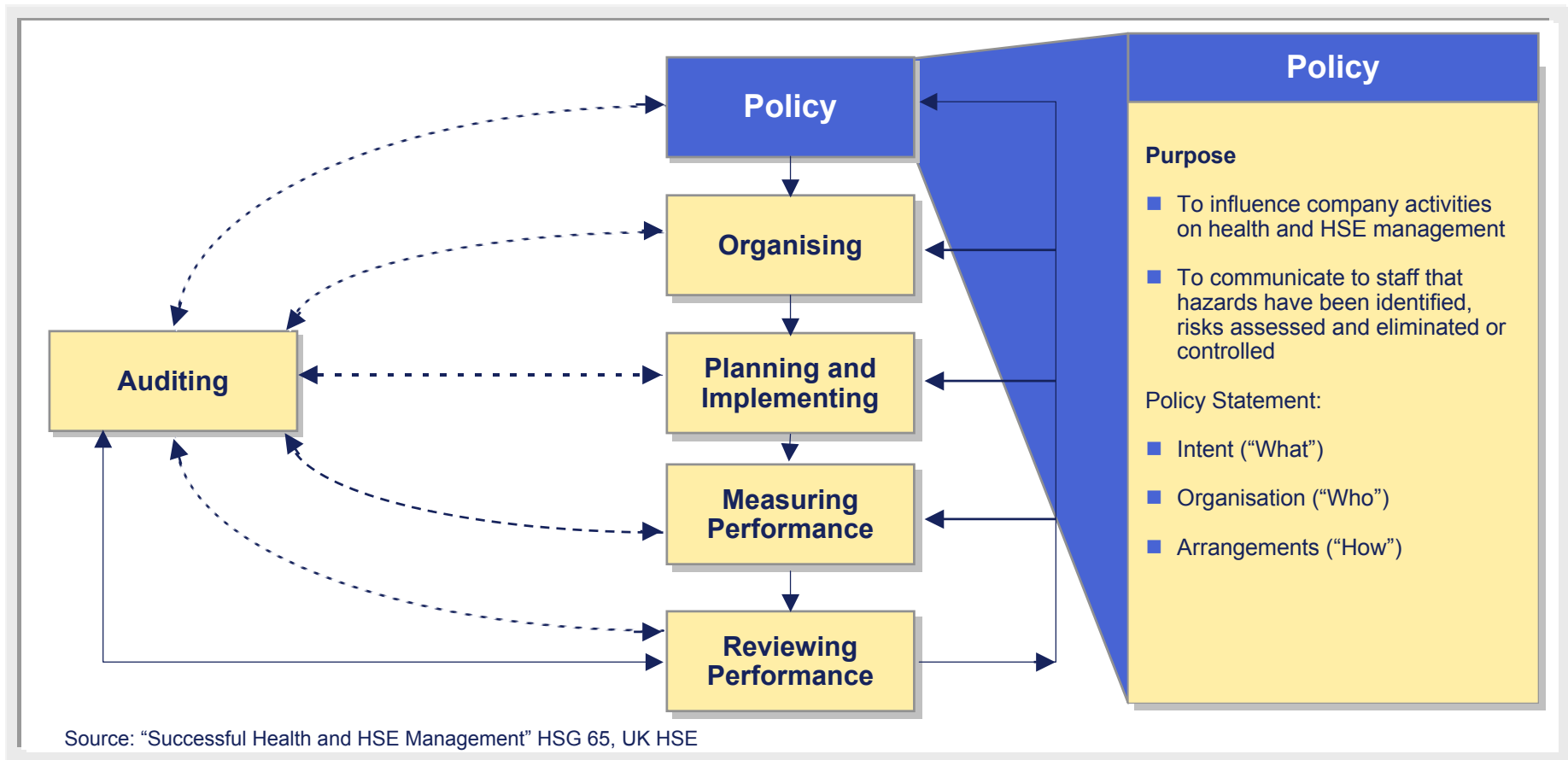


To effectively manage day to day HSE issues a structured approach is recommended



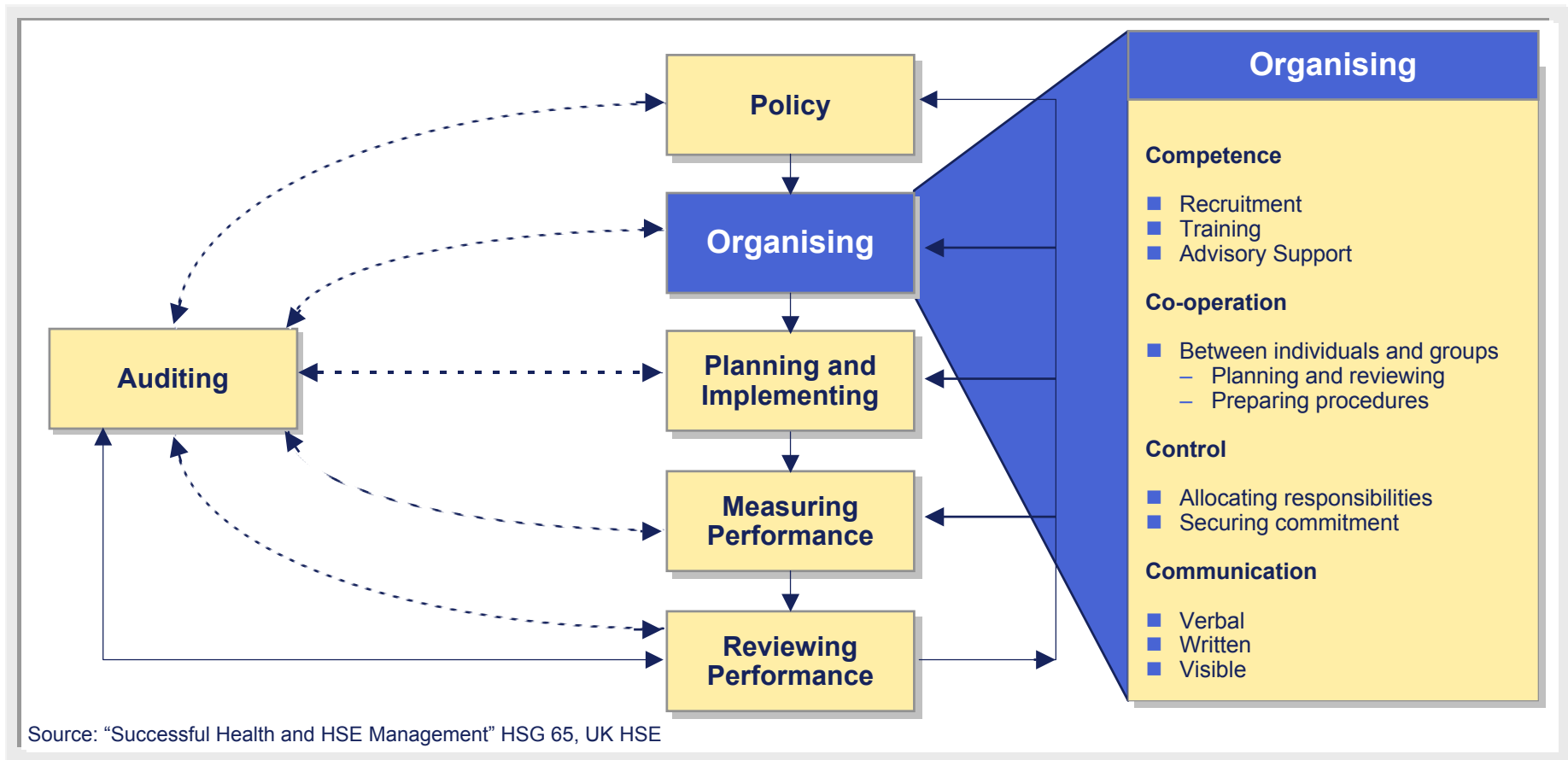


POLICY describes WHAT has to be achieved and is set out in policy statements





ORGANISATION concerns **WHO** has responsibility for carrying out the activity and can be described on job description, organisation charts and HSE responsibility statements

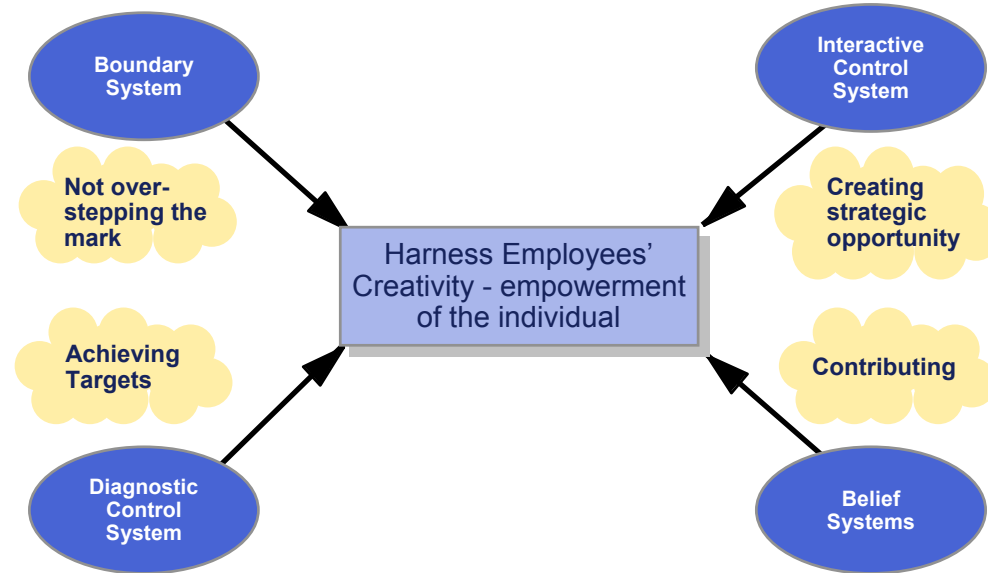




Control may be secured in a variety of ways

- Telling people what not to do
- Allows innovation within clearly defined limits
- Especially critical where “reputation based on trust” is important
- Often instituted too late i.e. reactively rather than proactively

- “Sensing” systems monitoring continuously to identify patterns of change
- Focus on strategic and constantly changing information
- Requires participation and debate at all levels



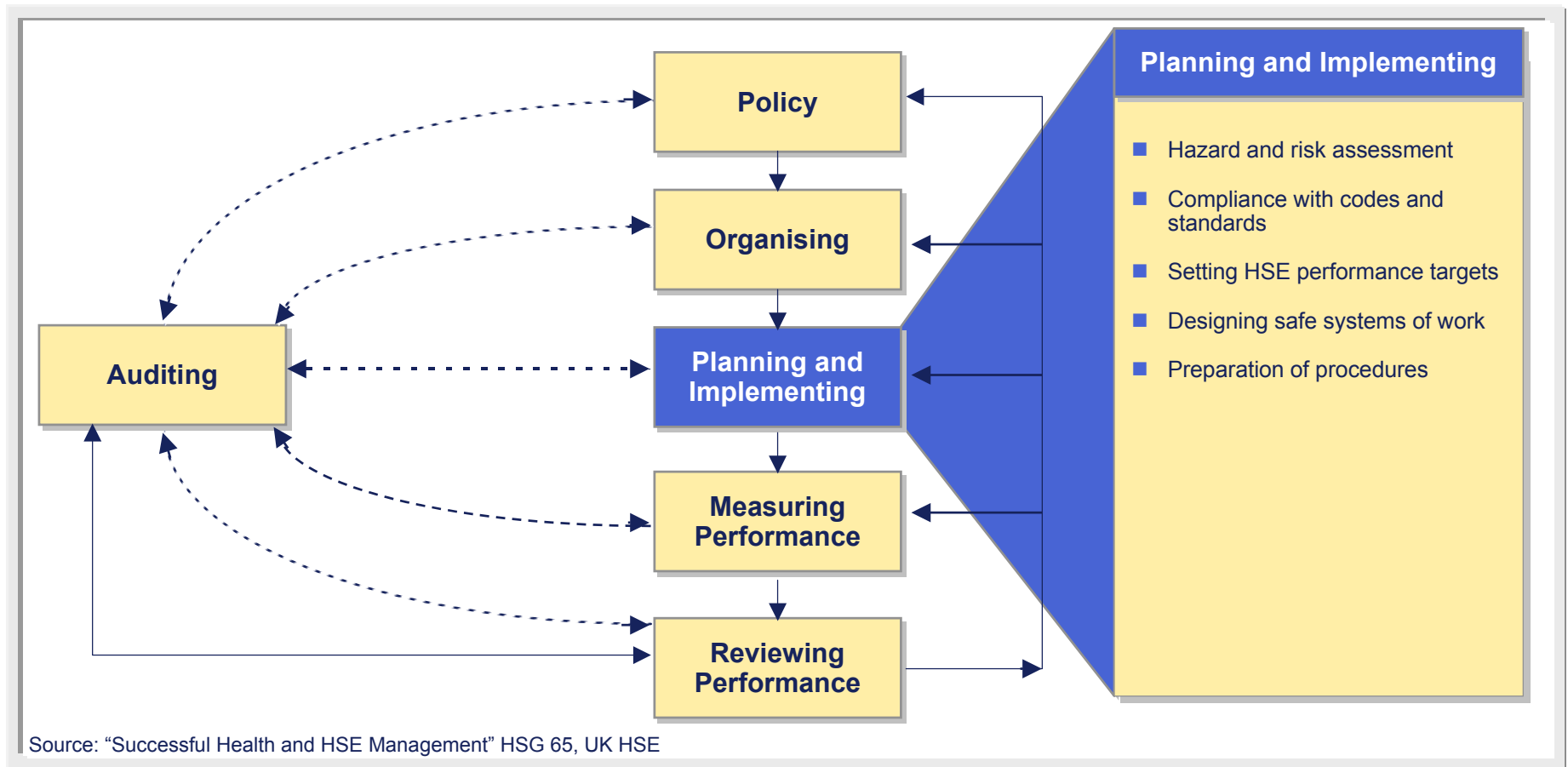
- The “traditional” approach in tracking progress
- “Cockpit” control panel
- Builds and supports clear targets
- Pressures can cause control failure

- Communicate core values and mission
- Motivate individuals to innovate
- Must be seen to be “real” and operate at all levels

Source: Harvard Business Review



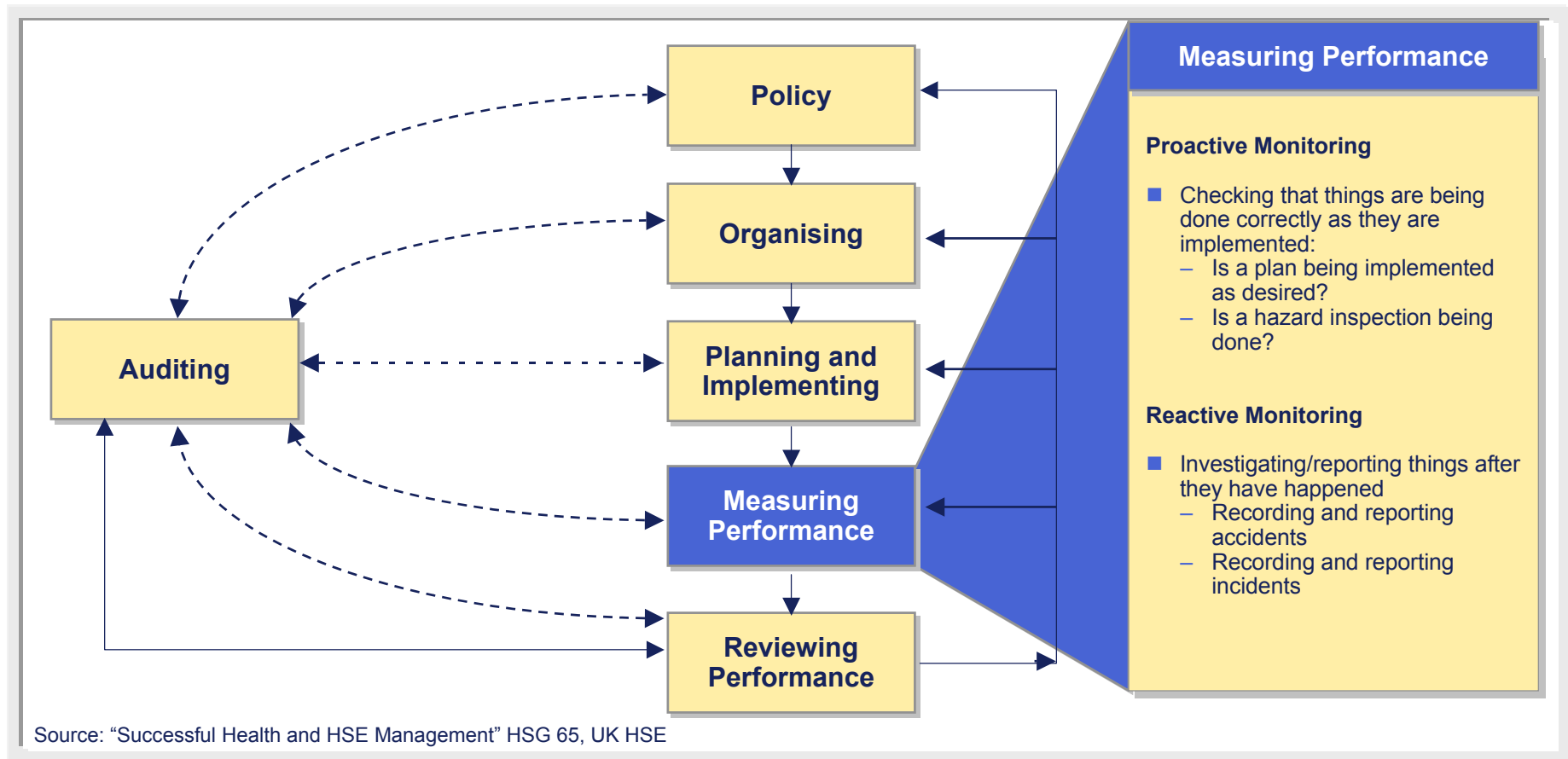
PLANNING and IMPLEMENTING describes How the activity will be achieved. This can include plans, hazard and risk assessment and work instructions



Source: "Successful Health and HSE Management" HSG 65, UK HSE

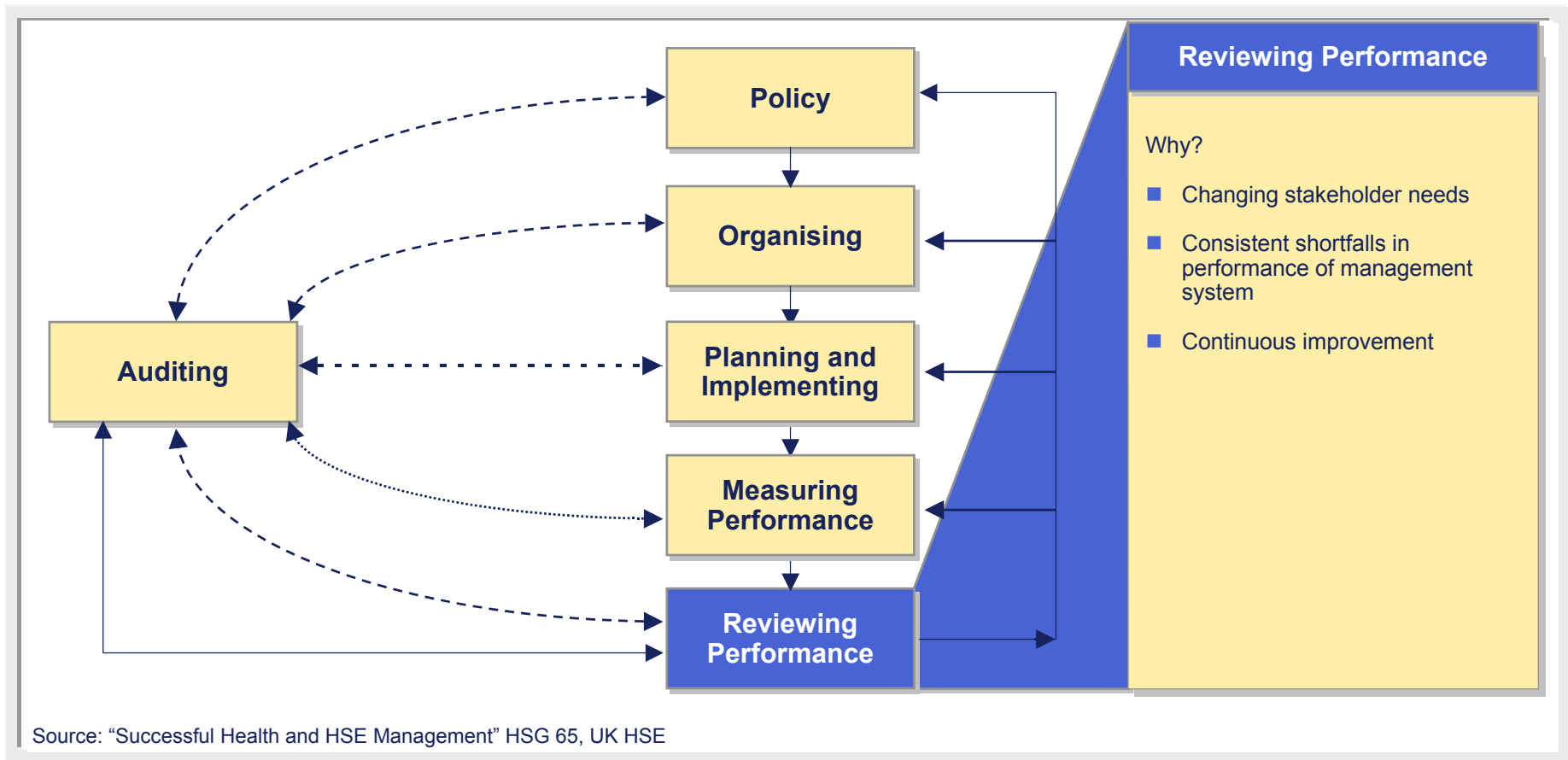


MEASURING PERFORMANCE is achieved by both proactive and reactive monitoring



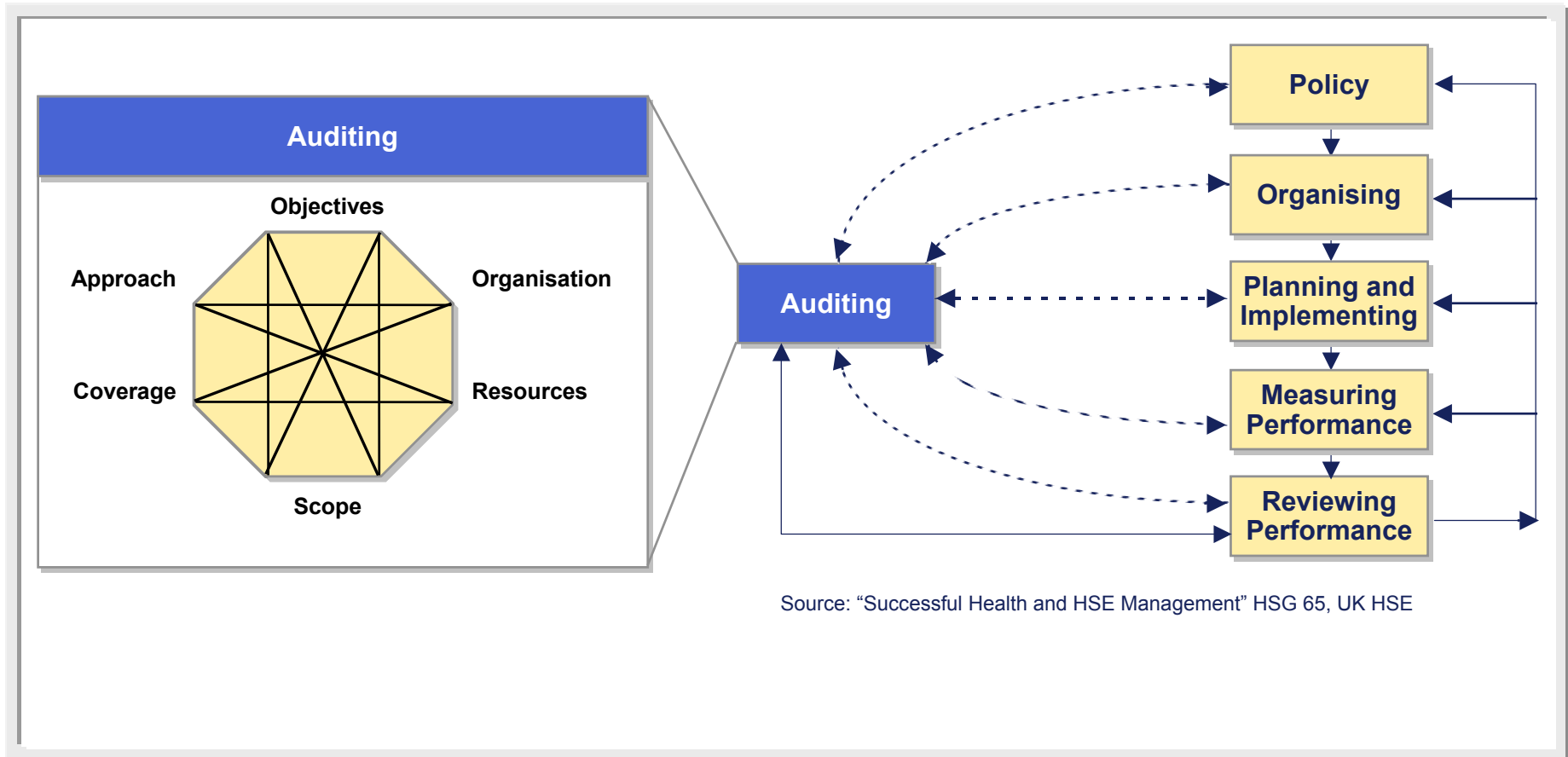


REVIEWING PERFORMANCE allows lessons to be learnt from experience and is used to feed back into and improve the management system





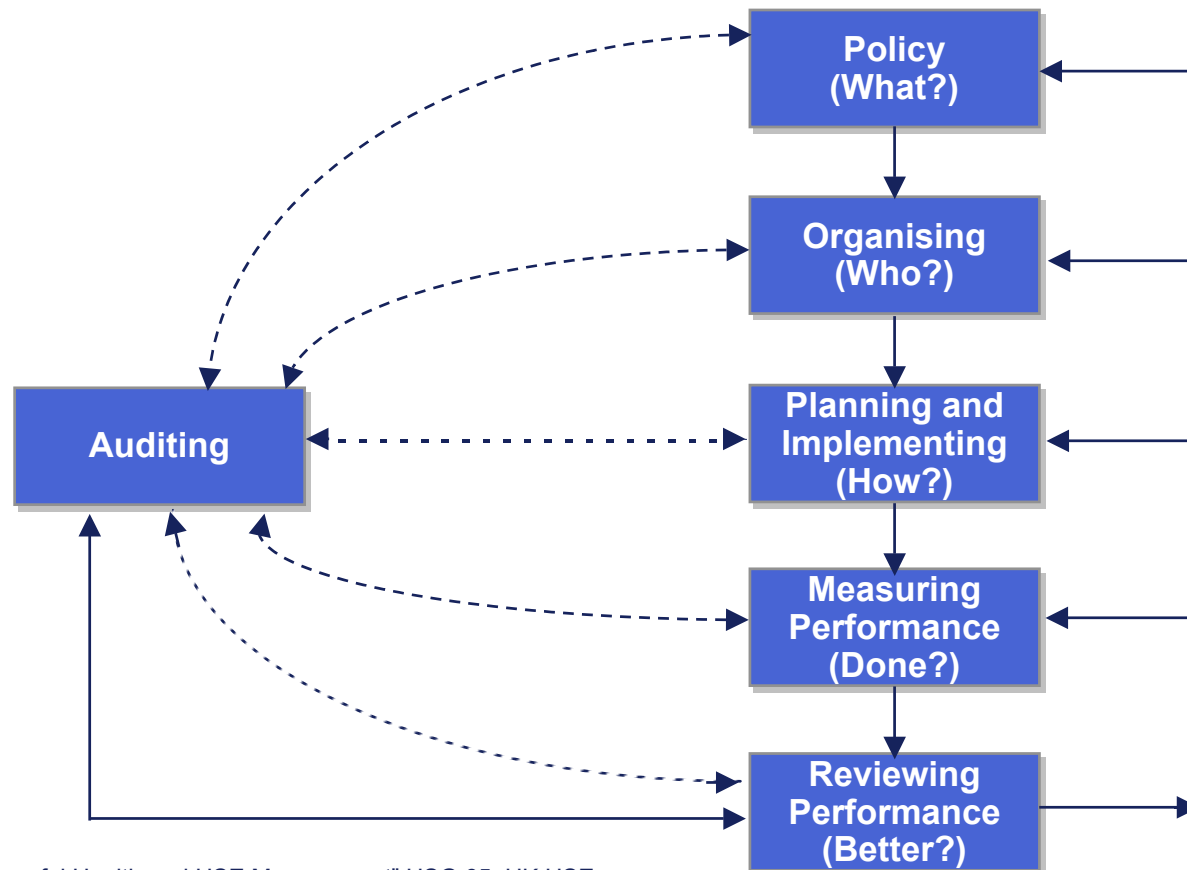
Finally, **AUDIT** provides a *systematic* and *independent* check of compliance with the system, and can also provide a comparison with ‘best practice’



Source: “Successful Health and HSE Management” HSG 65, UK HSE



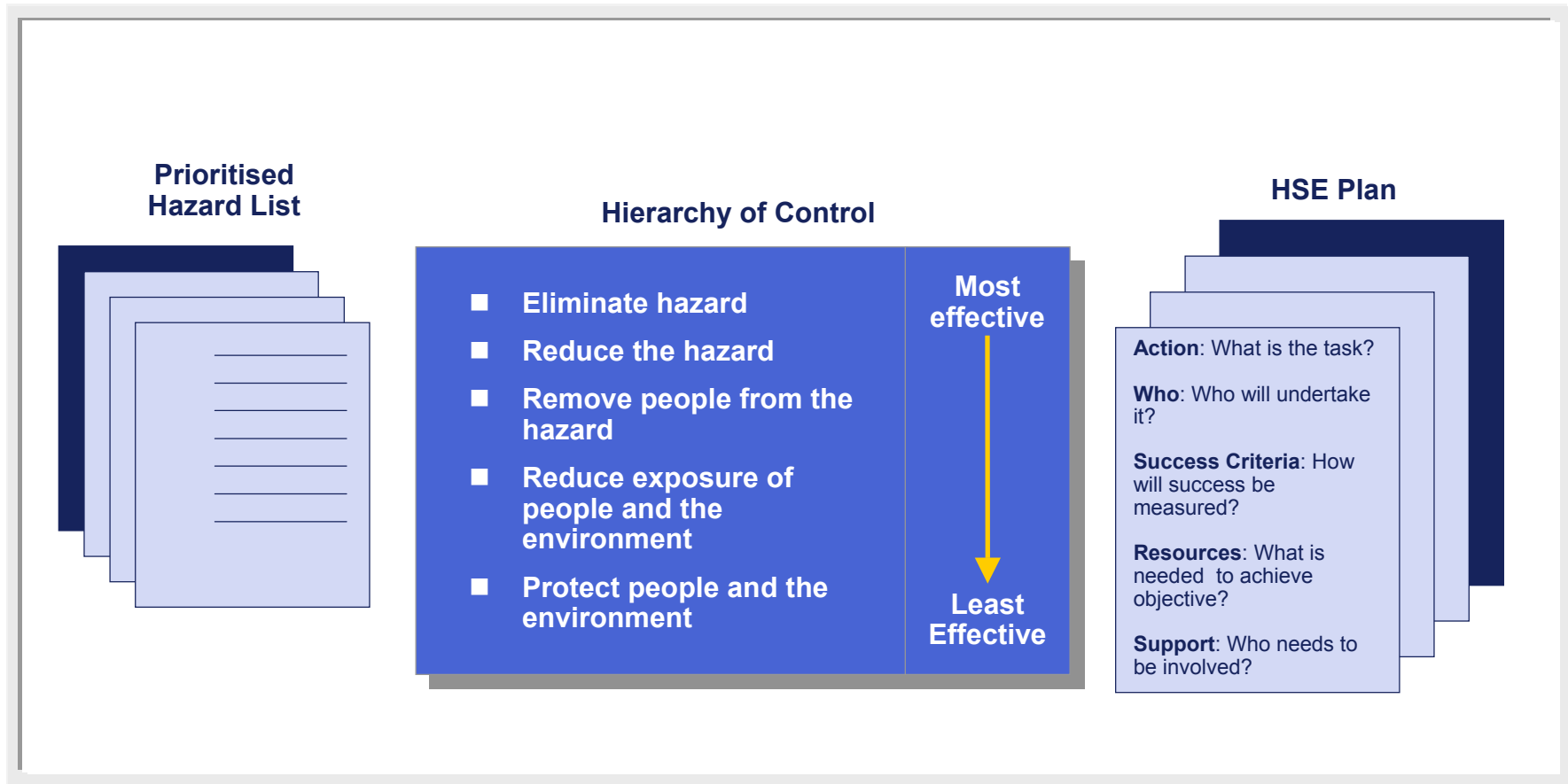
A rapid assessment of the effectiveness of a management system can be made by “combing through” the arrangements with reference to these key points



Source: “Successful Health and HSE Management” HSG 65, UK HSE

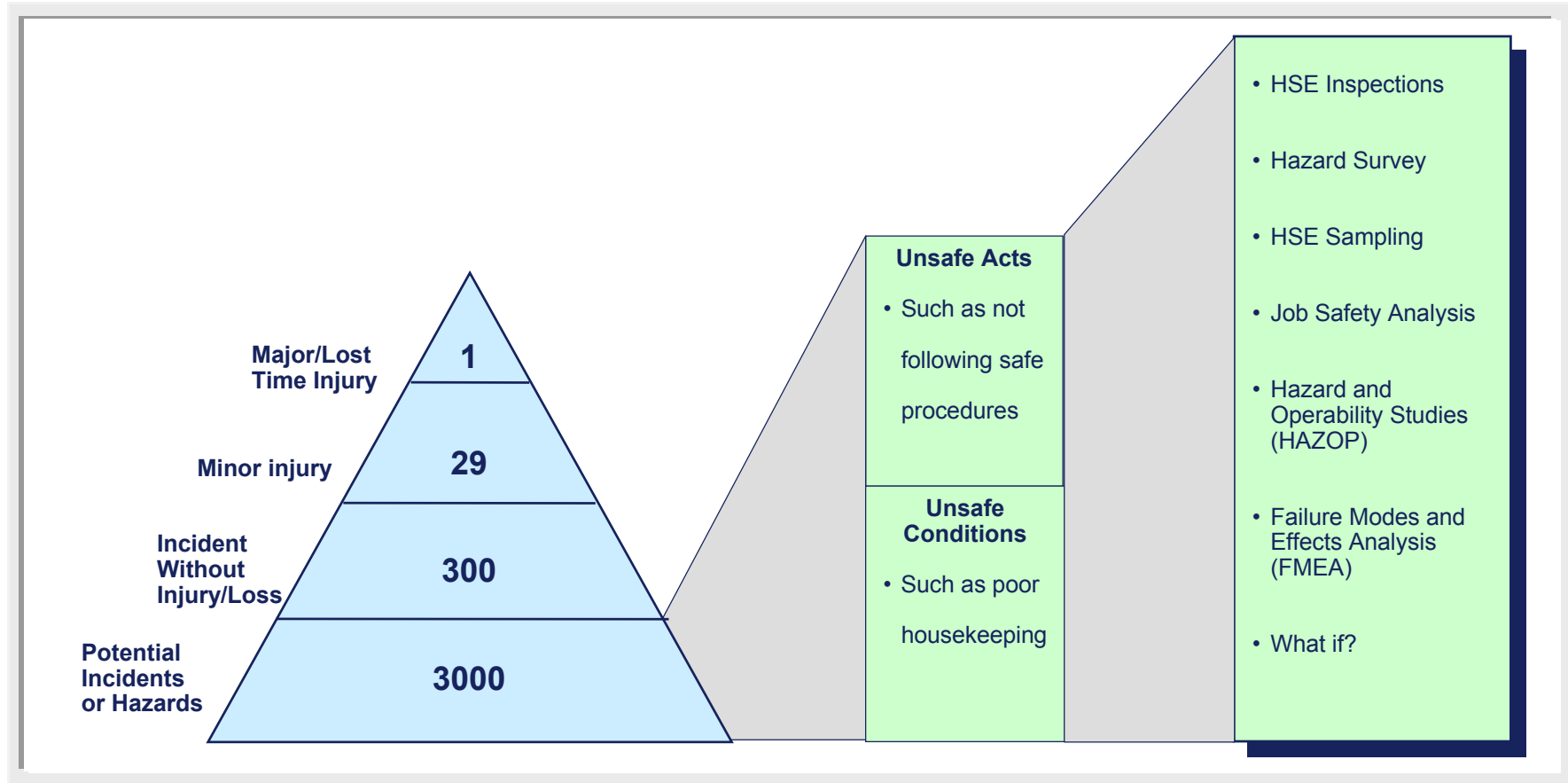


Risk assessment is a crucial part of an HSE management system, the process comprises identifying, prioritizing and controlling hazards



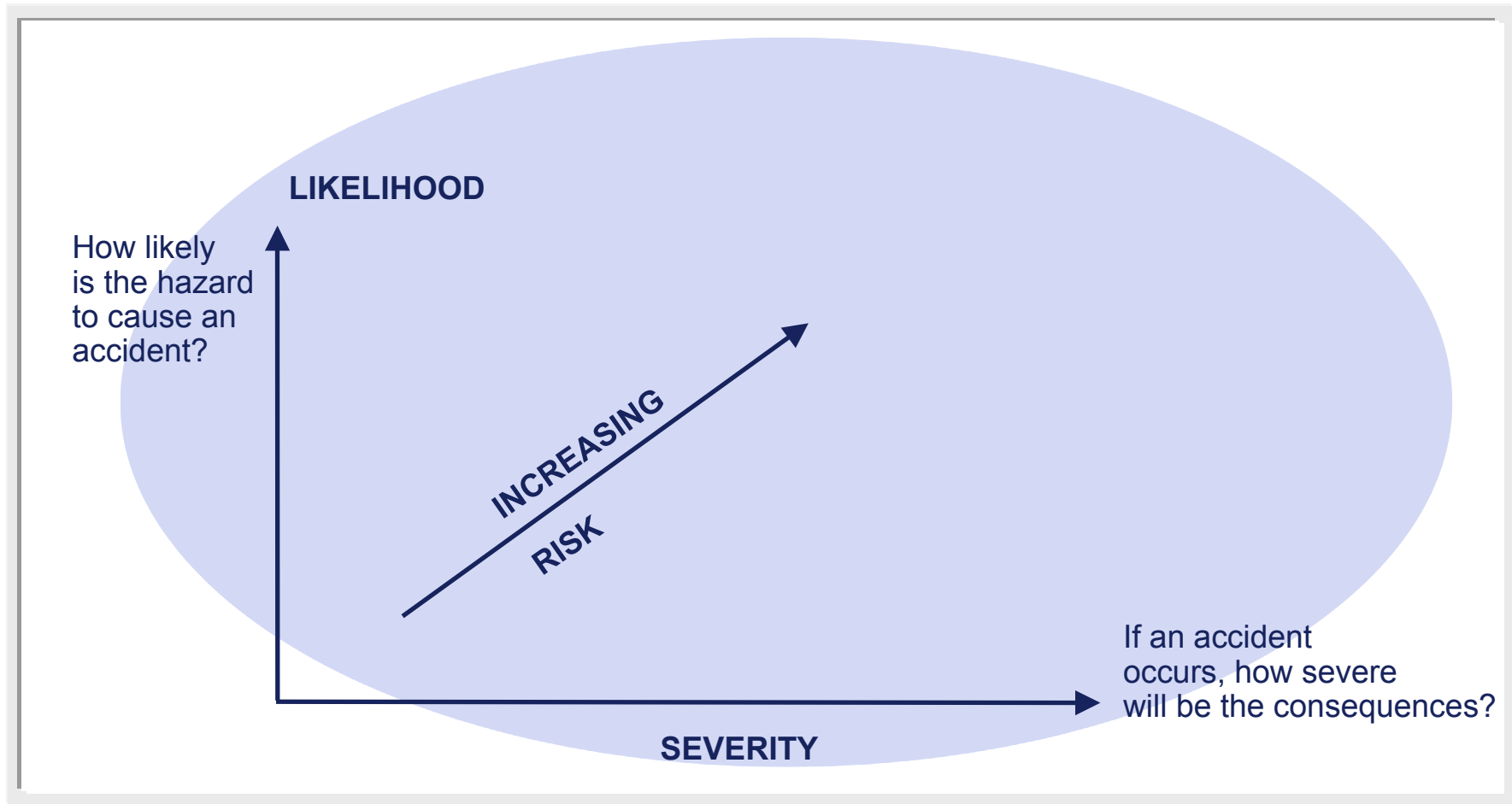


Hazards are defined as “situations with the potential to cause death, injury, or some form of loss”, there are many techniques to identify such situations





This potential is expressed as the “risk” and is measured in two dimensions





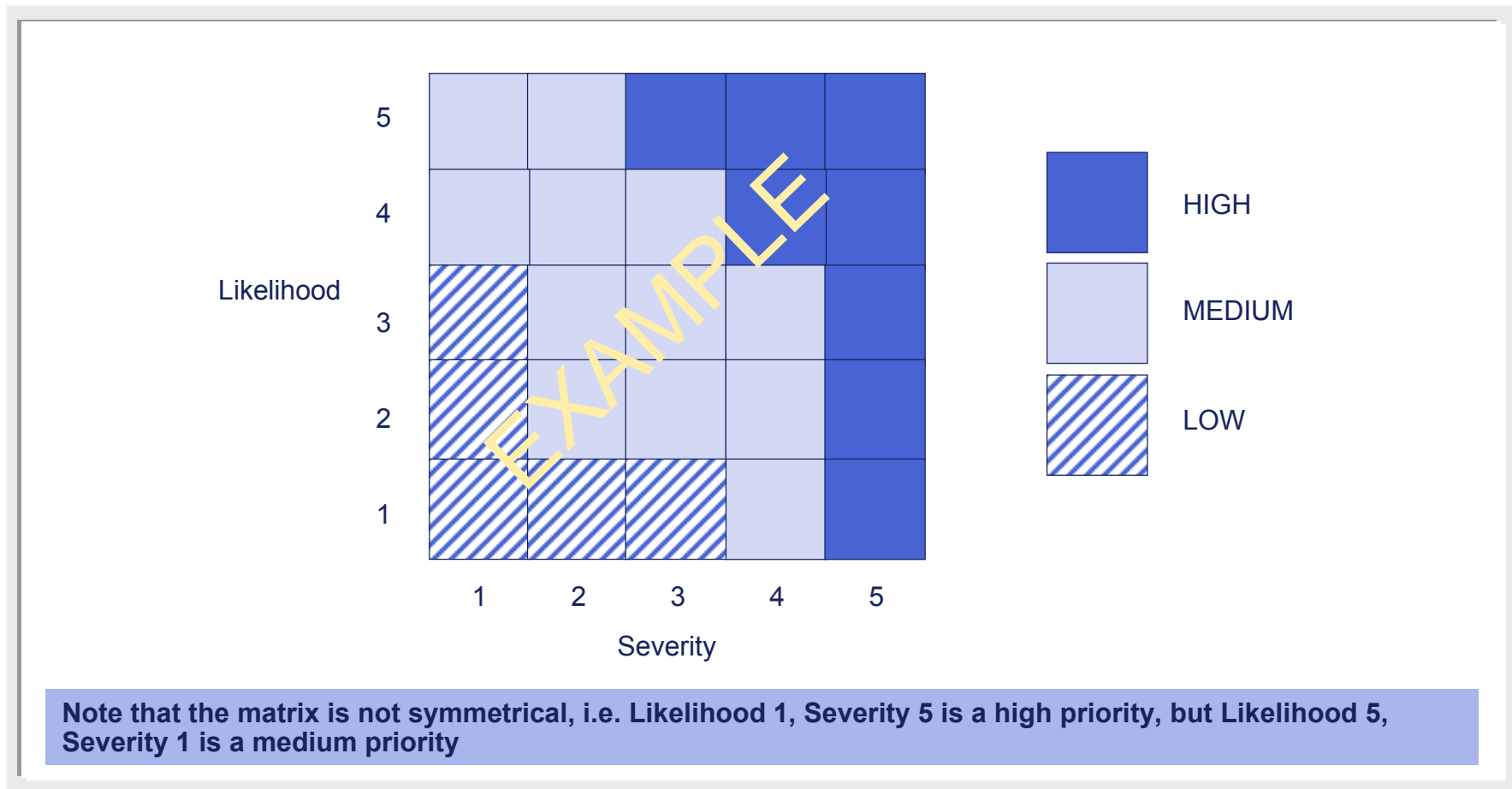
Simple scales for rating likelihood and severity are developed

Likelihood		Severity	
1	Once in 10 years	1	No or slight injury
2	Annually	2	Minor injury
3	Monthly	3	Single major injury
4	Weekly	4	Single fatality or multiple major injury
5	Daily	5	Multiple fatalities

Typically scales of 1 to 5 are used but greater resolution can be achieved by using more steps in the scale as required



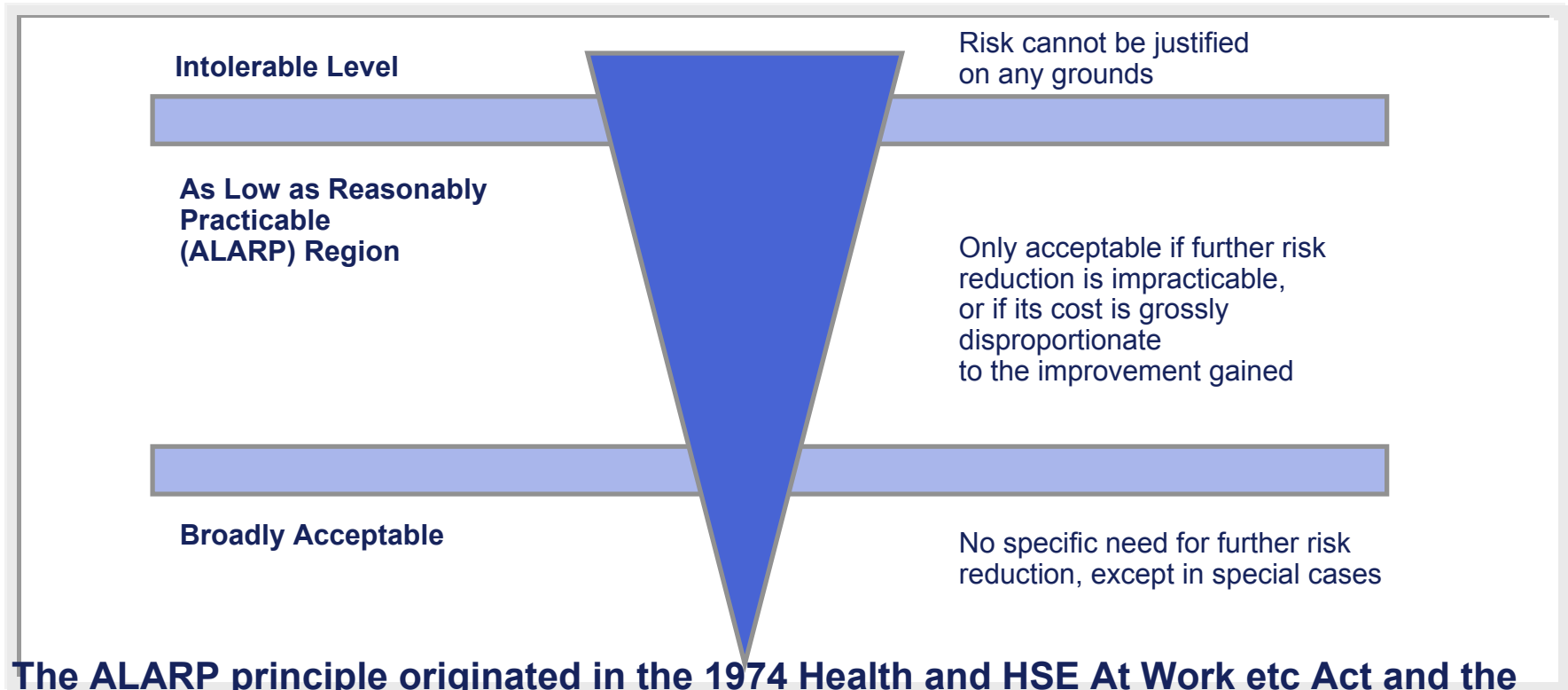
A 5 x 5 matrix is used to determine action priority



Organisations develop their own prioritisation matrix based on stakeholder expectations



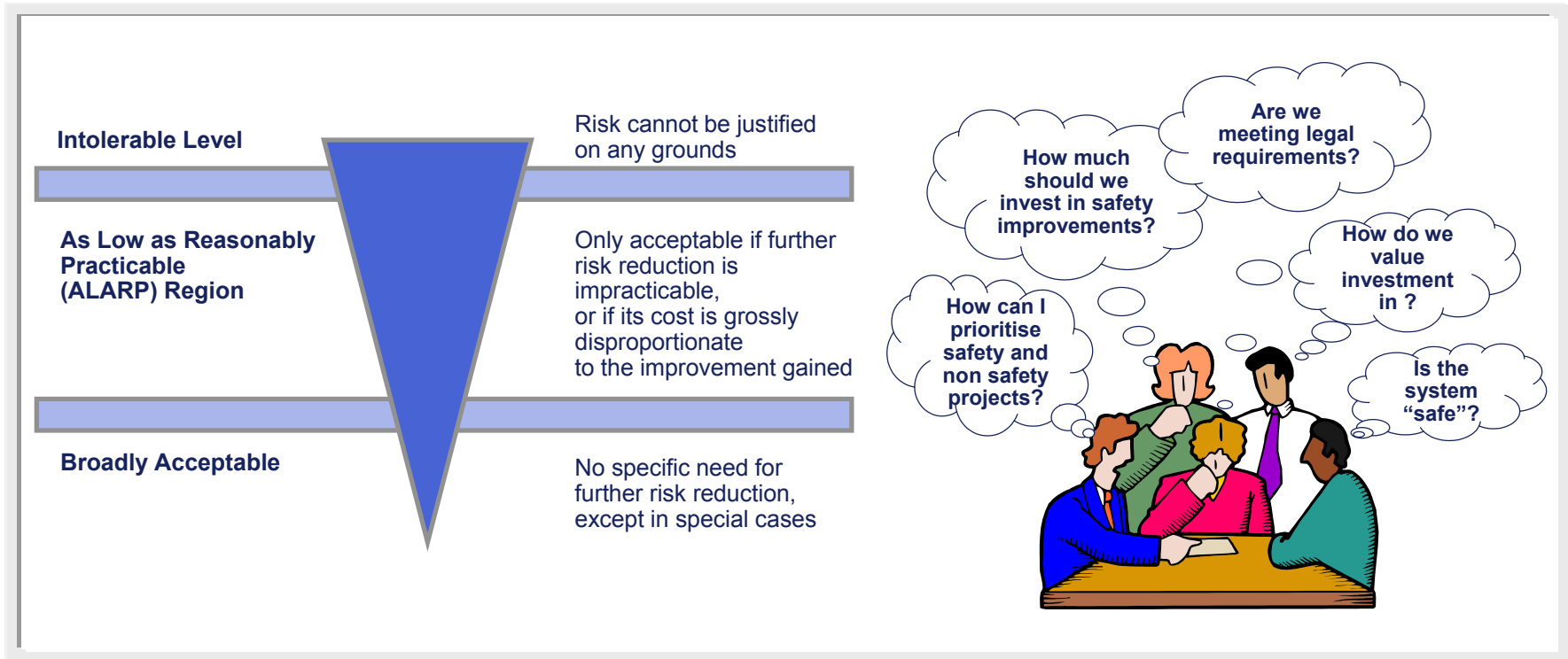
To determining the appropriate extent of controls, international organisations typically ensure that risks are reduced 'As Low as Reasonably Practicable' (ALARP)



The ALARP principle originated in the 1974 Health and HSE At Work etc Act and the ALARP diagram was initially developed in connection with the nuclear power industry



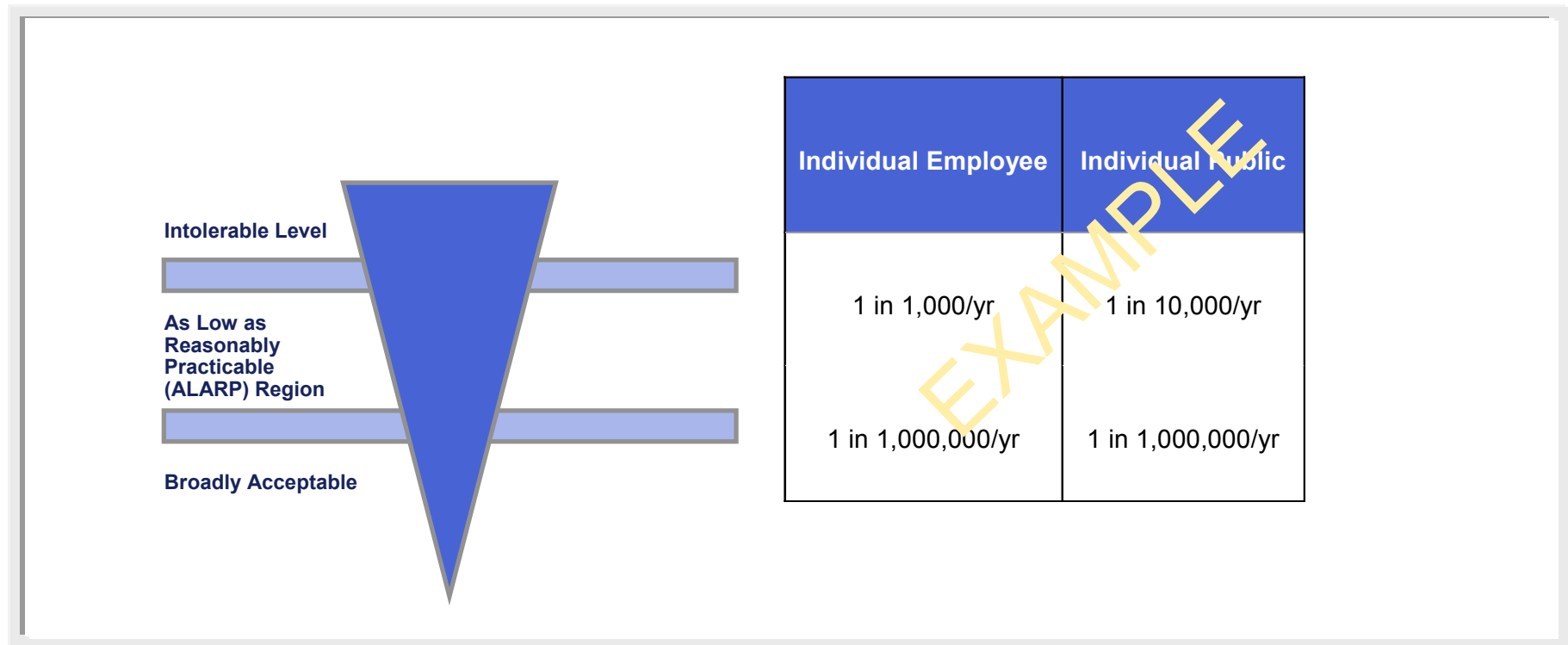
Interpretation of the ALARP principle provides a framework for determining whether existing systems are acceptably safe – and also for evaluating potential safety investments



Environmental management investments, that go beyond legal compliance, are often assessed using a similar “value for money” approach called BATNEEC (Best Available Technology Not Entailing Excessive Cost)



Industries and companies defined target thresholds expressed as *annual individual risk of fatality* – i.e. the annual likelihood of one fatality in an exposed population (1 in ‘n’) due to their operations



The above targets, suggested by the UK’s Health and Safety Executive are similar to those adopted internationally for industrial complexes

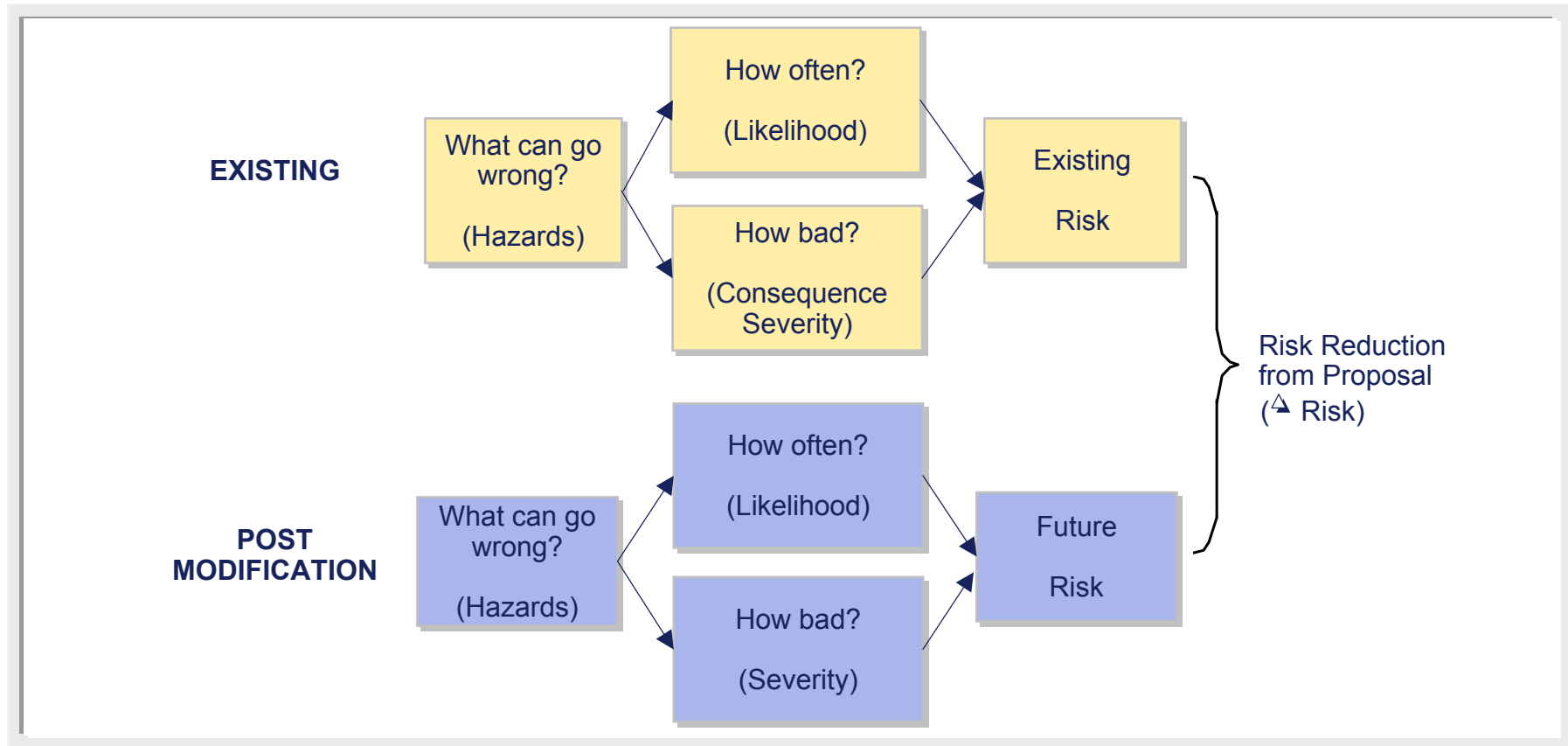


These risk criteria can be put into perspective by considering risks in everyday life

Fatality Risk Threshold	Industrial Group Application	Approximate Annual Equivalent Risk (UK population)
1 in 1,000 yr	Upper limit for employee	Death from all causes, average 35 year old
1 in 10,000 yr	Upper limit for public	Death from road accident (corresponds to driving about 1 hour per day)
1 in 1,000,000 yr	'Broadly acceptable' risk	'Staying at home', e.g. domestic gas incident (carbon monoxide poisoning, fire or explosion)

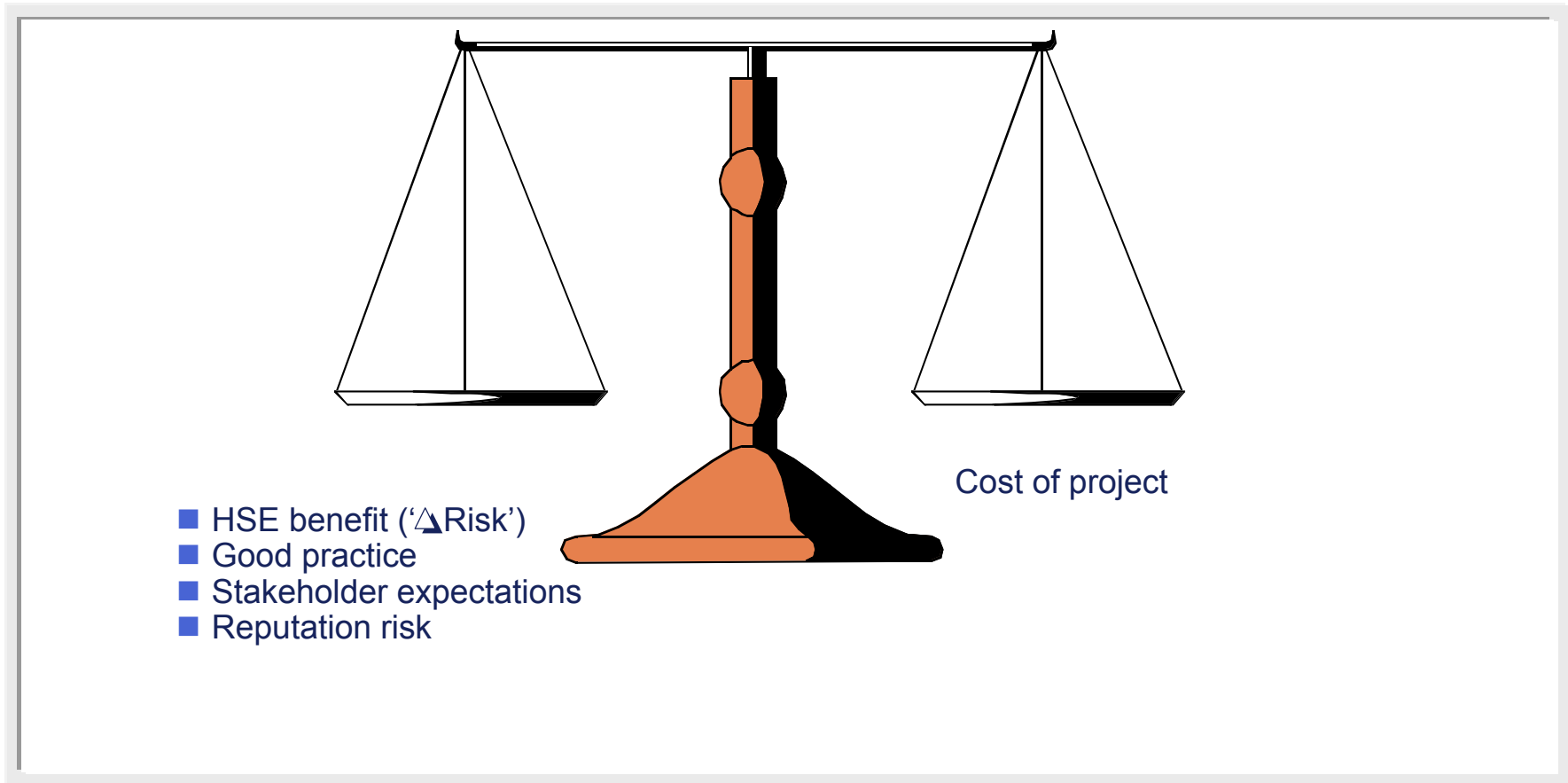


Risk assessment can be used to evaluate the benefits of a proposal. These techniques follow a common overall approach, irrespective of complexity



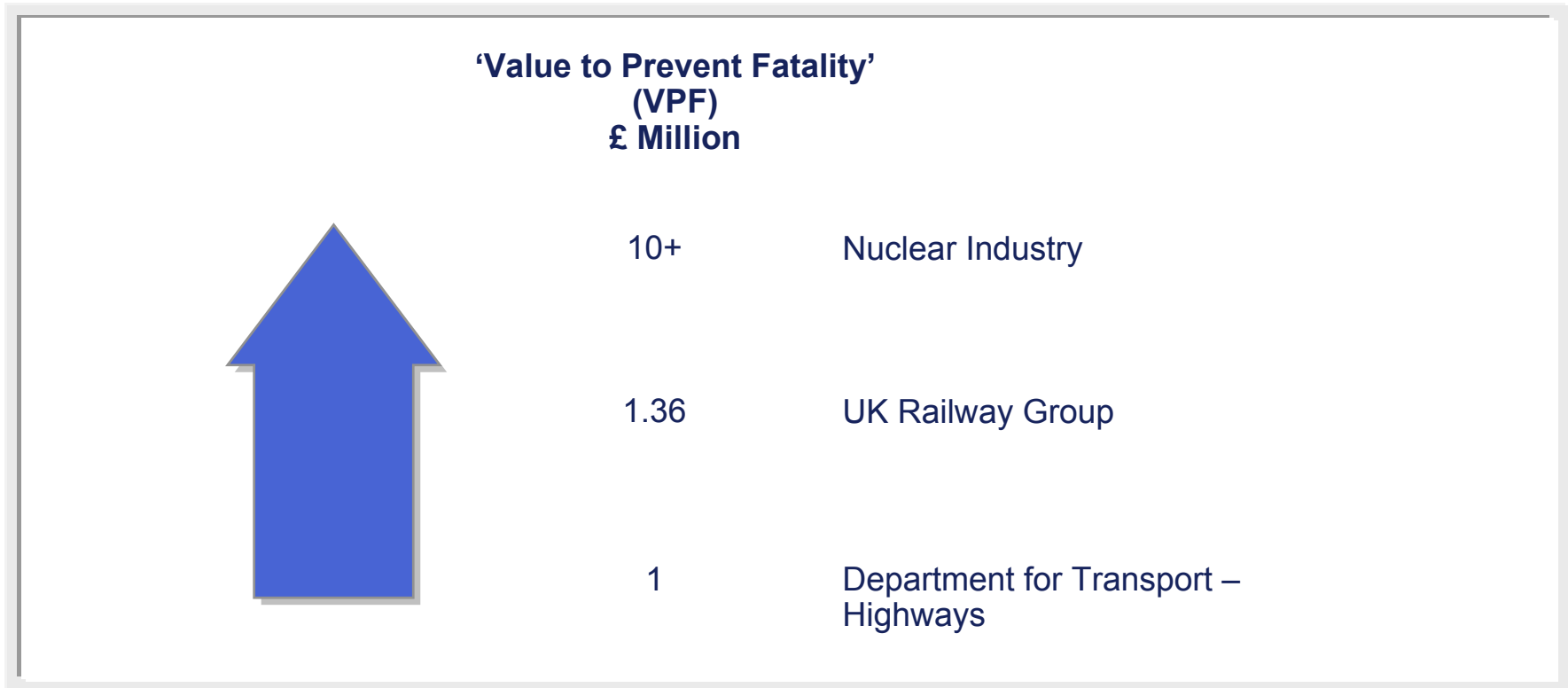


Cost-benefit analysis techniques must also be employed to determine proposal viability



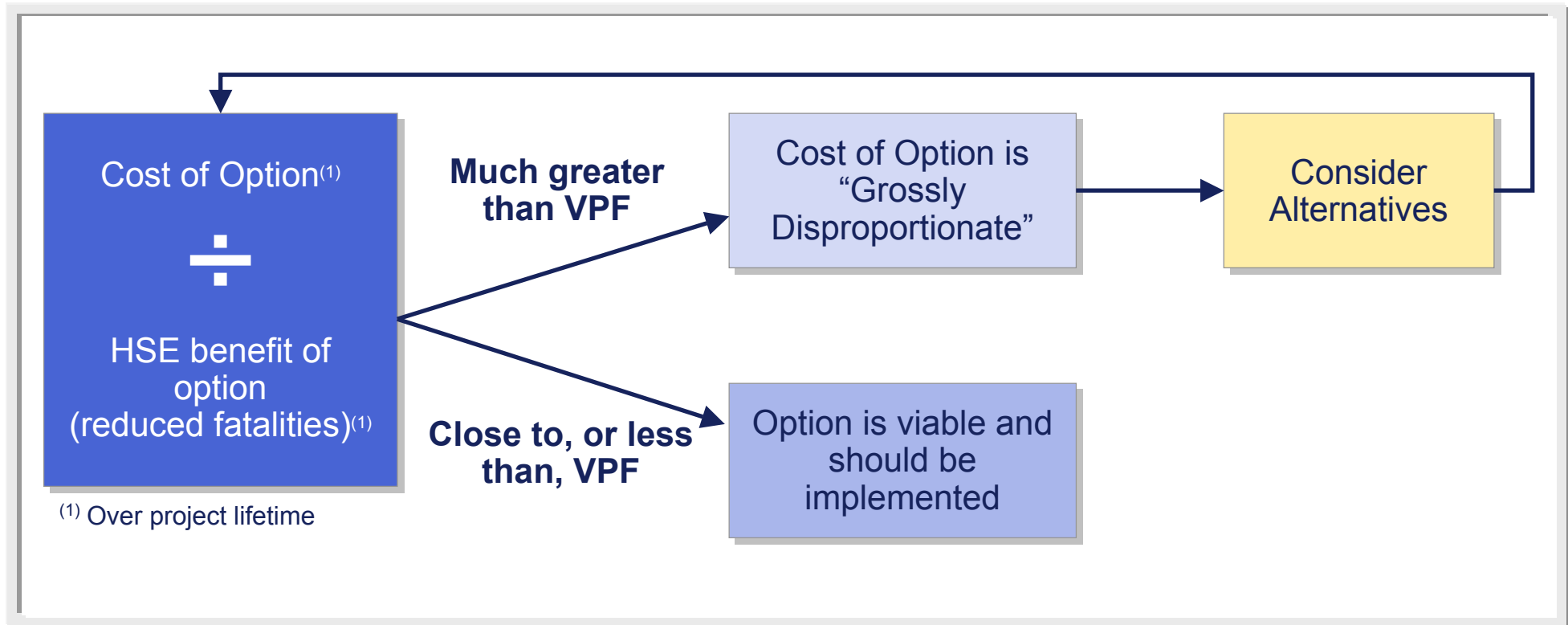


Results of cost-benefit analysis can be compared with the level of investment considered appropriate to avoid a statistical fatality





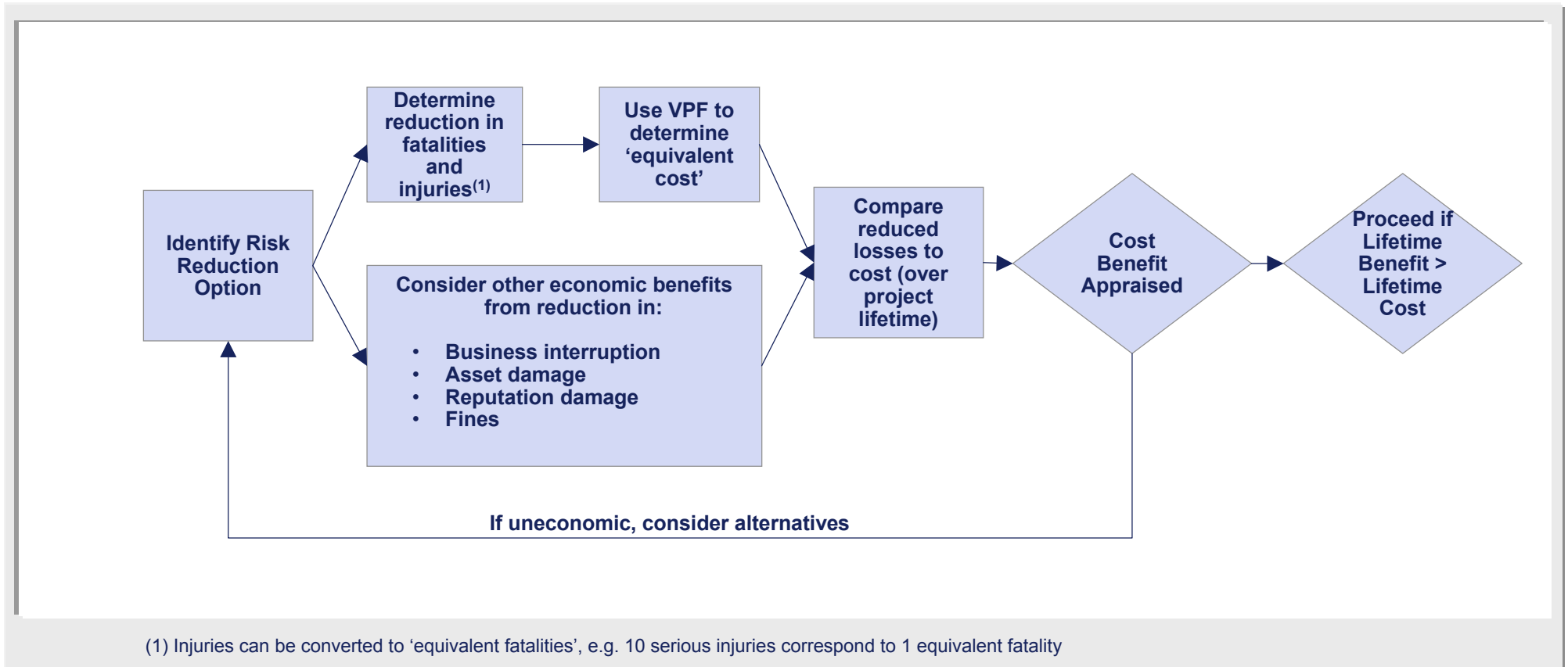
The VPF can be used to determine whether the cost of a specific risk reduction option is 'grossly disproportionate' to the benefit gained



Risks can only be considered ALARP when *all* possible risk reduction options have been evaluated



Cost benefit analysis should ideally consider *all* project benefits – not just HSE improvements



This approach also allows direct comparison between HSE projects and other projects, for the purposes of prioritising capital expenditure



The UK Safety Regulator (HSE) expects to see a coherent line of argument to demonstrate ALARP ⁽¹⁾

Identify all possible risk reduction measures:

The illustration shows five people (three men and two women) sitting around a table, engaged in a discussion. Above them are three thought bubbles containing the following questions: 'What more can we do?', 'Which measures will we adopt?', and 'Why haven't we done it?'.

The expected extent of this evaluation depends on the magnitude of associated risks

(1) Reference: The Chemical Engineer, October 2002



The UK HSE's interpretation of risk acceptability is likely to consider the following factors ⁽¹⁾:

- Nature of hazard and level of risk (both individual and societal)
- Rigour of arguments employed in any related safety case
- Potential risk reduction measures that have not been considered
- Specific relevant factors, including company safety record, exposure risk to vulnerable populations or individuals, local factors
- Use and abuse of quantified risk assessment: should be to understand risks, not make 'rigid' numeric arguments

(1) Reference: The Chemical Engineer, October 2002



HSE management requires a clear allocation of responsibilities between organisations, departments and individuals

The R.A.C.I. process ensures that for each activity:

- There is one *accountable* party
- There are one or more parties who are *responsible* for the activity
- Those who should be *consulted* and *informed* have been identified

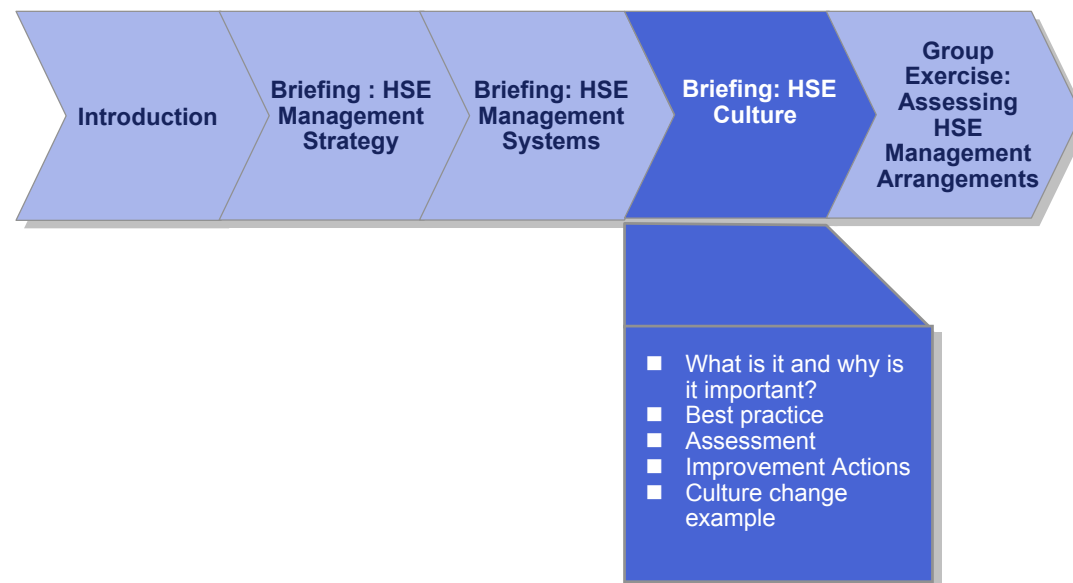
R	= Responsible
A	= Accountable
C	= Consulted
I	= Informed



The R.A.C.I. Matrix is a useful tool for developing and communicating HSE responsibilities

EXAMPLE: A RACI matrix can be used to develop and communicate the responsibilities of different organisations working on one site

Control Measures	RAH Corporate	RAH Ops	BH Ltd	BK Eng.	Catmos	RAH CPO	RAH PG
Undertake role of Client (under CDM)	A	I	I	I	I	I	R
Appoint a Principal Contractor (under CDM) (if required)	A	I	I	I	I	I	R
Ensure all contractors on site of outage are aware of other projects	-	C	I	I	I	C	A
Ensure all contractors working in operating area of refinery are aware of other contractors	A	R	C	I	I	C	C
Notify refinery staff when working at refinery	-	I	R	R	R	A	A
Ensure contractors are told about safety hazards in refinery	A	R	I	I	I	C	C
Ensure effective liaison with Projects Group	A	I	-	-	-	I	R
Ensure effective liaison with Central Procurement Office	A	I	-	-	-	R	I
Ensure contracts let by RAH include safety requirements	A	C	I	I	I	R	R
Ensure inspections of outage area are coordinated	-	C / I	R	I	I	-	A
Ensure inspections of refinery occur	A	R	I	I	I	I	I
Ensure accidents are properly reported and investigated	-	A / R	R	R	R	-	A / R



Key Questions to be answered in this session:

- What is HSE culture and why is it important?
- What is good practice?
- How do I assess it and improve it?



Many companies have found that having good technical and management systems is not enough to achieve sustainable improvement

	<p>The Performance Plateau</p>	<p><i>'We've got all the systems in place, so why isn't our performance improving?'</i></p>
	<p>Drowning in Paperwork</p>	<p><i>'All the paperwork is there, but we're not reaching the people actually doing the work.'</i></p>
	<p>Managing HSE During Change</p>	<p><i>'Our health, safety and environmental management systems are too inflexible to keep up with our transformation programme. How do we cover the gaps?'</i></p>
	<p>Doing More with Less</p>	<p><i>'Why do I need a staff of 30 to tell my line managers how to manage these issues?'</i></p>

Is culture the key ?



Poor or inappropriate 'safety culture' has long been recognised as a key cause of major catastrophes

Clapham Junction

But it was not merely the errors and omissions of those who were engaged in the work on the day in question which caused the accident. The errors go much wider and higher in the organisation than merely to remain at the hands of those who were working that day.

Ref: Hidden Report on Clapham Junction Accident 1989

Piper Alpha

It is essential to create a corporate culture in which safety is understood to be and accepted as the number one priority (Lord Cullen - Piper Alpha Disaster)

Herd of Free Enterprise

"All concerned in the management from the members of the Board of Directors down to the junior superintendents were guilty of fault in that all must be regarded as sharing the responsibility for the failure of management. From the top to the bottom the body corporate was infected with the disease of sloppiness"



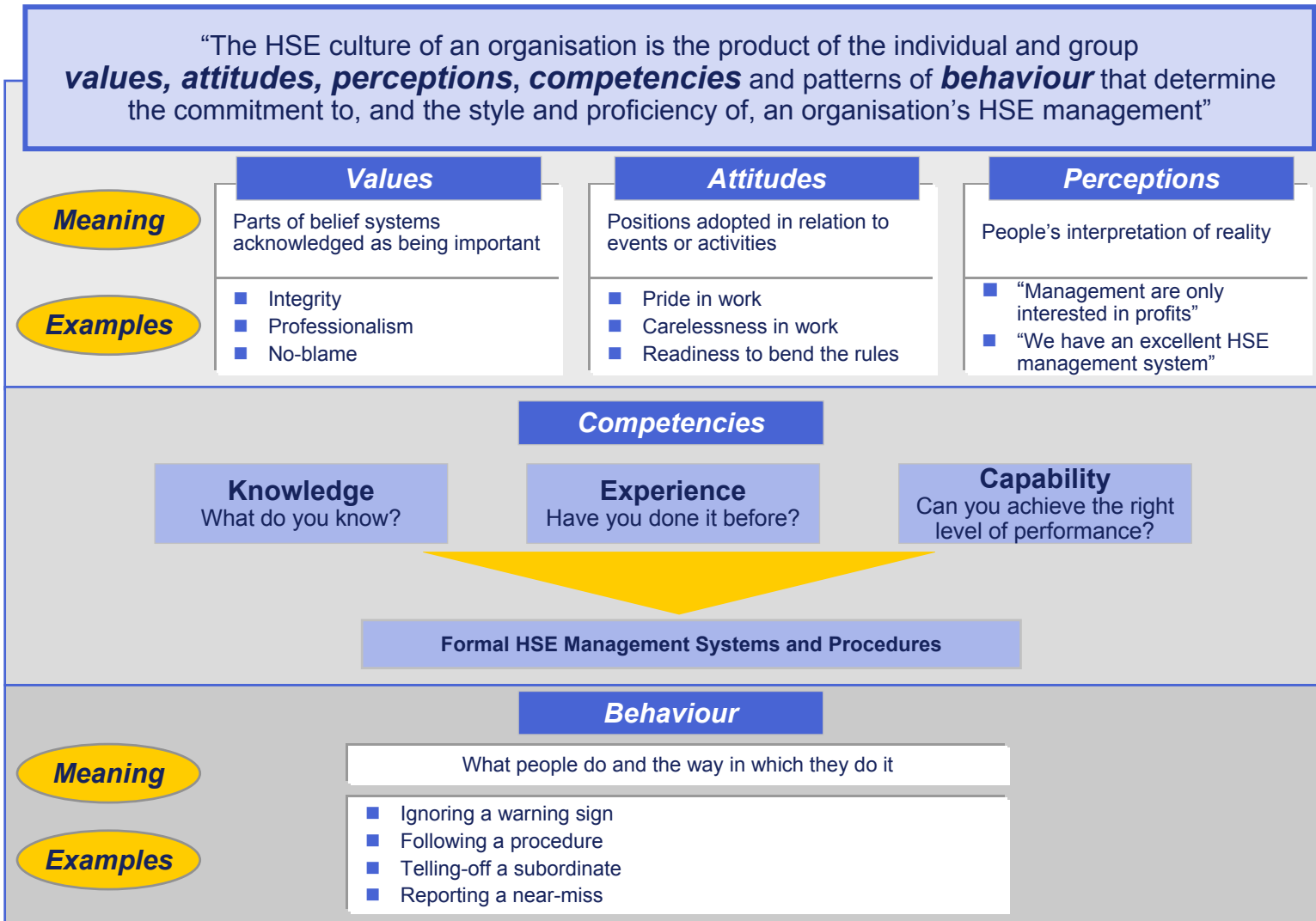
HSE culture is concerned with ‘what really goes on around here’. The UK’s Health and Safety Commission has established a useful definition

“The safety culture of an organisation is the product of the individual and group **values, attitudes, perceptions, competencies** and patterns of **behaviour** that determine the commitment to, and the style and proficiency of, an organisation’s health and safety management”

[UK Health & Safety Commission]

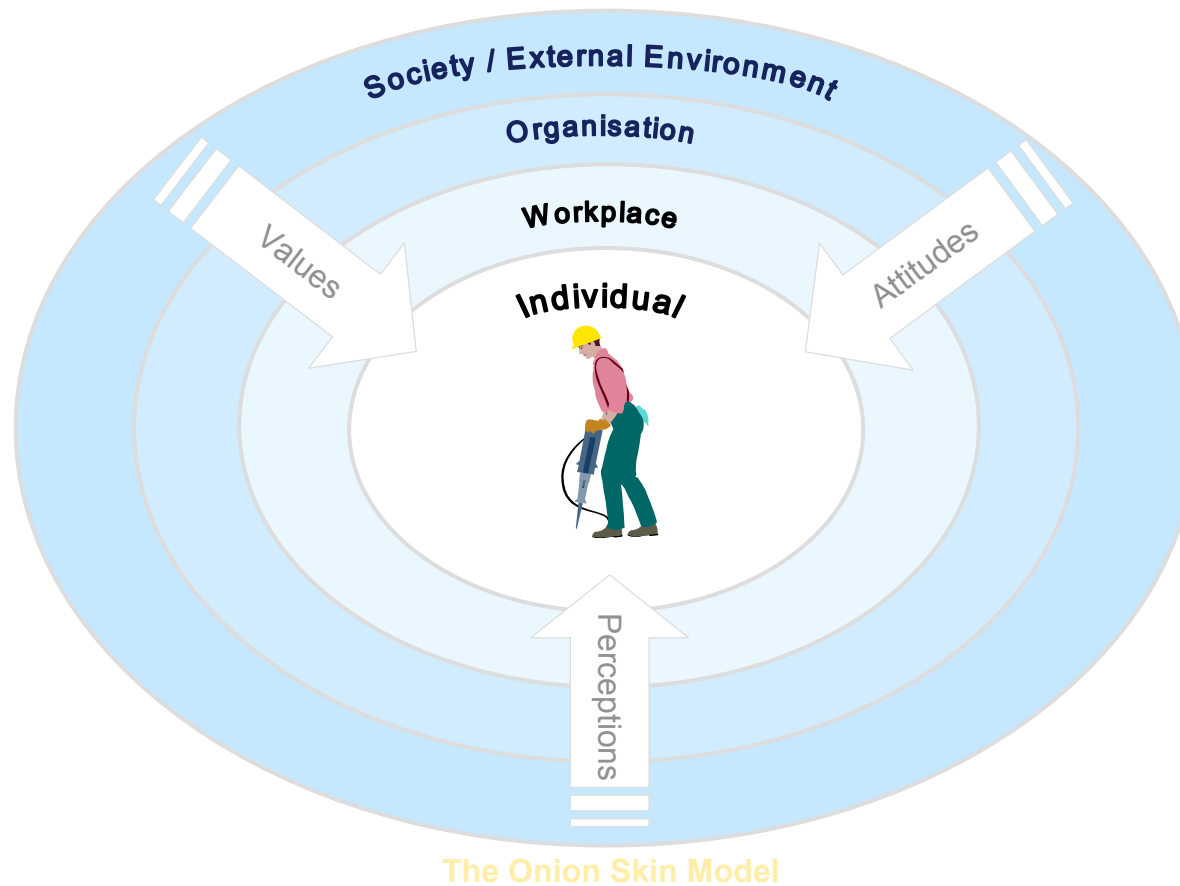


We need to understand values, attitudes, perceptions, competencies and behaviours





Values, attitudes and perceptions can be thought of as driving individual behaviour through a series of layers

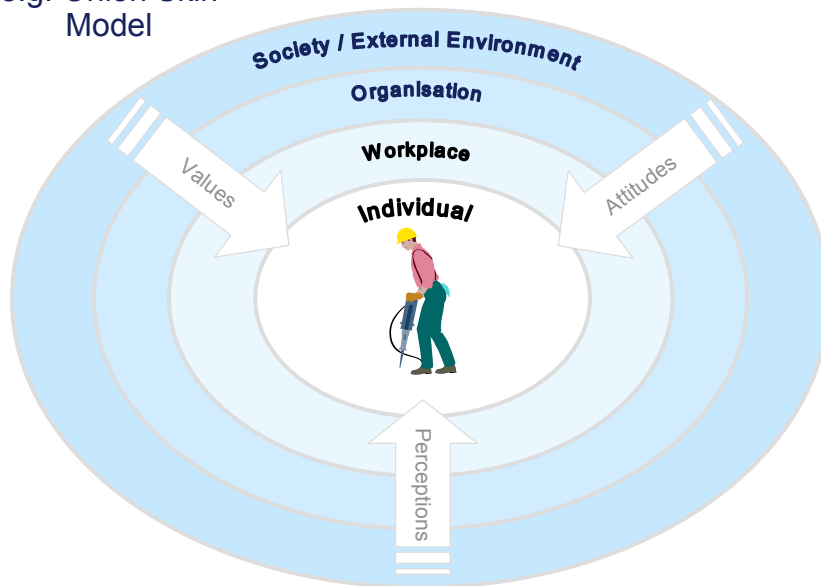


The 'Onion Skin Model' is a way of thinking about these layers of influence



Comparison with best practice is often used to provide an initial high-level assessment of safety culture problems

Model Culture
e.g. Onion Skin Model



Real World
e.g. Strengths and weaknesses of current system



Analysis

Where you are now?

Where you want to be



The individual comes to the job with his/her own motivation, interpretative framework and view of the world



*Research on the safety performance of organisations found the following correlating characteristics



The surrounding workspace, the team environment, direct interactions with line management and work group norms all influence the individuals behaviour

Workplace Layer

Top performing organisations have*:

- The feeling of being part of a team
- Attitude of looking out for one another
- Low tolerance for risk taking / bravery within social work group
- Good examples set by line management
- Well maintained, safe working environment (good housekeeping)
- Unhindered access to PPE and safety equipment
- Safety performance incorporated into team goals
- Accessible systems in place for reporting hazards / unsafe conditions
- Practical appropriate rules and procedures

*Research on the safety performance of organisations found the following correlating characteristics



Each organisation will have its own implicit values which determine the way to behave to “get on” within the organisational structure

Organisational Layer

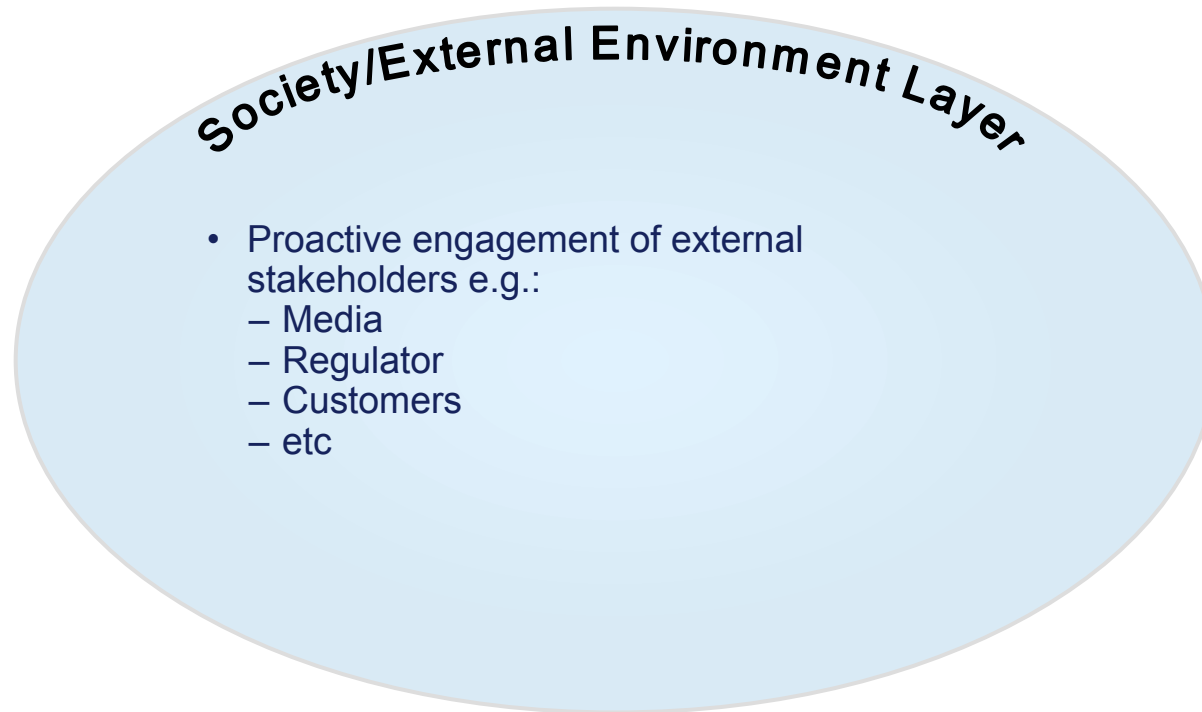
Top performing companies have*:

- Clear corporate objectives
- Pride in organisational membership
- High organisational moral
- Perceived openness of communications
- Trust in management
- Perceived management commitment to safety
- Absence of blame culture
- Supportive organisational structural arrangements
- Perceived absence of safety versus procedures conflict
- Appropriate training
- Effective processes for dealing with safety concerns

*Research on the safety performance of organisations found the following correlating characteristics



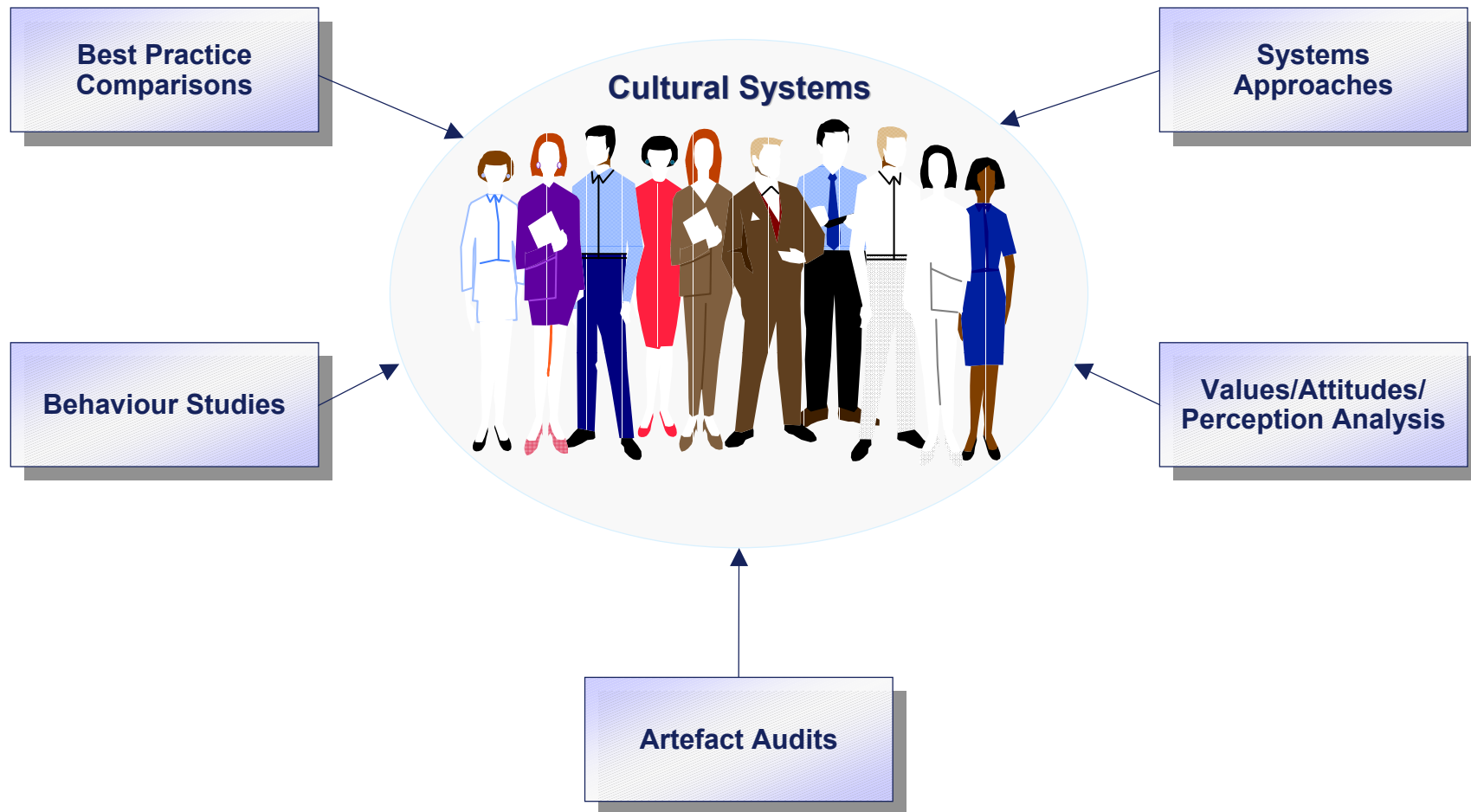
The organisation and each individual within it will be influenced by the external culture



Although it cannot be controlled, the external environment can be influenced through campaigning, communication and engagement with external stakeholders

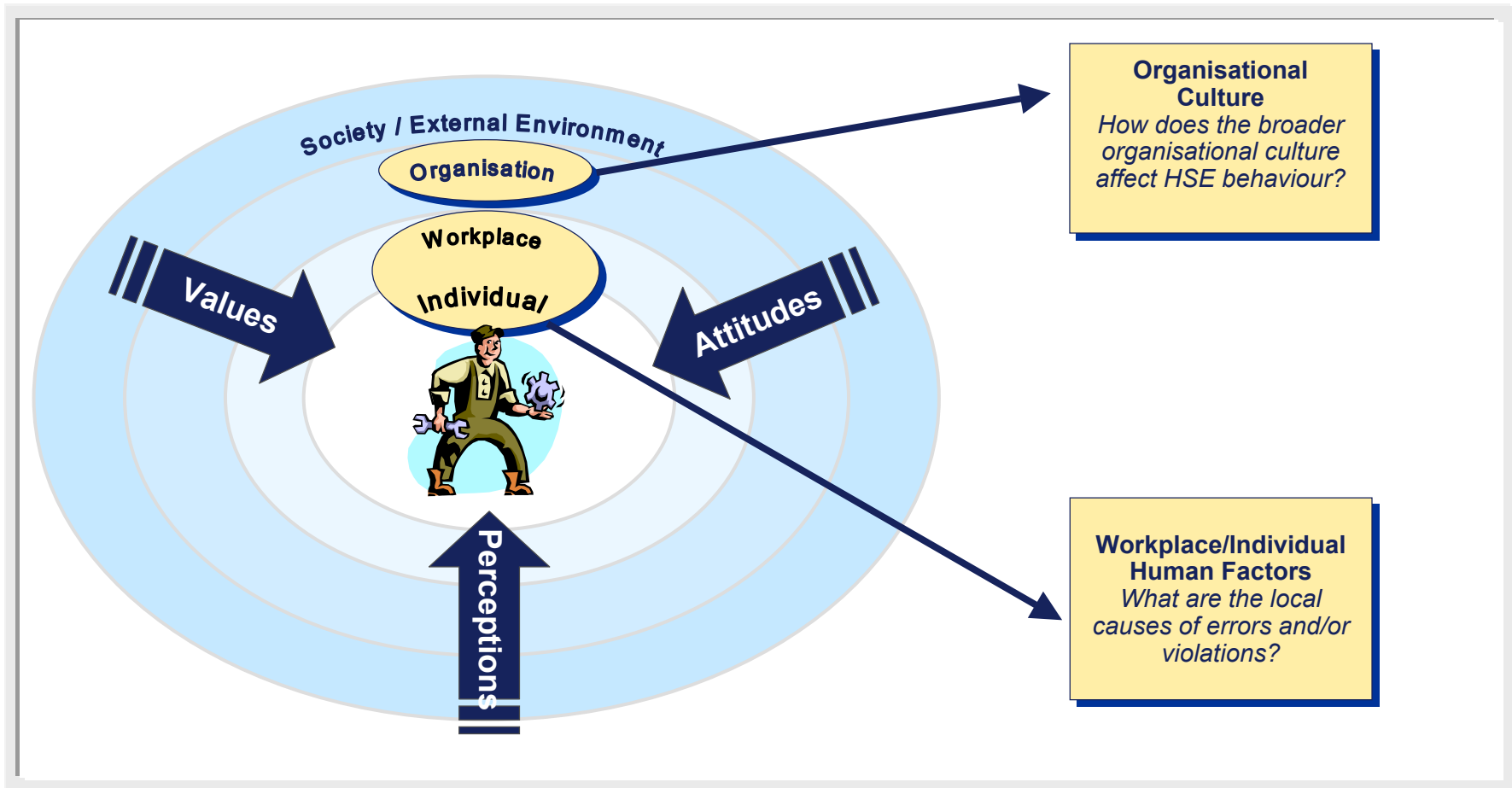


There are several different techniques available to assess cultural systems



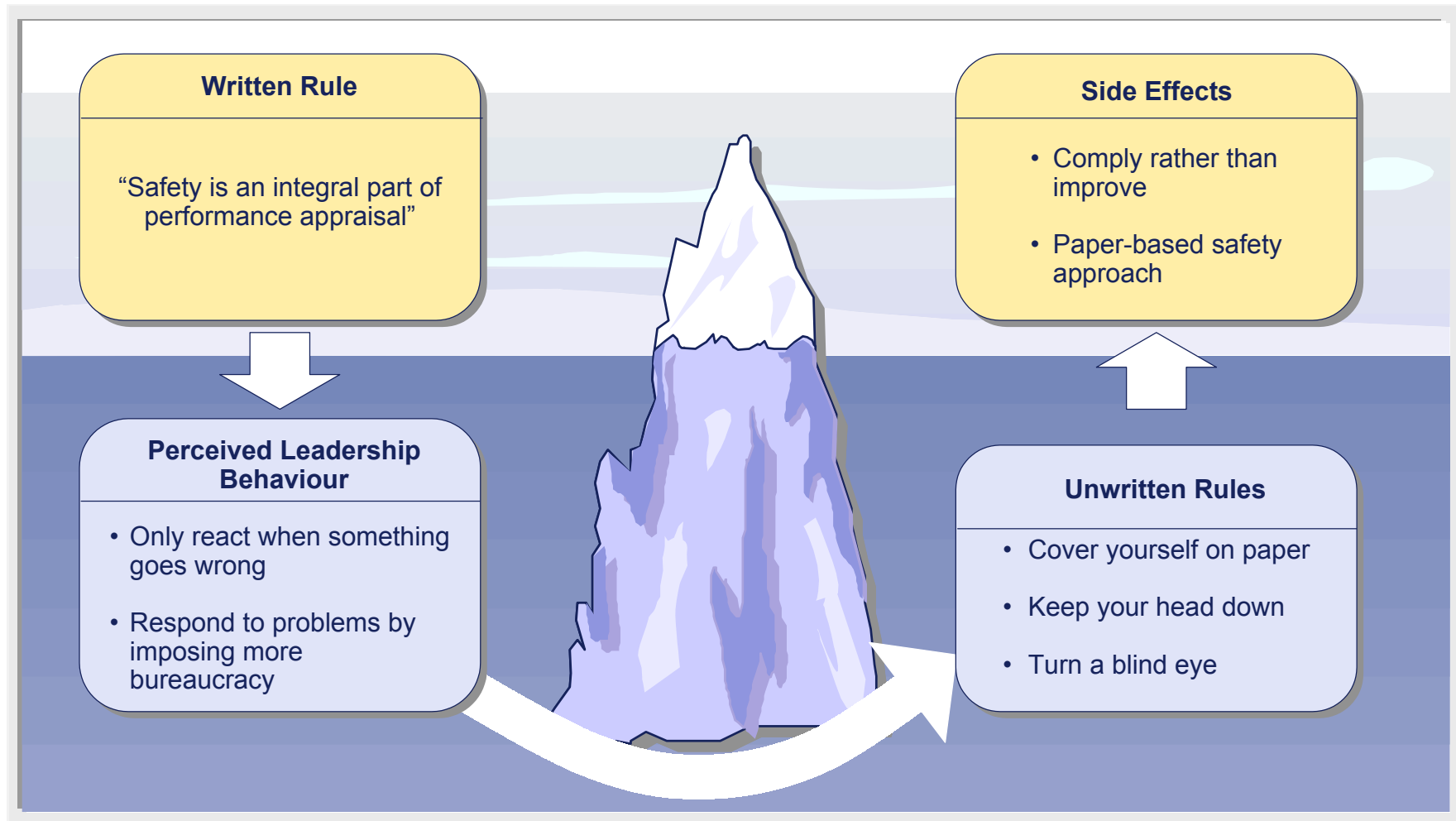


To assess HSE culture we need to examine culture at the organisational level as well as *human factors* at the workplace/individual levels



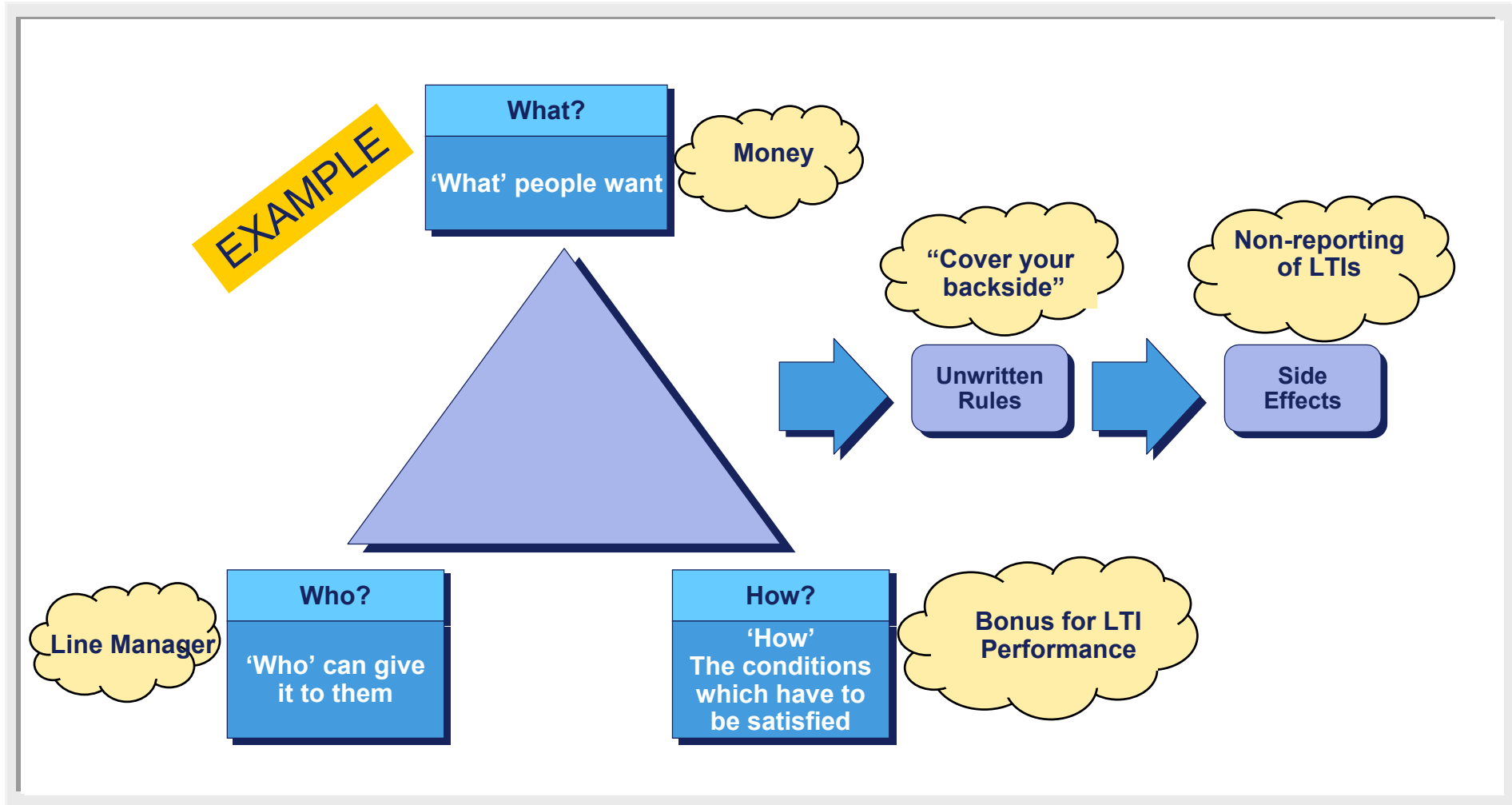


At the Organisational Level, it is useful to uncover the “Unwritten Rules of the Game”



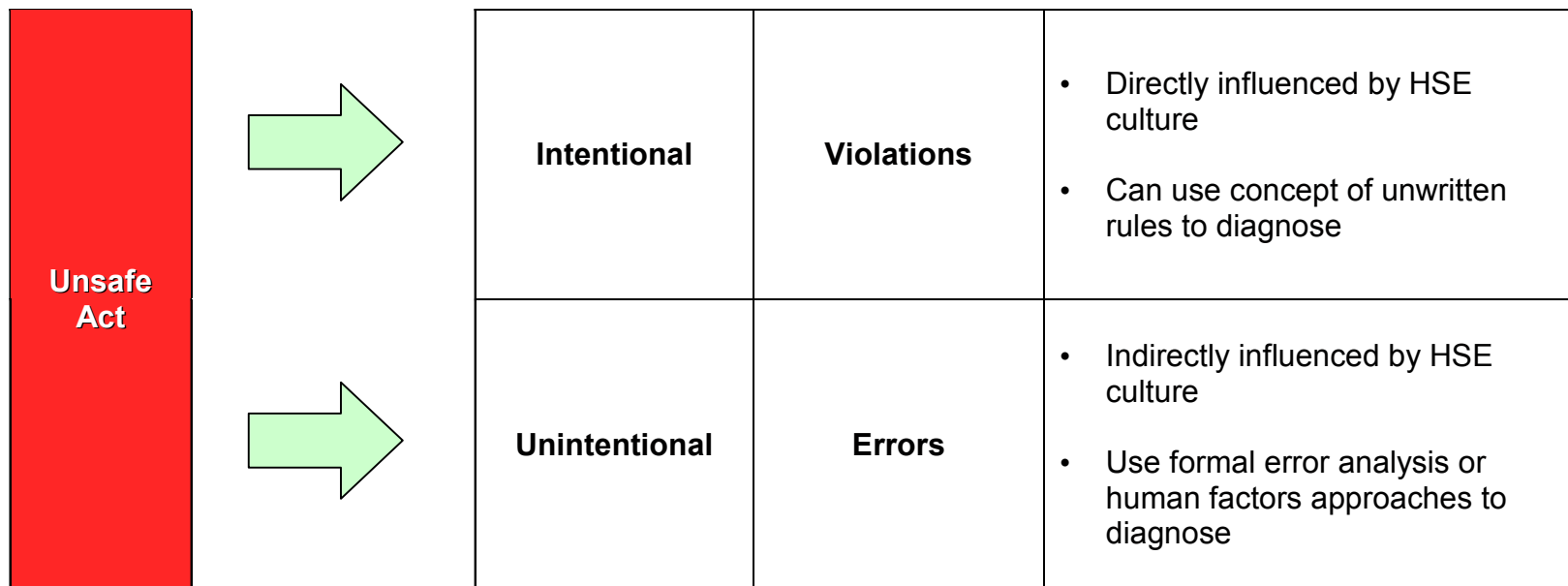


A good way to uncover Unwritten Rules is to consider *What* people want, *Who* can give it to them, and *How* they can achieve it





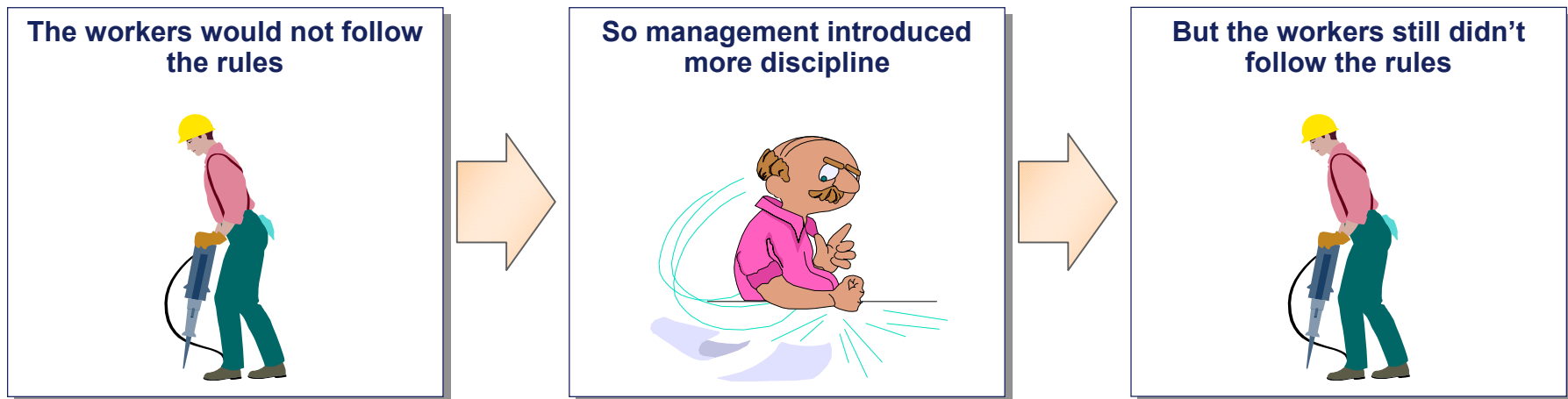
At the Workplace level, HSE culture has a *direct* influence on intentional unsafe acts, referred to as violations. Errors are less directly affected by culture and require an alternative approach . . .



... therefore we will focus on violations in diagnosing behaviour at the workplace



Introducing more discipline or enforcement as a way of reducing violations is often not the answer

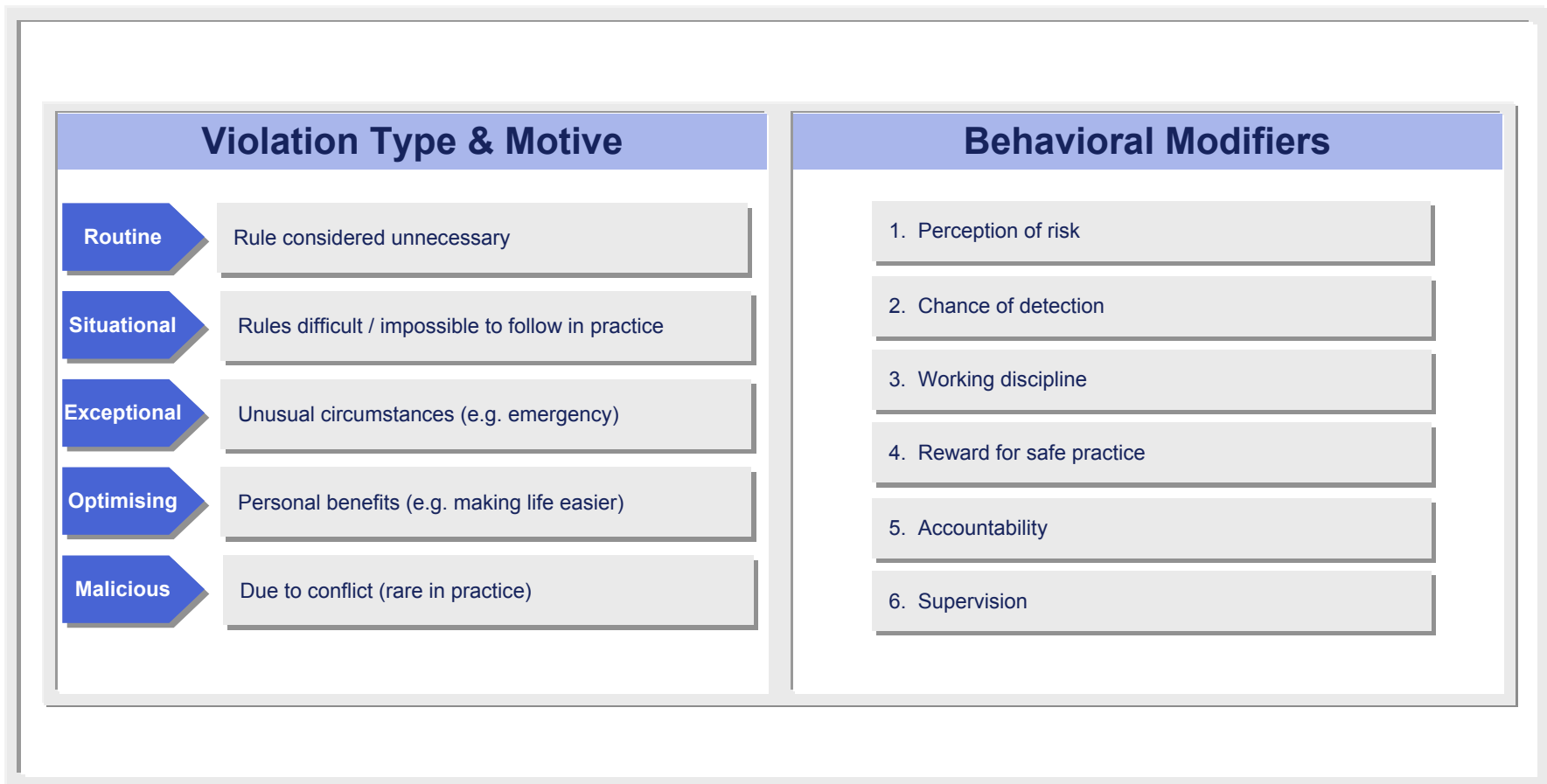


Why not?

Because often violations are reasoned responses given the prevailing circumstances, not just wilful disobedience



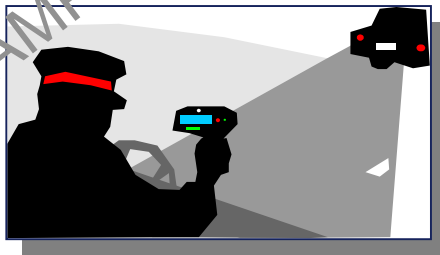
It is useful to consider five *motivators* for violation and six *modifiers* that influence the likelihood of violation





Once *motivators* and *modifiers* have been identified, the causes of violations will be much clearer, and possible solutions can be established

EXAMPLE



Driving over the speed limit on a motorway

Motivators

- Routine (driver has at some point decided the rule is unnecessary)
 - cars are safer
 - belief in own ability to drive at speed higher than limit

Modifiers

- Poor perception of risk
- Low chance of detection

Likely Areas for Action

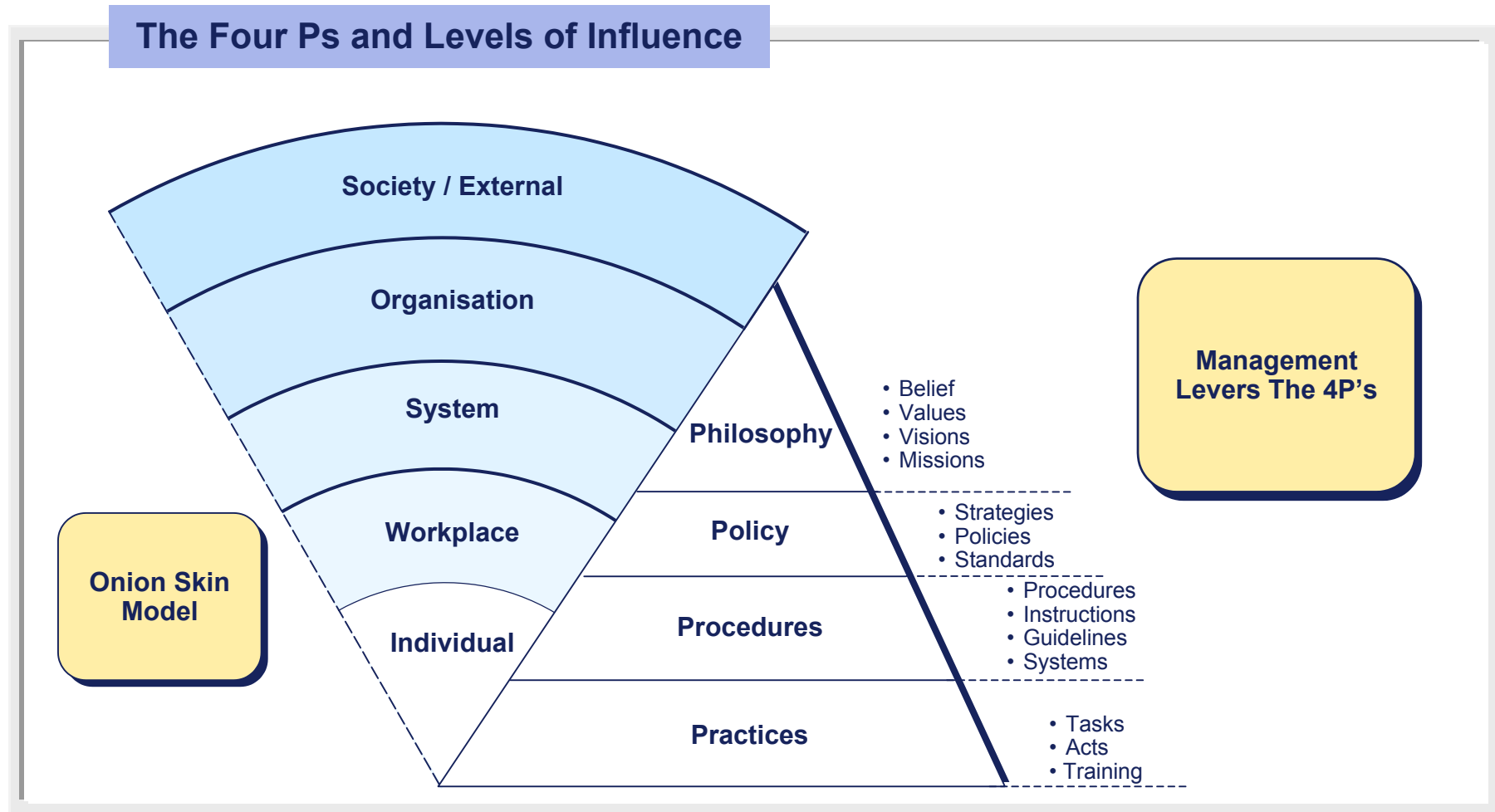
- Awareness campaigns
- Increased monitoring / detection
- More effective disciplinary procedures

Experience has revealed ten important areas for action towards achieving a good HSE Culture

- 1. Create leadership and shared values**
- 2. Demonstrate commitment through actions**
- 3. Create shared responsibility for HSE**
- 4. Develop an open reporting culture**
- 5. Train for competence and confidence**
- 6. Communicate the right message**
- 7. Align incentives with desired behaviors**
- 8. Optimise bureaucracy: balance empowerment and control**
- 9. Engage with the external environment**
- 10. Manage your cultural interfaces**

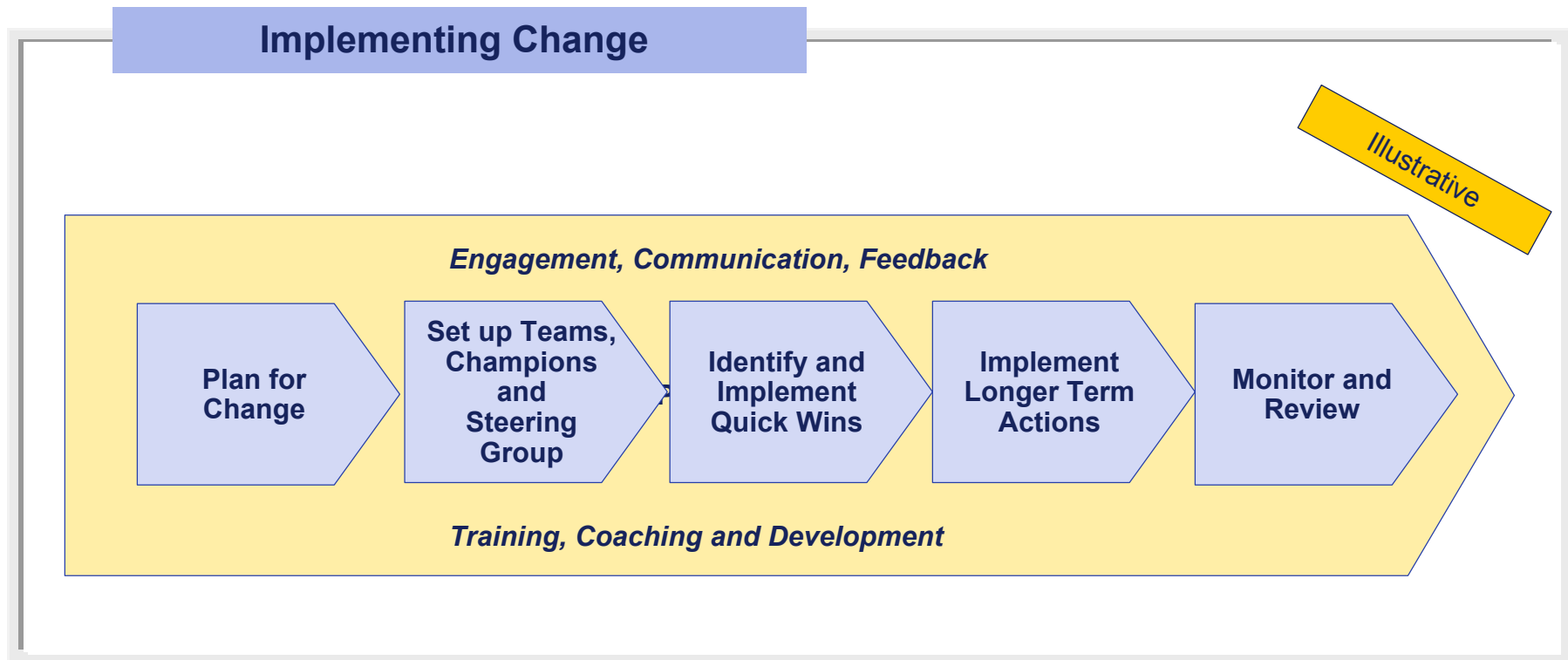


Improvements in HSE culture can be achieved by making changes in four areas: Philosophy, Policy, Procedures, Practices



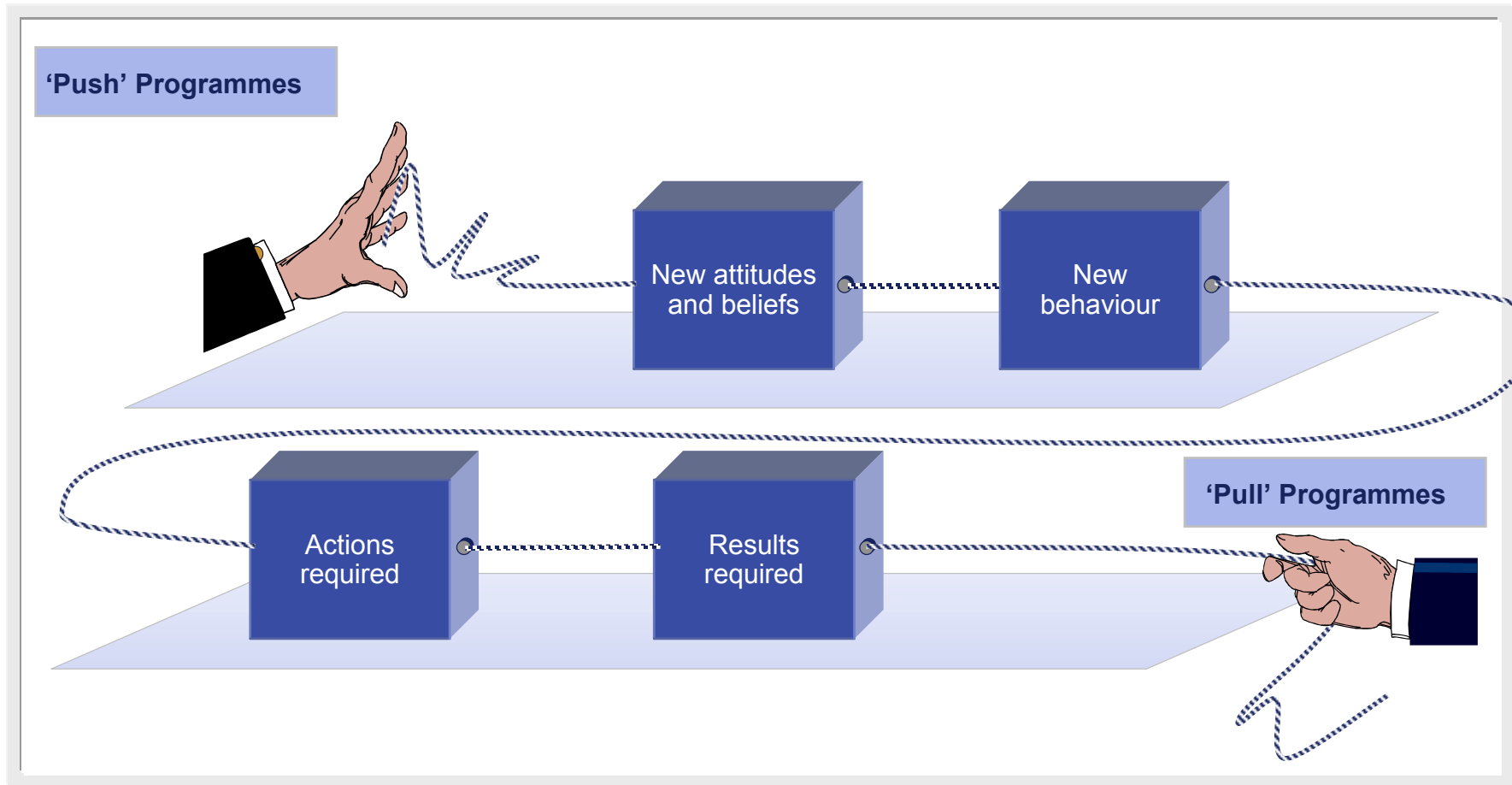


To be successful, a culture change programme must be led by a well respected, senior team and should follow a well defined plan



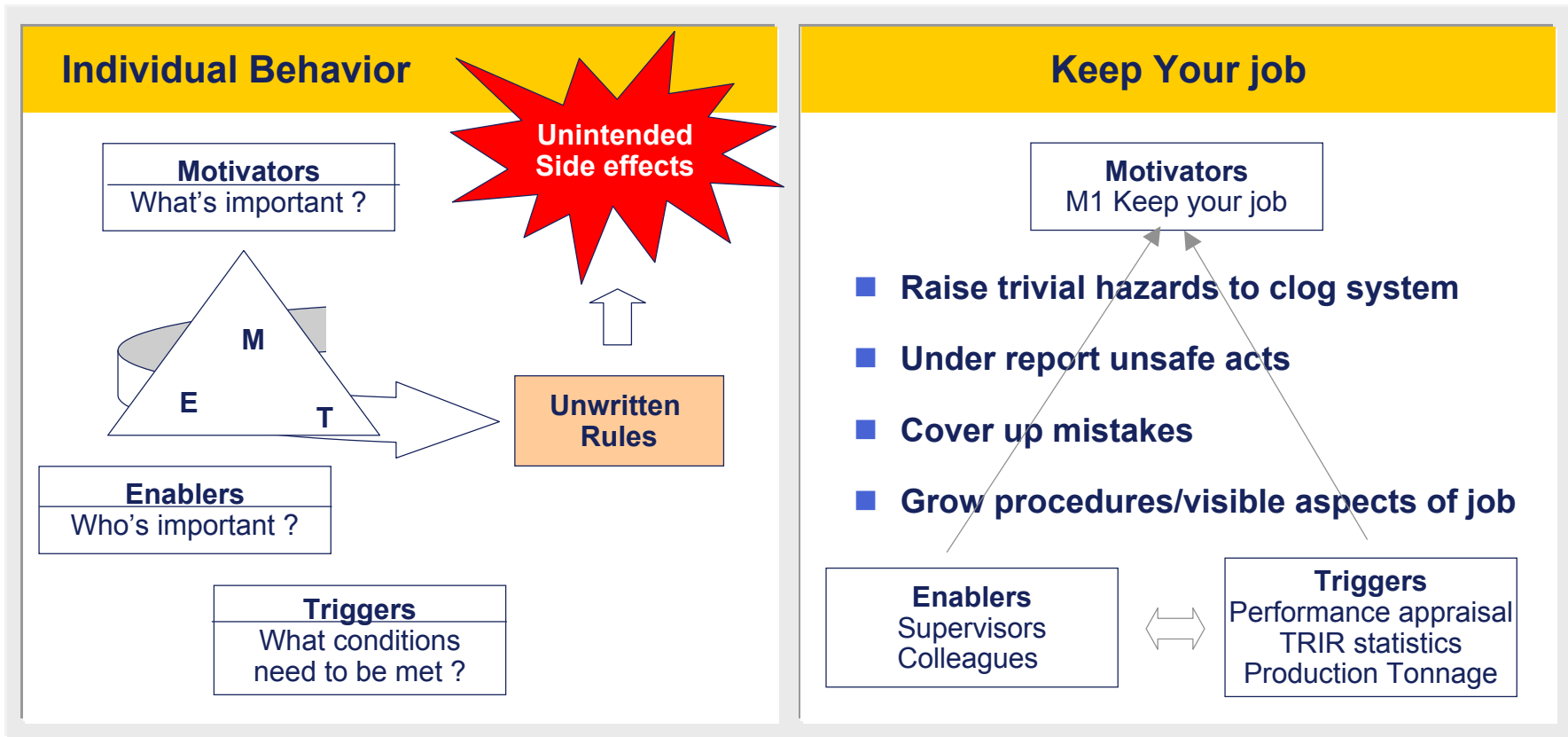


It is difficult to ‘push’ new attitudes, beliefs and behaviour directly. Planning for culture change aims to exert cultural influence by means of ‘pull’ from required results and actions



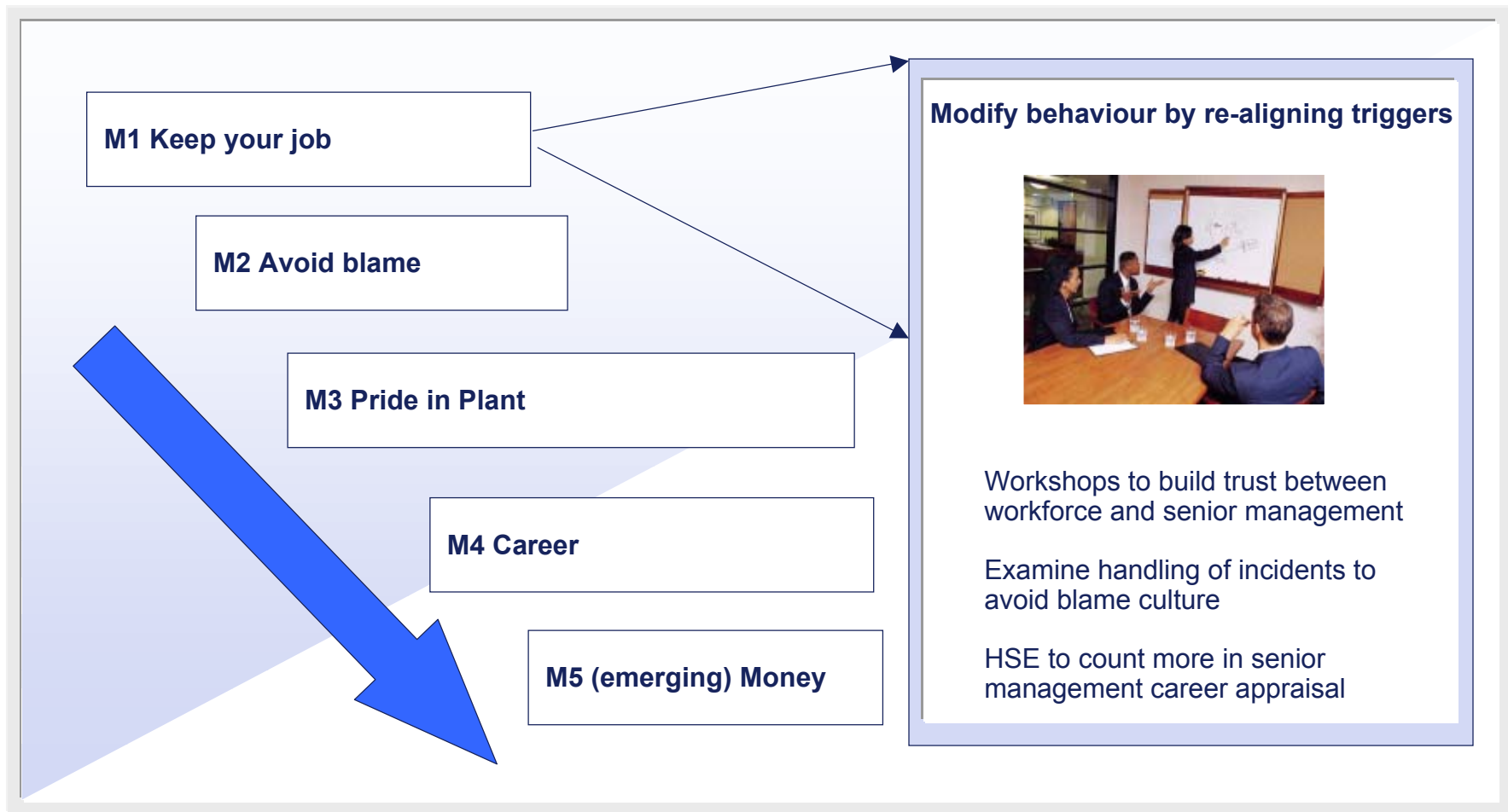


For a petrochemical complex we diagnosed HSE problems associated with downsizing



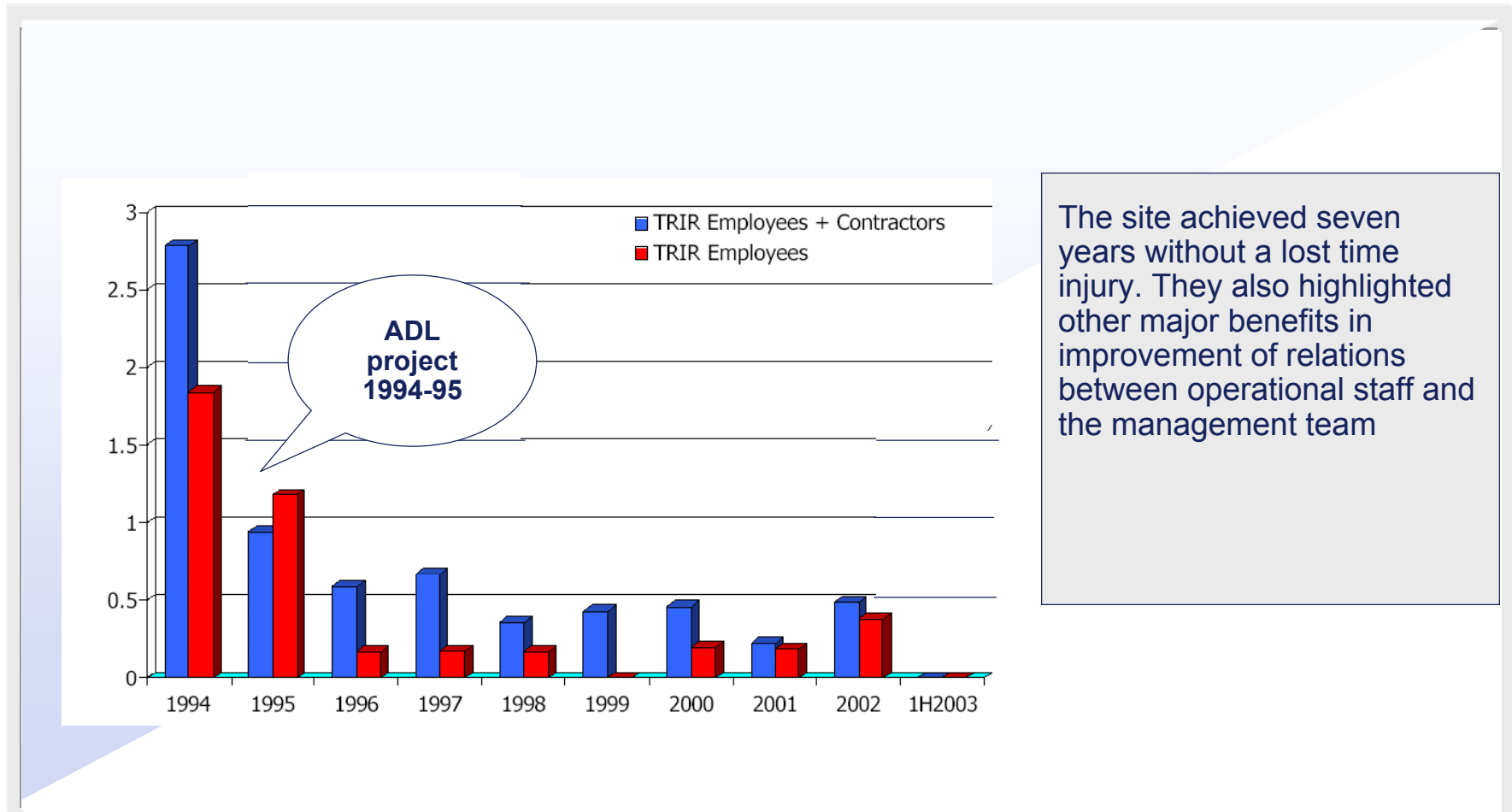


**Pride still existed in working at the plant... but not for the corporation.
Strong team work existed but there was resistance to HSE initiatives**



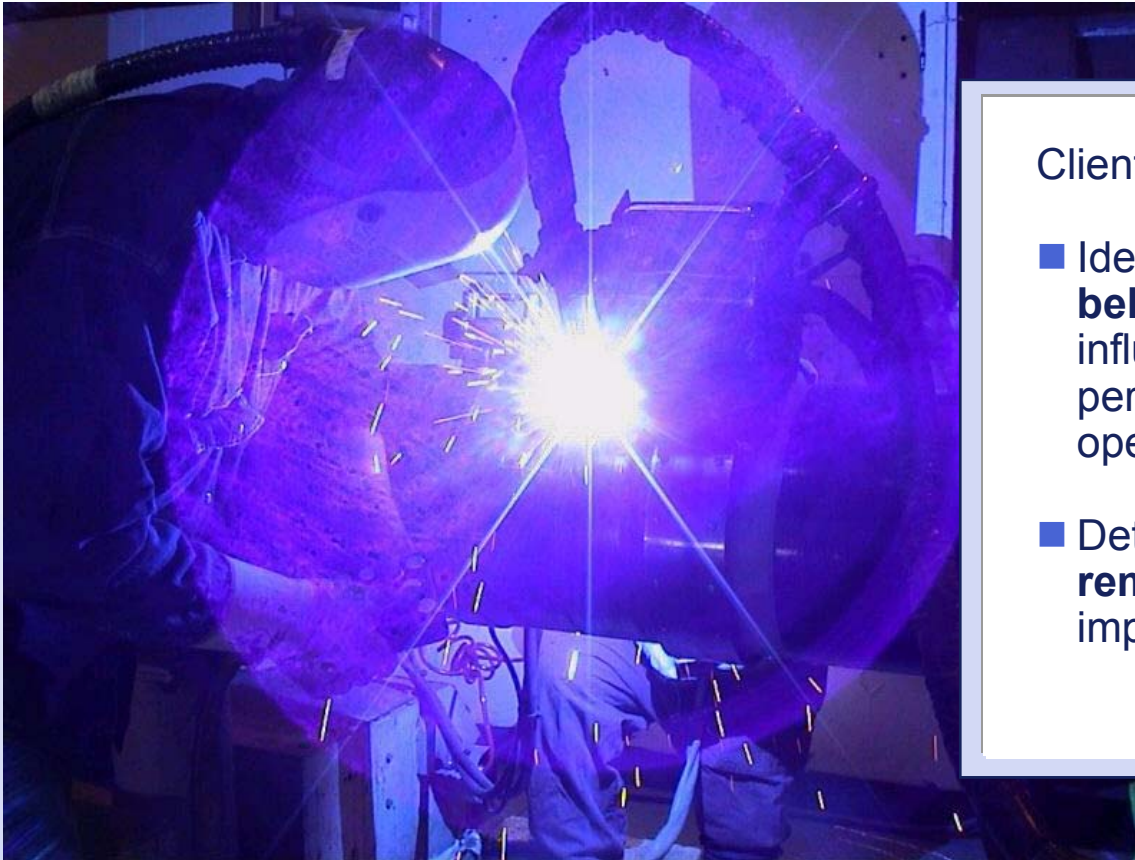


The client informed us that they had made very significant improvements in HSE performance at the plant we covered





We conducted an appraisal of the cultural and behavioural factors influencing HSE performance offshore

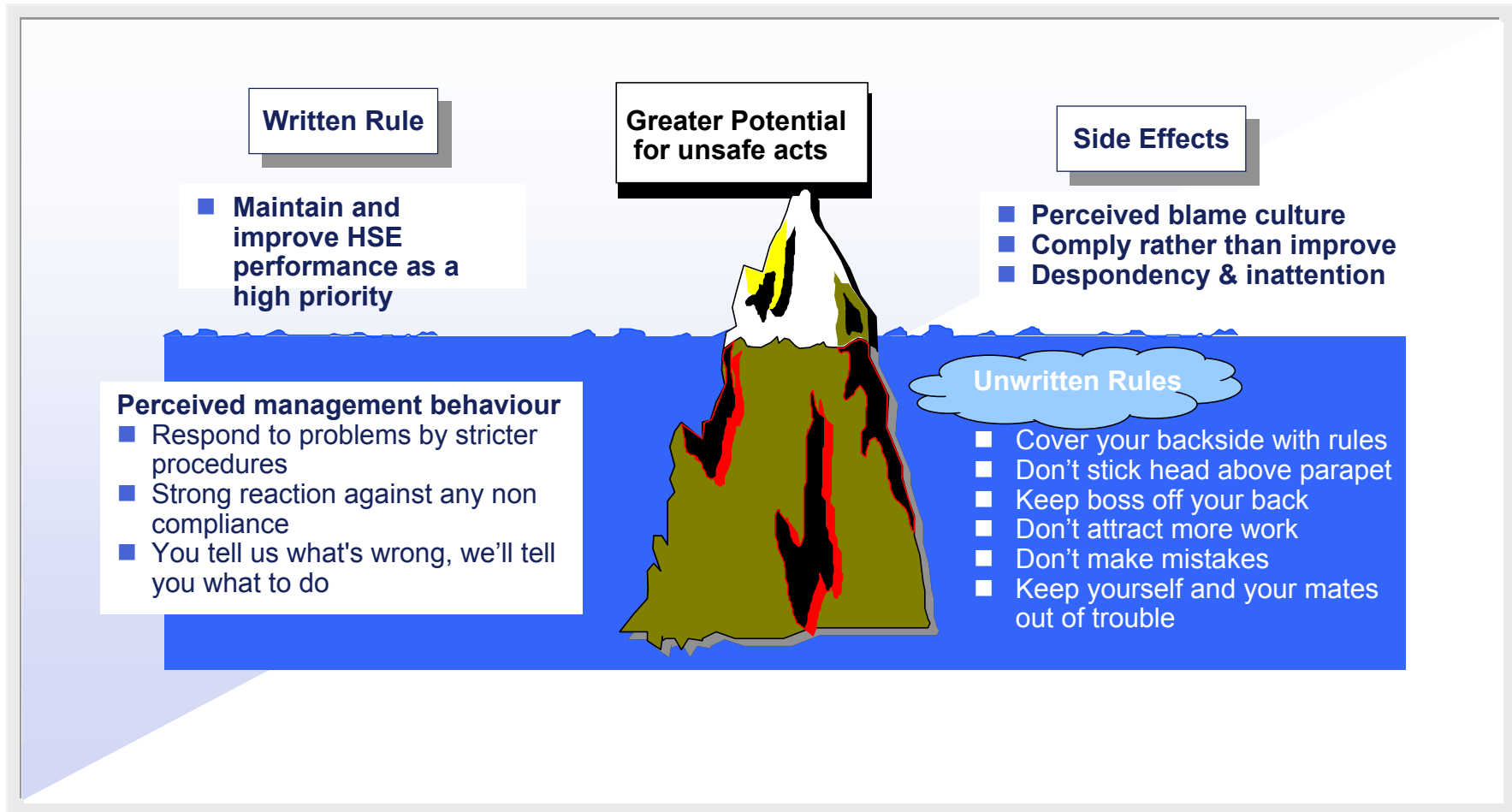


Client wished to :

- Identify **cultural and behavioural factors** influencing the HSE performance of its offshore operators and contractors
- Determine the **next steps to remove any barriers** to improved HSE performance

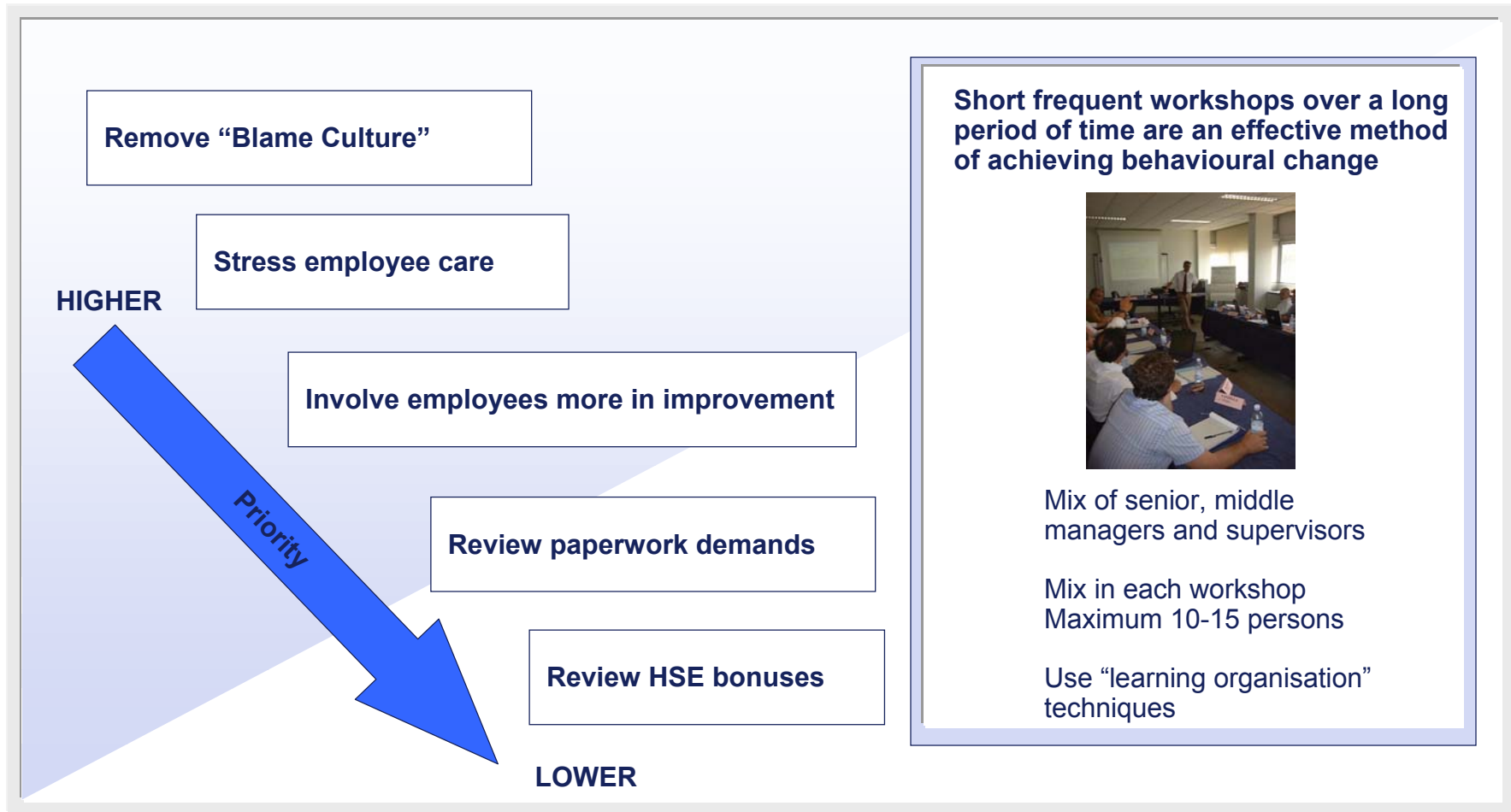


The dominating factor was the perception of a “blame culture” which inhibited proactive HSE improvement





The measures recommended were organised in priority order and implementation planned for the next steps

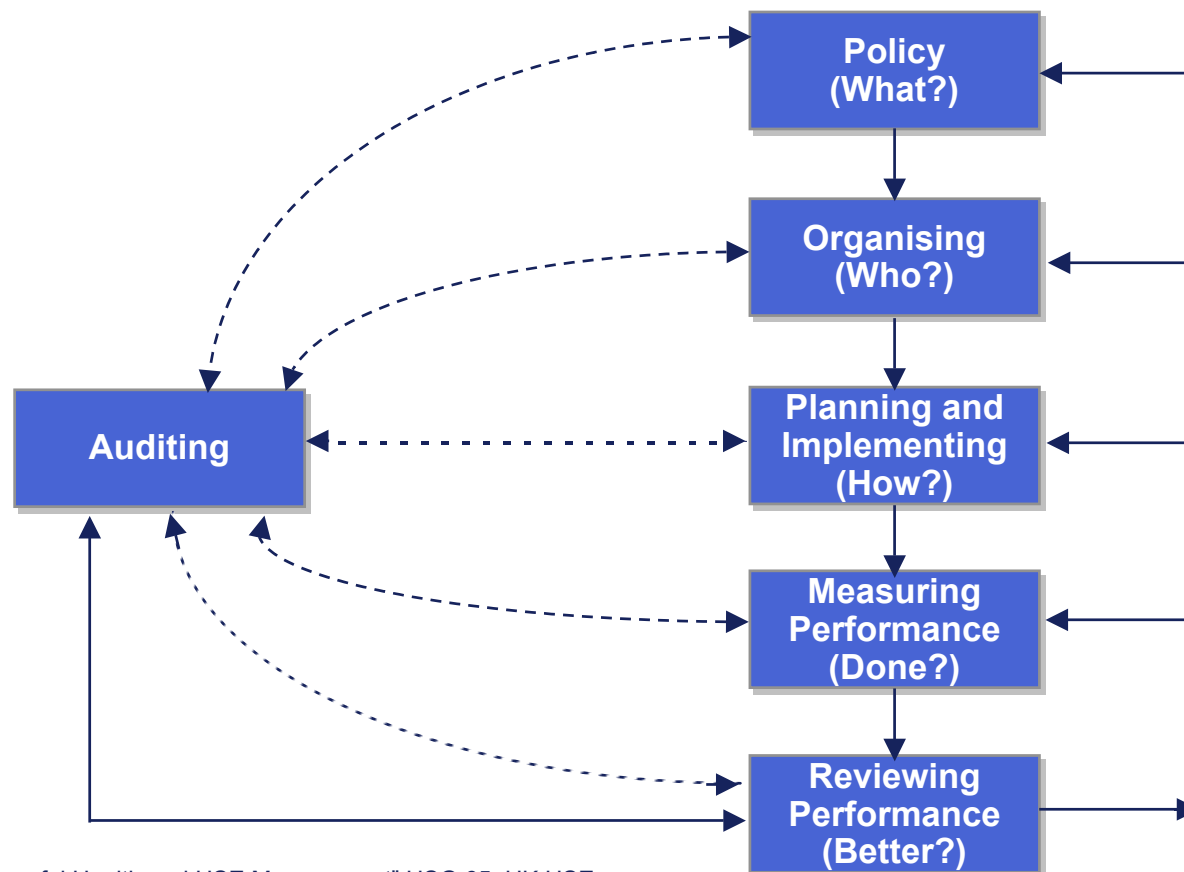




- Examine a company's HSE management arrangements
- Identify strengths and weaknesses
- Discuss improvement actions



Earlier we said that a rapid assessment of the effectiveness of an HSE management system can be made by “combing through” the arrangements with reference to six key elements (POPMAR)



Source: “Successful Health and HSE Management” HSG 65, UK HSE



Review the case study materials and use the POPMAR categories to note down your answers to the following questions

1. What are the problems within BCY Petrochemicals' HSE Management System (SMS)? Are there any strengths to the SMS?
2. What should Mark Farroll do to address these problems?

Finally:

Prepare a short summary (one or two sentences) of the problems and solutions

Read the material and work in groups of three to briefly answer the questions by making notes on the blank answer sheets that follow

Then we will work together to collect and discuss answers



Background

BCY Petrochemicals is a small private company that builds and operates refineries. They have two operational refineries and are in the process of building one more.

BCY's financial performance over the last 18 months has exceeded initial expectations of financial analysts. During this period the company has recruited aggressively pulling in a large number of managers from outside the industry into functions such as marketing, finance and quality.

Despite BCY's good performance, Mark Farroll, the Chief Executive, is worried about the future of the company. Projections for growth are showing that there are limited opportunities for expansion of revenues in their current geographic area; in order to grow they need to attract partnerships with international petrochemical companies.

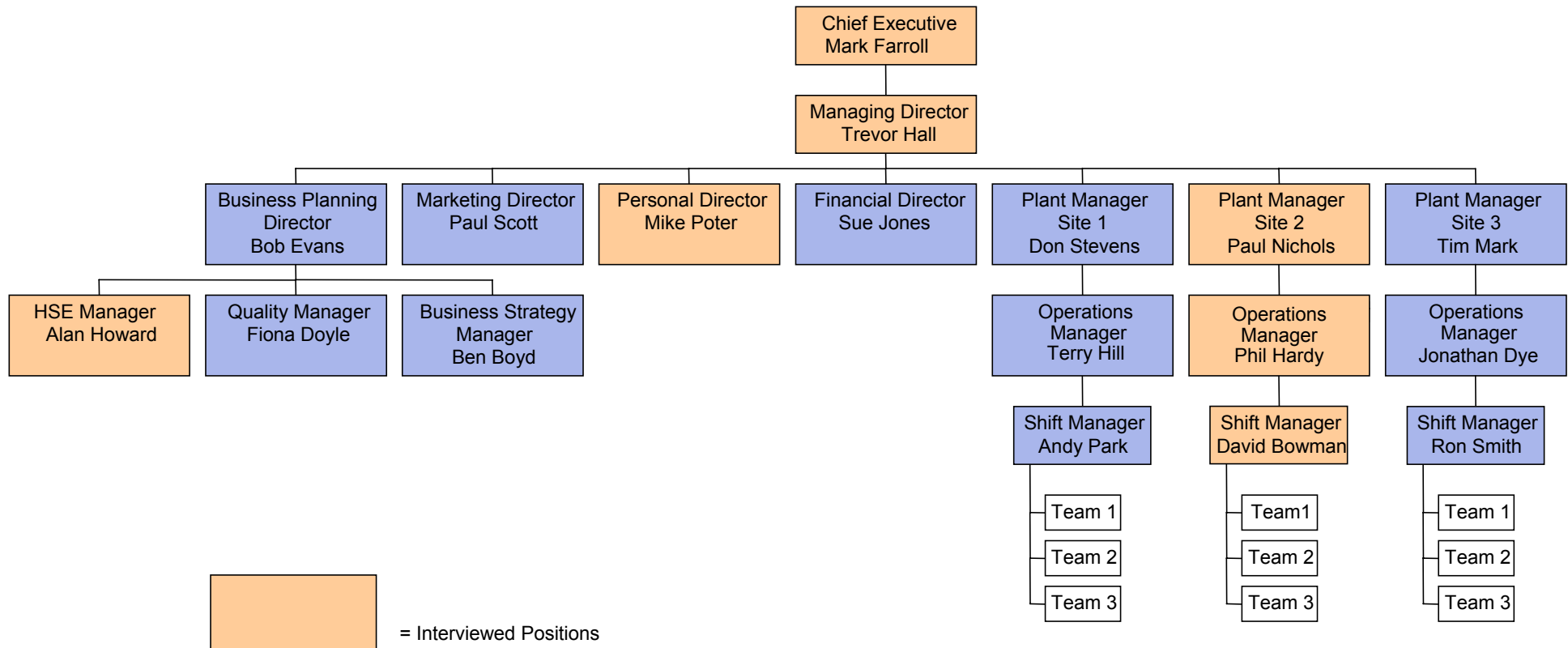


Mark is particularly worried about BCY's HSE performance. Despite having improved their HSE performance some years ago, Mark is frustrated that this performance seems to have reached a plateau and is not improving. During recent site visits Mark was struck by the feeling that his staff were "bored with HSE" and did not seem to believe in HSE the way that Mark hoped. As a consequence, Mark is trying to develop a plan to improve BCY's HSE performance and understand the underlying causes.

Over the course of a week he has spoken to a number of managers and staff in BCY and collected a range of views / opinions and information. He is now preparing his ideas for the forthcoming board meeting.



BCY plc's Management Structure





Discussion with Trevor Hall – Managing Director

Trevor is a chemical engineer by profession, recruited into BCY three years ago to build the third refinery and grow the business.

Trevor outlines that HSE has always and will always be a key management issue within BCY. Trevor understands the impact that a poor HSE performance could have on his business. As a result, when BCY was preparing for its licence to build and operate the new plant, Trevor was instrumental in raising the profile of HSE issues and obtaining commitment to significant investment in HSE management.

During the past five years, BCY has invested heavily in HSE. Apart from particular capital projects, Trevor has made sure that funds were available to improve the management systems used by BCY to manage HSE. Trevor ensured the recruitment of Alan Howard, an HSE Manager to raise the profile of HSE issues. Since then, Alan Howard has expanded his role and responsibilities for HSE and Trevor believes his role has been essential to BCY's good performance.



Discussion with Trevor Hall – Managing Director (*continued*)

Trevor also outlines that BCY is undergoing a large change initiative which affects all their operations “Change for Excellence”, a programme which was initiated 18 months ago and aims to give greater responsibility to staff. Trevor believes that to improve corporate performance the answer lies in training his staff, enhancing their skills and giving them the opportunity to make decisions and control their particular part of the business.

Despite the significant investment over the past few years, improvement in HSE seems to have stalled. At a recent conference on “HSE in the Petrochemical Industry”, Trevor found that BCY’s performance was at best only about average for the industry. For example, BCY’s accident rate is worse than the industry average. Trevor is concerned that HSE does not appear to have been totally absorbed into the way in which BCY operates. On a recent visit to the plants he overheard some staff talking about HSE issues. They were complaining about the forthcoming audit of their plant, not knowing how this would differ from the one nine months ago and thought it would be another opportunity to be criticised for getting a low score. Trevor also noticed that one or two HSE posters were in poor repair or had been defaced.



Discussion with Trevor Hall – Managing Director (*continued*)

Trevor's concern is how to make HSE stick in his company. With Trevor's thoughts also on expansion and international partnerships, he feels it is essential for BCY to be better than average at HSE. He sees a good HSE record as easing any objections from the regulator to BCY acquiring a larger portfolio of business.



Discussion with Alan Howard – HSE Manager

Alan is an engineer by profession and was hired five years ago. Alan worked in the nuclear industry before joining BCY. Alan is ambitious and keen to raise the profile of HSE within the company. He views HSE as a very serious issue and one which should be treated as a top priority with BCY.

Since joining BCY, Alan has been involved in many new HSE initiatives. When BCY started to operate, it already had an HSE management system in place. However, a lot of the standards and procedures used by the company were either out of date or needed drafting. Alan's initial task was to lead a working group to review and update these documents. As a result, BCY has a well documented HSE Management System. In order to help with these tasks, Alan hired an HSE Policy Adviser and a Standards Manager [see Exhibit 1].

Alan's next project was to build an audit function within BCY. Alan currently has three auditors who travel around BCY auditing the plants. Alan agreed to instigate a score-based auditing system and to ensure that the scores are recorded and plotted to identify any trends.



Discussion with Alan Howard – HSE Manager (*continued*)

Alan says that the audit system has been a great success, but indicates there is still a lot of work to be done to keep up with the audit schedule. Currently, his audit team aims to audit the important BCY processes twice a year.

Alan also indicates that much of his time has been taken up with updating and maintaining BCY's COMAH Safety Reports. As BCY has increased or changed some of its productions, Alan has amended the Safety Reports. Alan expresses concern that this document needs continual revision and maintenance and is currently proposing a new appointment to look at this work.

Part of Alan's responsibilities are to ensure that risk assessments are in place to cover BCY's activities. He finds that this workload is increasing a great deal and is working hard to keep up-to-date with developments.

Last summer, BCY took part in a benchmarking study on HSE performance with other petrochemical companies industries. This study was aimed at comparing BCY's performance with its peers [see Exhibit 2]. The study took six months as Alan had difficulty gathering data in the relevant format. However, the results showed that BCY had improved but was in the middle of the pack in terms of overall performance. Alan had applied for further funds to repeat this study later this year, but funding had been refused [see Exhibits 3 and 4].



Discussion with Alan Howard – HSE Manager (*continued*)

Alan was disappointed as he felt BCY had something to learn from this study.

Alan outlines that there is a well established process for reporting HSE issues throughout the organisation. Every month each of the three plants holds an HSE meeting which he attends. In these meetings each manager reports the number of accidents and incidents as well as proactive measures such as number of hazard inspections completed. He comments that HSE performance is still inconsistent in some areas of the business and he feels it is important to keep control on performance by turning up at these meetings. Alan comments that he is extremely busy at the moment and feels his group is under-resourced. He has compiled an HSE budget for the next financial year and estimates that he will need another assistant if he is to implement the new initiatives.



Discussion with Phil Hardy – Operations Manager

Phil's focus is on plant operational issues. He is energetic and is credited within the company for making some effective changes to the operation.

Phil sees HSE as an important issue for himself and his staff. He raises HSE as a subject at all of his meetings and sees business benefits in “getting it right”. He mentions that there is a lot of change going on in BCY at the moment. The company is re-launching its quality initiative and it is taking a lot of Phil's time at the moment. This forms part of the “Change for Excellence” programme which Trevor is aiming to introduce to BCY. Phil believes that this programme is vital to their success and is keen to “empower” his staff as much as possible.

Phil is concerned that HSE is in danger of losing some of its momentum. Improvements have been made but Phil acknowledges that it is hard to achieve further benefits. Over the last few months there have been a variety of HSE issues which have taken up a lot of management time. The benchmarking study required Phil to rework a lot of HSE data and he was unclear how much value was gained from the study. Phil is also concerned that there seems to be a growing amount of work to be done on HSE which appears to be administrative and of limited real value. Phil has an HSE responsibility statement but this falls outside his personal objectives.



Discussions with Paul Nichols – Plant Manager

Paul has worked in the chemical industry for 15 years. Paul is the Plant Manager for one of the largest of BCY's refineries. He understands that the business needs to change if it is to grow and is generally supportive of the proposal being put forward by senior management.

Paul highlights that the profile of HSE seems to have fallen away a little over recent months. Paul comments that there has been a lot of "paper" in his in-tray on HSE including a set of reissued standards and procedures. He admits that he is now selective about what he reads on HSE whereas before he used to make sure he read everything.

Paul mentions that 18 months ago BCY introduced performance related pay. Since then he has noticed that staff pay far more attention to their objectives and responsibilities.

Paul was disappointed with the recent audits conducted by the HSE group. One area of his plant received a score which was lower than last year. Paul thought this was due to the inconsistent approach taken by the auditors, but he said it was very demoralising after the continued effort they had put in at the plant.



Discussions with Paul Nichols – Plant Manager (*continued*)

Paul also mentioned that the HSE meetings are never attended by the Managing Director. Two years ago he remembers regular visits to the plant by Trevor Hall, but has not seen him for quite a while.

Paul provides a copy of his Job Description, including the HSE responsibilities related to it. He thinks the process of identifying the individual responsibilities was useful but is concerned people only pay lip service to the content [see Exhibit 5].



Discussions with Shift Manager – David Bowman

Like Paul, David expressed concern that HSE seems to be “coming off the boil”. David was keen to get his operators involved in the process of improving the HSE performance of the plant. However, he remembers a couple of suggestions that had been made by his operators to improve processes but they were not taken forward. David also mentions that there is a lot of information which has to be provided to the HSE Manager on HSE performance, each month, which takes up a lot of his time.



Discussions with Personnel Director – Mike Porter

Mike outlines that 18 months ago BCY introduced performance related pay to its business. This was to recognise the importance of individual performance and to help build up a feeling of empowerment for the employees. Over the past six years a lot of progress had been made on ensuring breadth of skills and multi-tasking. Mike saw performance-related pay as important to furthering these developments. Each individual is given a set of objectives against which their individual performance is measured annually.

Mike says he is also working on ways to encourage teamwork within the business and is planning a series of management workshops.



Exhibit 1: BCY's HSE Organisation

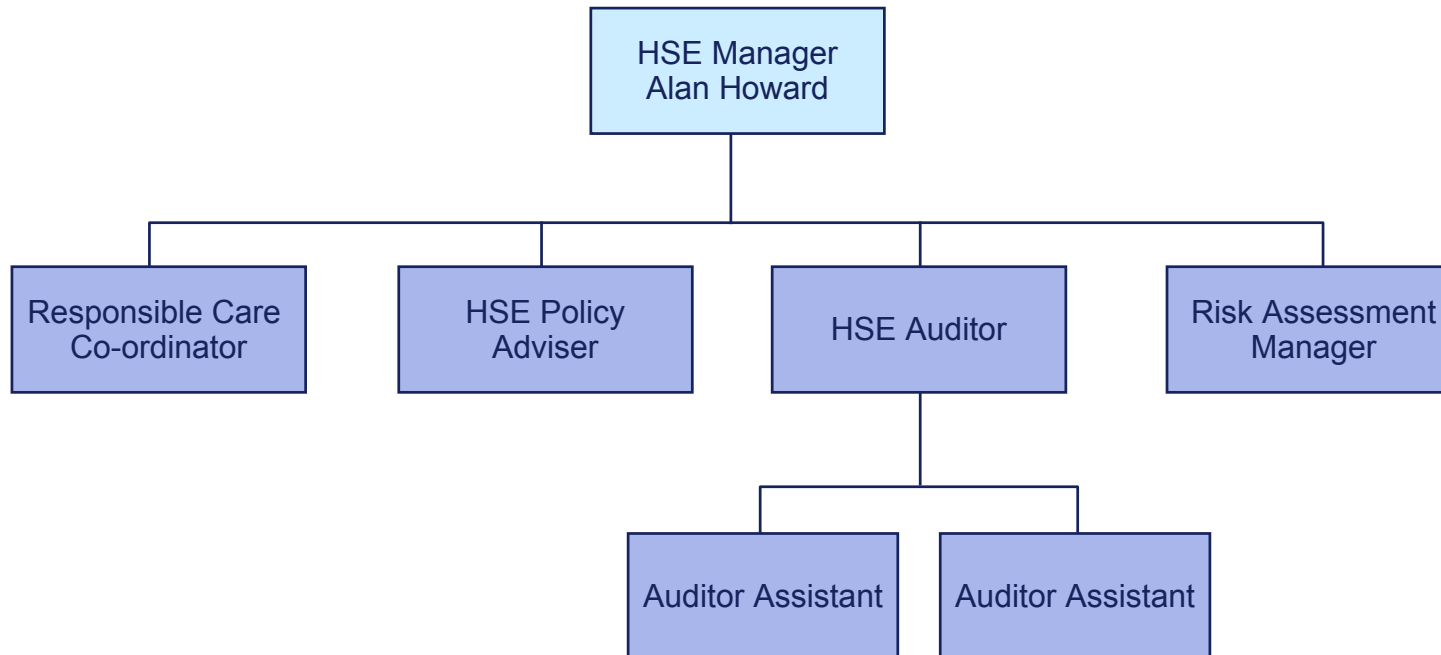




Exhibit 2: BCY's lost time accident performance vs. benchmark

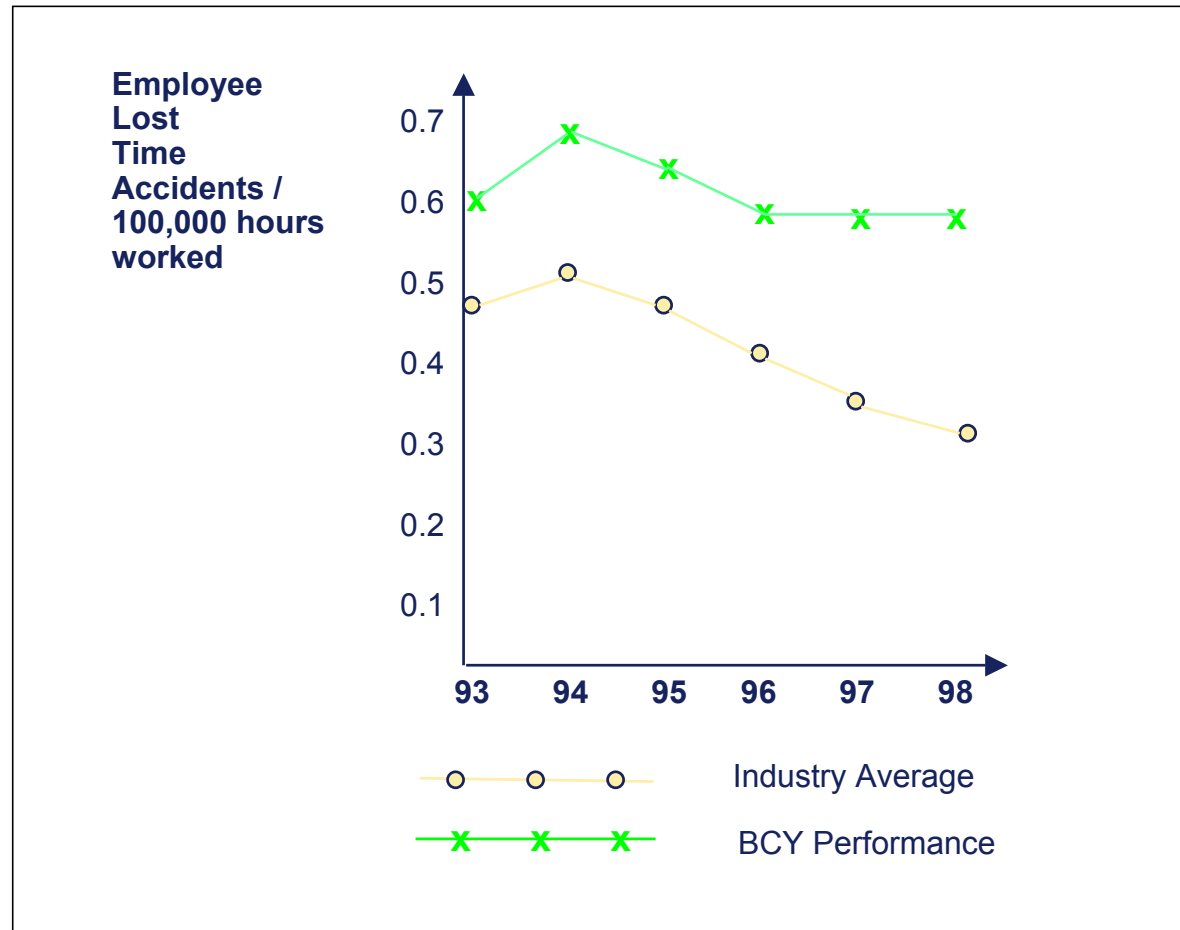
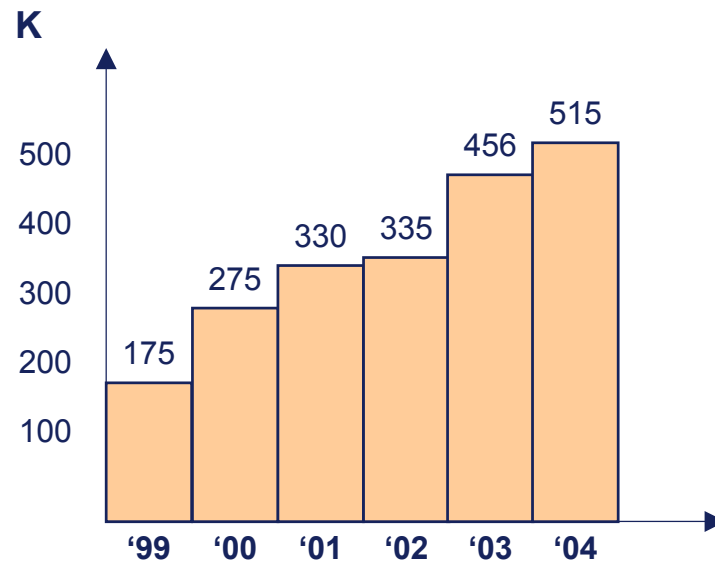




Exhibit 3: BCY's HSE Budget



* Covers salaries for HSE Group and budget for consultancy service agreements, training, etc.



Exhibit 4: Extract from BCY Consolidated Profit and Loss Account for Year Ended 31 March 2004

	2003/4	2002/3
	Millions	Millions
Revenue from operations		
Total Revenue	898	752
Operating costs	(830)	(728)
Operating profit from operations	68	24
Profit on sale of fixed assets	-	24
Profit on ordinary activities before interest	68	48
Interest	(46)	(33)
Profit on ordinary activities before taxation	22	15
Taxation	(2)	(4)
Profit for financial year attributable to shareholders	20	11
Dividends	(10)	(4)
Retained profit for the financial year	10	6
Earning per share	47.0p	27.0p

Group Exercise – Assessing HSE management arrangements



Exhibit 5: Examples of HSE responsibilities from the Job Description - Operations Manager

The Operations Manager is specifically responsible for: *(need to reproduce and change safety with HSE)*

- 1. Information**
 - ensuring that statutory standards are disseminated.
 - ensuring that corporate safety and technical standards and procedures are formulated, disseminated and reviewed as necessary.
- 2. Safe Systems of Work**
 - ensuring that systems of work are developed, maintained and reviewed so that the personal safety and health of staff is safeguarded and hazards are prevented to other staff, customers, contractors, visitors and the general public.
- 3. Buildings, Plant, Equipment and Software Systems**
 - ensuring that buildings, plant and equipment are registered and inspection and maintenance programmes established.
- 4. Protective Equipment**
 - ensuring that a system is in place to identify and provide protective equipment and clothing and that arrangements exist to provide training and ensure use as required.
- 5. Fire and Security**
 - ensuring that systems for fire prevention and control are implemented.
 - ensuring that systems for security are in place.
- 6. Human Resources**
 - ensuring that systems are in place so that the required safety training is specified and provided to enable individuals to carry out their duties.
- 7. Communication on Safety Matters**
 - ensuring that systems are in place for formal and informal communications on safety.
 - participating in formal and informal communications on safety.
- 8. Contractors and Visitors**
 - ensuring that systems are in place for contractors to work safely.
- 9. Design and Project Management**
 - ensuring that procedures are in place to ensure the safety aspects of design, procurement and commissioning of plant, equipment and structures.
- 10. Accident Reporting and Investigation**
 - ensuring that a system is in place for the reporting and investigation of all incidents with a potential for danger and of all accidents.
- 11. Safety Inspections**
 - ensuring that safety inspection programmes are formulated and carried out.
- 12. Safety Performance Monitoring**
 - monitoring safety performance and taking appropriate action.
 - ensuring that a system of independent audit of safety practices and procedures is maintained, the results are regularly reviewed and are acted upon according to considered priorities.

Group Exercise – Assessing HSE management arrangements



Exhibit 5: Examples of HSE responsibilities from the Job Description - Plant Manager

The Plant Manager is specifically responsible for: *(need to reproduce and change safety with HSE)*

- 1. Information**
 - ensuring that systems are in place for disseminating statutory standards.
 - ensuring that corporate operating standards and procedures are formulated, disseminated and reviewed as necessary.
- 2. Safe Systems of Work**
 - ensuring that safety systems of work are developed, maintained and reviewed so that the personal safety and health of staff is safeguarded and hazards are prevented to other staff, customers, contractors, visitors and the general public.
- 3. Buildings, Plant, Equipment and Software Systems**
- 4. Protective Equipment**
 - ensuring that a system is in place to identify and provide protective equipment and clothing and that arrangements exist to provide training and ensure use as required.
- 5. Fire and Security**
 - ensuring that systems for fire prevention, control and recovery are in place and are subject to exercise.
 - leading the Liaison Group with Fire Services Department on prevention, control and incident recovery.
 - ensuring that systems for security are in place and that procedures for crowd control are agreed, reviewed and disseminated.
- 6. Human Resources**
 - ensuring that systems are in place so that required safety training is specified and provided to enable staff to carry out their duties.
 - ensuring that safety training requirements for new technologies or systems of work are identified and implemented.
 - specifying and reviewing recruitment criteria to meet the need for safe operation.
- 7. Communication on Safety Matters**
 - participating in formal and informal communications on safety.
- 8. Contractors and Visitors**
 - ensuring systems are in place for contractors to work safely.
- 9. Design and Project Management**
 - ensuring a system for the inputting of safety requirements into projects associated with the operating the plant.
- 10. Accident Reporting and Investigation**
 - ensuring that a system is in place for the reporting and investigation of all incidents with a potential for danger and of all accidents.
 - ensuring that a system is in place to meet statutory reporting, inspection and investigation requirements.
- 11. Safety Inspections**
 - ensuring that safety inspection programmes are formulated and carried out.
 - conducting a programme of safety inspection.
- 12. Safety Performance Monitoring**
 - ensuring a system is in place for monitoring safety performance and taking appropriate action.
 - ensuring that a system of control is maintained that will currently monitor safety performance, will take action as necessary and will report.
 - ensuring participation in a system of independent audit of safety practices and procedures and ensuring implementation of corrective action as required.



1. **What are the problems within BCY's HSE Management System (SMS)? Are there any strengths to the SMS?**

Policy



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Organisation



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Planning and Implementing



1. **What are the problems within BCY's HSE Management System (SMS)? Are there any strengths to the SMS?**

Measuring



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Audit



1. **What are the problems within BCY's HSE Management System (SMS)? Are there any strengths to the SMS?**

Review



2. What should Mark Farroll do to address these problems?

Policy



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Organising



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Measuring



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Audit



2. What should Mark Farroll do to address these problems?

Review



Single sentence summary of the problems and solutions:



1. What are the problems within BCY’s HSE Management System (SMS)? Are there any strengths to the SMS?

- Using HSG65 model as a “comb”

Policy

OK	Problems
<ul style="list-style-type: none"> ■ Policy statement in place ■ Standards, procedures in place 	<ul style="list-style-type: none"> ■ Lack of senior management commitment to policy ■ No clear HSE strategy

Organising

OK	Problems
<ul style="list-style-type: none"> ■ HSE organisation exists with staff, budget etc. allocated ■ HSE Responsibility Statements are in place 	<ul style="list-style-type: none"> ■ HSE Responsibility Statements are not well defined, responsibilities overlap ■ HSE Responsibility Statements are not rigorously followed, e.g. managers not conducting inspections

continued/.....



1. What are the problems within BCY's HSE Management System (SMS)? Are there any strengths to the SMS? (continued)

Organising (continued)	
OK	Problems
	<ul style="list-style-type: none">■ Role of HSE department is unclear and not supportive to operations■ What value is being provided by the HSE department in return for its increasing budget?■ HSE manager taking too much responsibility for HSE, not allowing operations managers to take responsibility■ HSE objectives not linked to performance related pay



1. What are the problems within BCY's HSE Management System (SMS)? Are there any strengths to the SMS? (continued)

Planning/Implementing	
OK	Problems
<ul style="list-style-type: none">■ HSE meetings take place■ Suggestion scheme exists■ Risk assessments are undertaken	<ul style="list-style-type: none">■ No senior management presence at meetings■ No follow-up from suggestion scheme■ Risk assessment a 'paper exercise', not used to prioritise HSE initiatives■ HSE management system generates paperwork with no perception of its value■ No proper roll-out of HSE initiatives



1. What are the problems within BCY’s HSE Management System (SMS)? Are there any strengths to the SMS? (continued)

Measuring Performance	
OK	Problems
<ul style="list-style-type: none"> ■ Proactive and reactive monitoring system exists ■ Benchmarking study undertaken 	<ul style="list-style-type: none"> ■ Benchmarking goals unclear: <ul style="list-style-type: none"> – What does BCY want to do with the results? – What is the value of doing the study? <ul style="list-style-type: none"> – Ill-defined purpose – Results not used in a structured way ■ Traditional control being applied to empowered culture: <ul style="list-style-type: none"> – Emphasis on reporting control statistics – Too much management time spent on checking others rather than supporting others – No visible control mechanisms to maintain attention on big picture/external environment



1. What are the problems within BCY’s HSE Management System (SMS)? Are there any strengths to the SMS? (continued)

Review and Audit	
OK	Problems
<ul style="list-style-type: none"> ■ Audit system in place 	<ul style="list-style-type: none"> ■ “Value” of auditing misunderstood: <ul style="list-style-type: none"> – Focus on scores from audits – Benefit of audits not perceived by auditee – Appears to be a lack of structured follow-up and assistance from auditors ■ Audit is no longer independent as auditors are auditing against procedures and risk assessments written by own department ■ No evidence of long-term review of HSE management process and stakeholder needs



2. What should BCY do to address these problems?

Overall

- BCY needs to identify a clear HSE strategy based on a review of stakeholder needs, particularly focusing on internal stakeholders
- In particular BCY needs to consider the suitability of controls in line with an otherwise 'empowered' organisation
- Once needs have been identified, HSE management systems can be modified to align with HSE strategy



2. What should BCY do to address these problems? (continued)

Policy

- Encourage senior management commitment to HSE policy
- 'Roll out' HSE policy throughout organisation

Organising

- Clarify role and objectives of HSE Organisation
- Evaluate cost benefit of each position relative to the current business need
- Rotate staff from operations through the HSE organisation
- Change structure of performance related pay system to link with HSE issues
- Clarify HSE responsibilities and review HSE Responsibility Statements to reflect this



2. What should BCY do to address these problems? *(continued)*

Planning/Implementing

- Establish system to review and report on the suggestions provided by employees
- Encourage senior managers to be seen in the field conducting inspections etc
- Conduct basic cost benefit analysis of HSE organisation's budget items
- Use risk assessment techniques to evaluate and prioritise HSE investments

Measuring Performance

- Clarify purpose and objectives of future benchmarking studies
- Encourage move towards more empowered forms of control
 - Question the “message” sent by the requirement to rigorously report performance measures
 - Encourage management role as supporting not checking
 - Emphasise proactive measures
 - Encourage trust and self control



2. What should BCY do to address these problems? (*continued*)

Review and Auditing

- Reassess the auditing format to include distinct pre-audit, on-site and post-audit activities
- Encourage joint ownership of audit results
- Encourage HSE organisation to “assist and advise” rather than “do and tell”
- Consider focusing the audit process on achieving delivery of the HSE Management System – not a “score”
- Review, annually, whether HSE management expenditures are adding value to BCY