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Cultures, Behaviours and Prevention of Major Incidents



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Petrochemical Plants

- High integrity logical designs
- Risk assessments based on logical rules and factual data
- Operating and maintenance procedures so risk is maintained at a very low level



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Metal Computers

- ☛ Relentlessly follow the pre-specified rules
- ☛ Talk to each other and accept information and decisions without challenge



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It Is Not a Perfect World

Yet plants still blow up, set on fire and people die – why?



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The Final Common Pathway

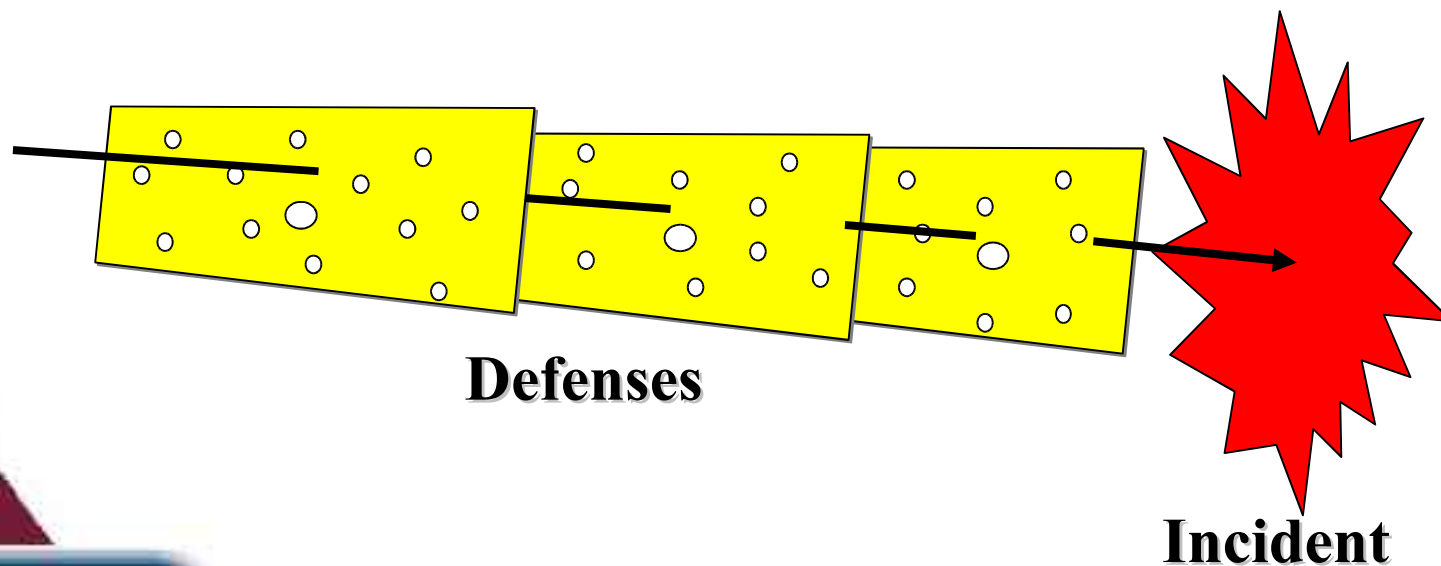
- ☞ All failures are either human error directly
- ☞ Or indirectly via a failure of a system



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Accidents Happen

When holes in our defensive walls
line up
leaving our operators defenceless



Examples

- 🎯 Operating critical systems:
 - 🎯 Permit to work system (Piper Alpha)
 - 🎯 Lock off procedure
 - 🎯 Modification procedure (Flixborough)
 - 🎯 Reinstating plant after a shutdown (JVO6)
 - 🎯 Response in an emergency (Piper Alpha)
 - 🎯 Leak testing



Interface With Humans

- 🌐 This “perfect” world governed by logic and facts interfaces with another world
- 🌐 The wonderful and strange world of organic computers



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Organic Computers

- 🌐 Behave in a totally different way
- 🌐 In groups interact in surprising ways
- 🌐 Were completed in their current form over 20 thousand years ago
- 🌐 Are well adapted to the world of 20 thousand years ago – to learn quickly and survive



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Using Behavioural Science

Organic Computers

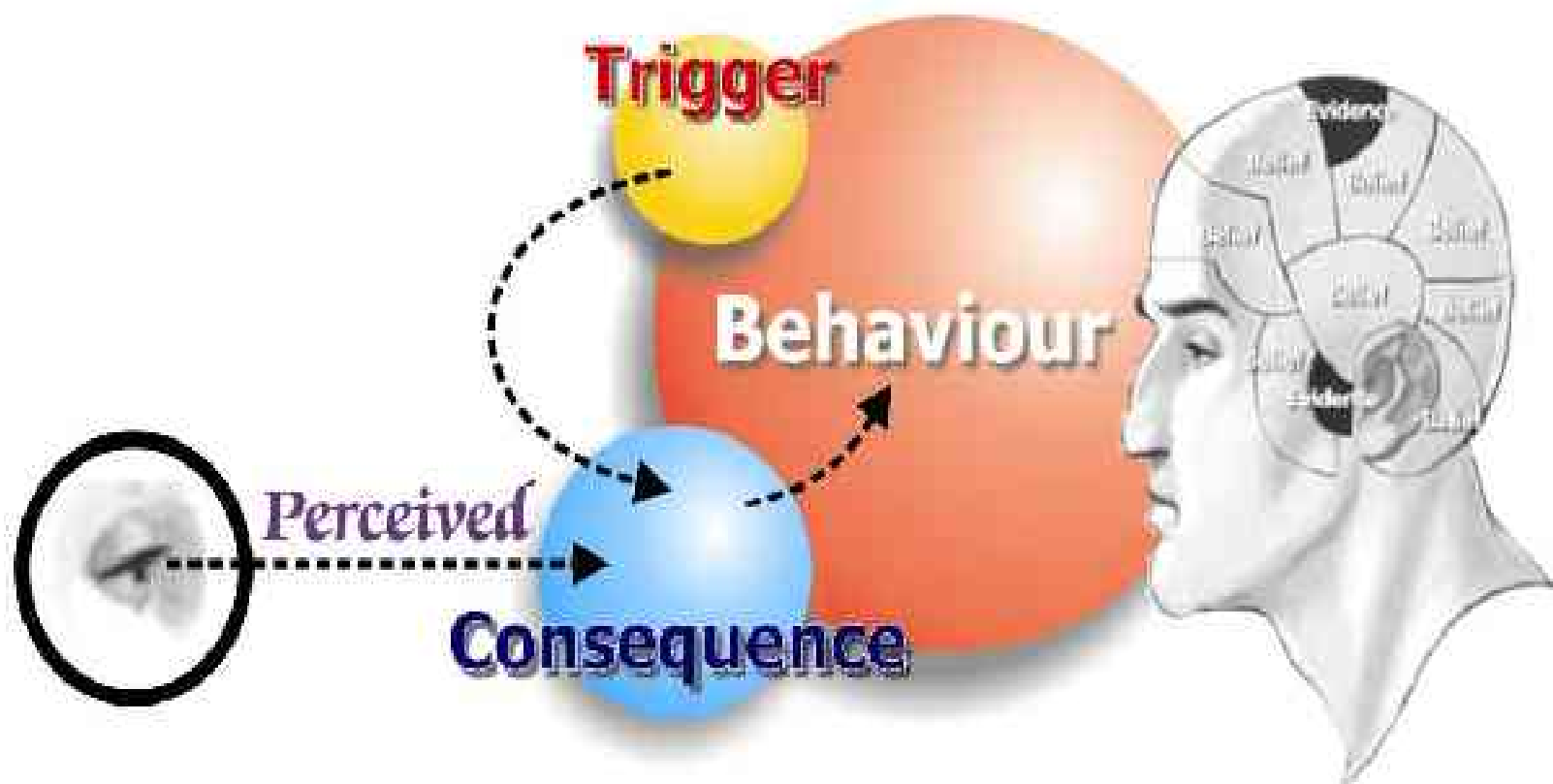
- Repeat behaviours they reckon will reliably give them pleasure or avoid some kind of pain
- Avoid behaviours which give rise to pain
- Are bothered more about short term pain or gain than long term



Pleasure/pain

- 🎯 Reinforcers – physical pleasure or emotional happiness
- 🎯 Punishers – pain or fear/anxiety

The Way We Behave



Rules

- OC's work with a set of rules which capture past experience
- These rules may or may not make sense in terms of the current situation
- They are policed by the pleasure/pain principle



Super Rules

- 🎯 OC's use values to guide them when uncertain
- 🎯 These are super rules



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Map of World

- OC's reality is not the real world but their own mental map
- This is a set of beliefs usually taken from the group of which they are a part



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What Is Meant by Culture?

 Values, beliefs, attitudes,...

...and behaviours



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Groups of OC's





- Follow group norms of values, beliefs and behaviours
- Values tend to be set by the “chiefs”
- Groups reinforce their values, beliefs norms of behaviours



Performance in Safety Health & Environment

Performance is determined by the culture

 A weak culture results in poor performance across a range of measures

-  Injury accidents
-  Incident of occupational ill health
-  Fires
-  Quality defects



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Groups of OC's

 Cultures can be successful or “sick”








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The Three Cultures of Safety:

Macho Management

-  MESSENGERS: shot
-  RESPONSIBILITY: shirked
-  FAILURE: punished or concealed
-  NEW IDEAS: actively discouraged
-  SAFETY INFORMATION: don't want to know

After Ron Westrum








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The Three Cultures of Safety:






Job's worth

-  **MESSENGERS:** listened to if they arrive
-  **RESPONSIBILITY:** compartmentalised
-  **FAILURE:** lead to local repairs
-  **NEW IDEAS:** often present problems
-  **SAFETY INFORMATION:** may not find out



The Three Cultures of Safety:

Learning

-  **MESSENGERS:** trained and rewarded
-  **RESPONSIBILITY:** shared
-  **FAILURE:** leads to far reaching reforms
-  **NEW IDEAS:** welcomed
-  **SAFETY INFORMATION:** actively seek it



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How Are Cultures Maintained?



Importance of Perception in Culture Change



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Cultures are not always
what managers **think** they
are

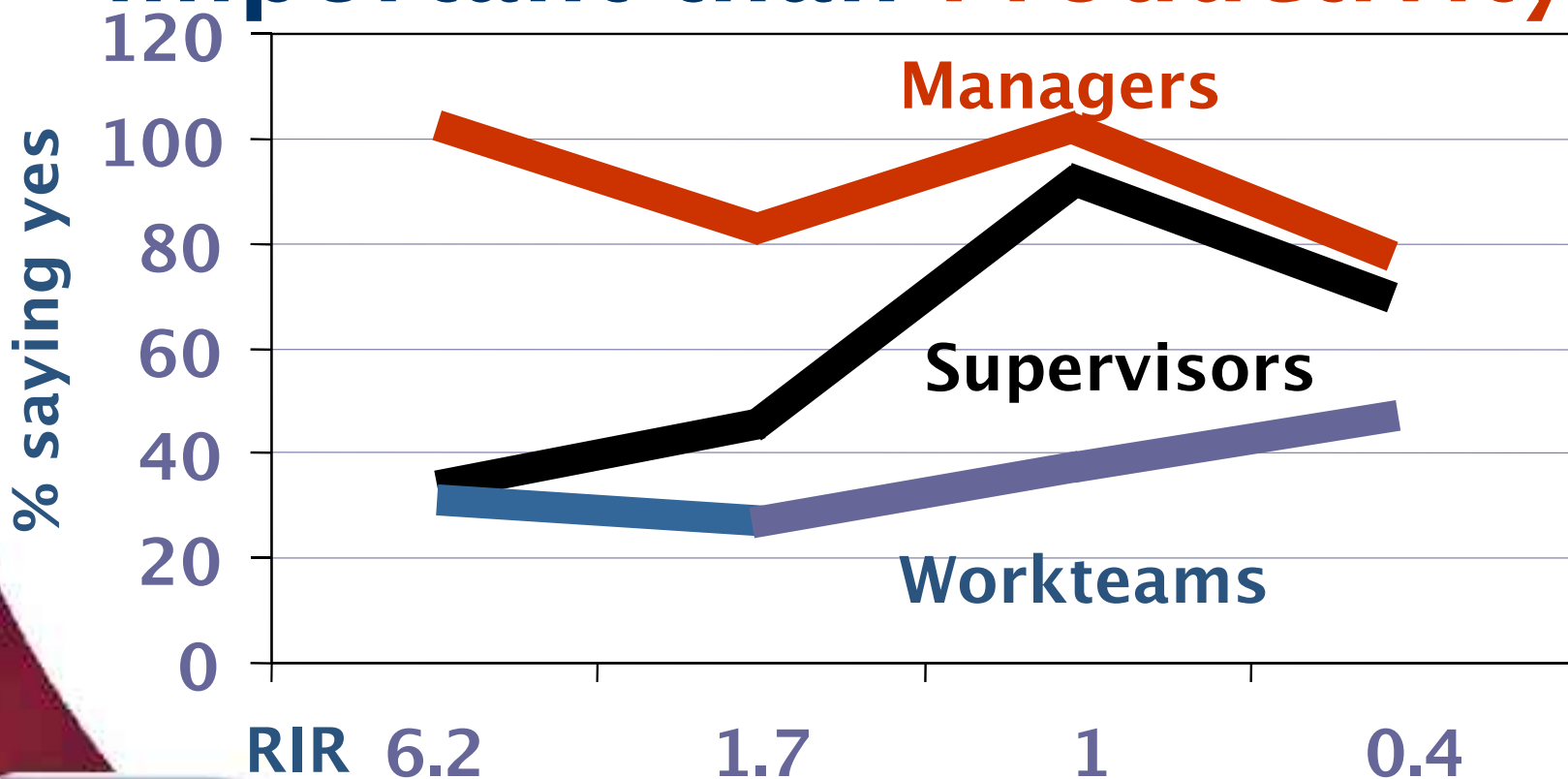
They are what people
perceive them to be



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Safety is usually seen as more important than Productivity





What You Get

 As a manager you don't get from your people what you say you want ...

 You get ... **what you really want!**



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Communication

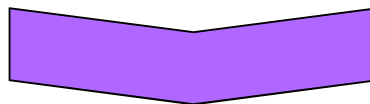
- 🇺🇸 OC's ignore most of the words
- 🇺🇸 Focus on facial appearance and tone of voice
- 🇺🇸 Are smart at reading the real wants and desires of the “chief”



FELT LEADERSHIP: DuPont

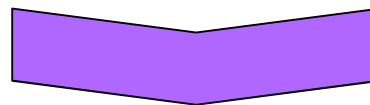
DOING:

- Do the right things



DOING AND BEING SEEN:

- People aware of your influence and actions directed at the right things



DOING AND BEING SEEN AND BEING BELIEVED:

- People feeling your leadership and actions directed at the right things and sensing that it really matters to you



**Whatever the organisation
values –
it reinforces**



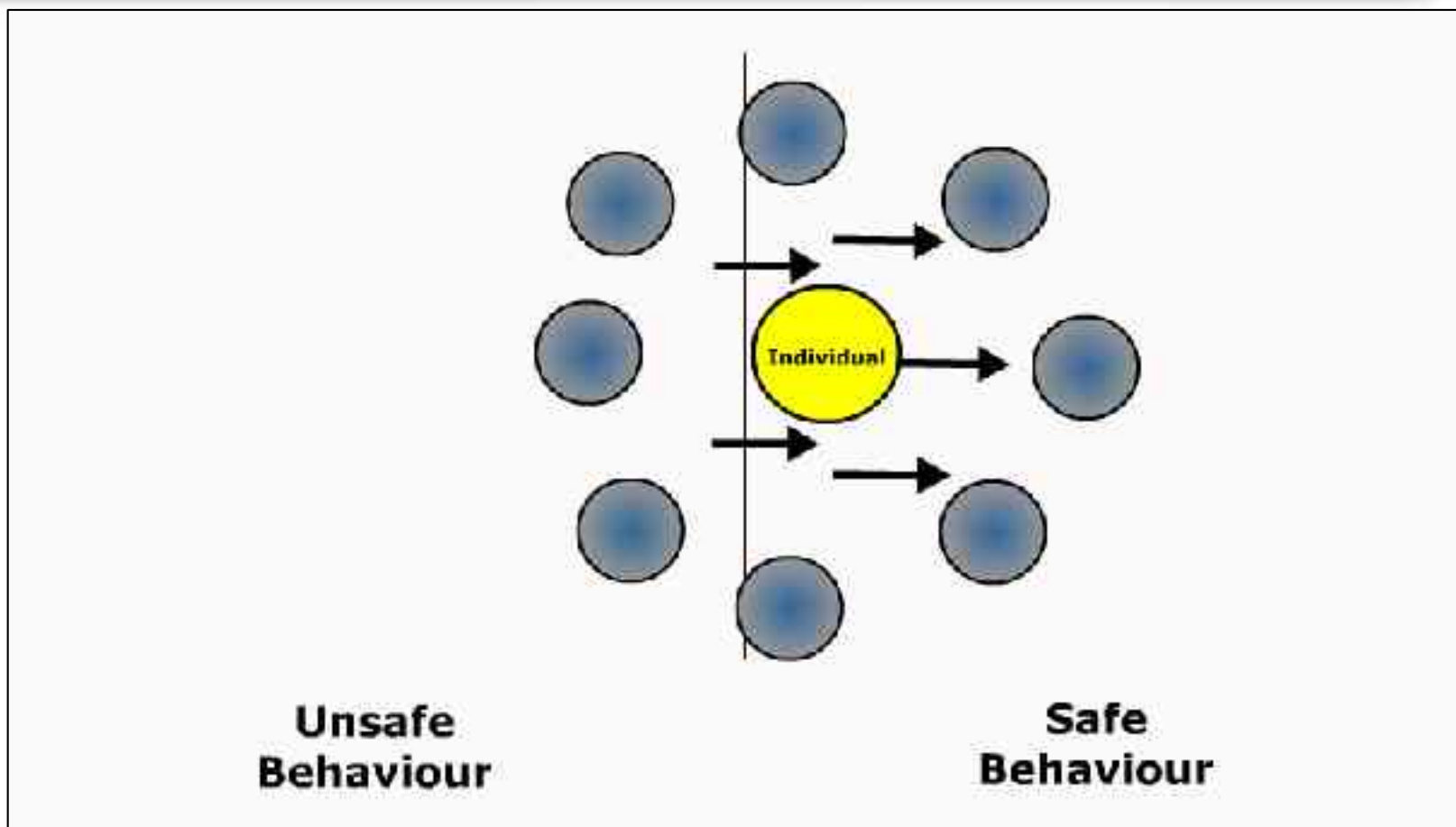
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**There have to be real
changes in the values of the
company management**



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Risk Assessment

- OC's work with simple rules as per previous slide
- Familiarity breeds contempt
- Will fear the unfamiliar
- Become fearful of disasters with a high visual impact

Organic Computers

- Learn actively by tacking new knowledge to old
- Tend not to learn by being told
- Will lose the ability to reason when criticised, tired or under stress



The OC Keyboard

- 🎧 Listening
- 🎧 Praise
- 🎧 Open questions
- 🎧 Use of emotion
- 🎧 Stories



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Key Safe Behaviours

- 🌐 Will prevent the most frequent or serious loss
- 🌐 Treat them with respect
- 🌐 They are mostly gained through somebody's pain
- 🌐 They can be practical or leadership behaviours

What is SUSA



**Five minutes per day
to save someone's
life**





Safe and Unsafe Acts process:

- 🎪 Gets people talking to each other about safety
- 🎪 Causes people to think and behave differently
- 🎪 The more it happens, the lower the injury rate
- 🎪 Exposes the fault lines



SUSA Key Stages

- 🚧 Stop and observe a work situation
- 🚧 Introduce yourself and put people at ease
- 🚧 Explain what you are doing and why
- 🚧 Ask them to describe the stages of the job they are doing
- 🚧 Praise safe aspects of their behaviour
- 🚧 Ask what are the most serious or likely accidents, how could they happen and what could be the consequences
- 🚧 If working unsafely, question why they feel they have to work that way
- 🚧 Ask what corrective actions are required
- 🚧 Achieve commitment to act







Culture Based Safety



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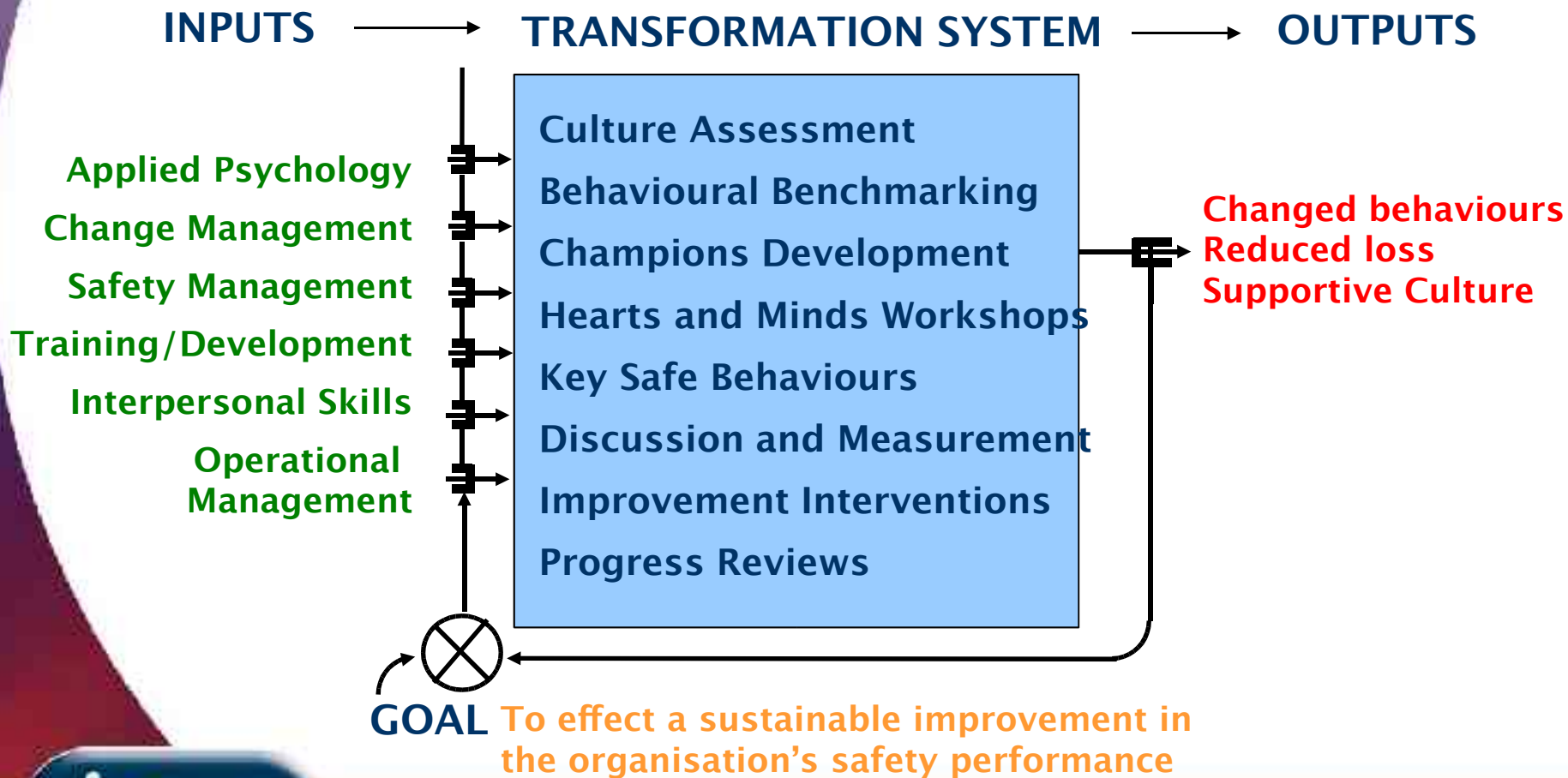


The Opportunity to Prevent Loss

-  **Idea 1** – focus the business’s culture closer to its objective of safety improvement
-  **Idea 2** – help people to recognise they are at risk and how they can personally manage the risks they face
-  **Idea 3** – train people to work to Key Safe Behaviours and leadership behaviours
-  **Idea 4** – give people feedback on the job and via measurement



Systems Approach



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