Safety culture maturity: A problem disguised as a solution

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Message from Dr. Andrew Sharman, IILSC Chief Executive Officer, IILSC

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Above Right Hand Image Sourced: Shutterstock_2275186377_Workers in safety gear at a chemicals refinery

Abstract

Safety culture, initially proposed as a comprehensive solution to emerging safety challenges, has evolved into a problematic construct in its own right, particularly regarding its establishment, maintenance, and measurement.

Central to this discourse is the concept of safety culture maturity, often depicted as a developmental journey through several levels or stages.

Widely used models, such as the HSE (Health and Safety Executive) culture ladder and the DuPont Bradley curve, however, lack operational clarity and fail to provide the critical knowledge necessary for defining current states, setting achievable goals, and specifying actionable steps for progression.

This shortfall renders safety culture maturity an aspirational yet impractical concept, that relies on persuasive, but vague characterizations and unsupported assumptions.

The limitations of safety culture maturity models are emblematic of broader issues in safety management: the reliance on monolithic solutions that simplify complex socio-technical realities into singular, ostensibly universal remedies.

Such solutions, while rhetorically compelling, often prove unworkable in practice, as evidenced by the transition from technical safeguards in the 18th century to human factors engineering in the mid-20th century, and later to the managerial focus of the third age of safety.

Each shift re-flects a reaction to the inadequacies of preceding paradigms, yet the pattern persists, with safety culture maturity becoming the latest example.

This paper critically examines the theoretical and practical deficiencies of safety culture maturity models, emphasizing their inability to provide meaningful guidance for real world application.

Drawing on historical and contemporary perspectives, it highlights the inherent challenges in measuring safety, defining generative cultures, and operationalizing leadership and resilience as solutions.

Ultimately, this work argues that the popular appeal of safety culture maturity obscures its practical limitations, perpetuating a reliance on counterfactual reasoning and creating new problems disguised as solutions.

In doing so, it calls for a more nuanced and systemic approach to managing safety in increasingly complex socio-technical environments.

Above Right Hand Image Sourced: Shutterstock_1698203878_Industrial engineer conducting safety check

Safety culture

Safety culture was introduced as a monolithic solution to a problem. But it turns out to be a solution that itself is a problem, namely when it comes to how a safety culture can be established and maintained.

The degree or quality of safety culture is often called maturity. But unlike cheese (whether or not it is Swiss) the maturity of a safety culture does not improve with age, if you just leave it alone.

To improve the maturity of a safety culture requires active interventions which often are described using the analogy of a voyage.

But this is where the trouble begins, because in order to make a voyage, even metaphorically, three types of knowledge are needed. These are:

1. **Knowledge about your position: where you are at any point of time.**
2. **Knowledge about your target, destination or goal: where you want to be when the journey comes to the end.**
3. **Knowledge about the means: how you can change your position in a desired direction and control the rate of progress.**

Above Image Sourced: Shutterstock_2537385061_A worker processing bottles of mineral water

FIRST TYPE OF KNOWLEDGE: ABOUT THE CURRENT POSITION

The first type of knowledge is about the present position or current status. This is necessary for two reasons.

First, in order to know whether you have reached your goal, or whether there still is a discrepancy, how large that discrepancy is, and therefore how long it will take before you reach the goal.

It is additionally necessary to compare the current position to the previous position in order to determine whether any progress has been made.

The concerns about the imprecise characterisation of the goal unfortunately also applies to the issue of determining the current position.

SECOND TYPE OF KNOWLEDGE: ABOUT THE TARGET, OR DESTINATION

The second type of knowledge is about the goal: What is it you want to achieve, where do you want to be that is different from where you are now?

Is the primary purpose to get away from something, as a Safety-I perspective recommends, or to approach or get closer to something, as a Safety-II perspective recommends?

What more specifically are the criteria for the acceptable final state that you strive for?

This type of knowledge is, first of all, necessary to determine whether and when you have reached your goal.

In relation to the HSE culture ladder, the goal is only defined indirectly as a level originally called generative, but the characteristics described in Table 1 are insufficient to determine whether that level has been reached.

The characteristics are given in vague, non-operational terms. That is unfortunately also the case for the other four levels.

THIRD TYPE OF KNOWLEDGE: ABOUT THE MEANS

The third type of knowledge is about the means: how best to reduce the discrepancy between the current position and the defined goal, how do you move or make a change of position in whatever space you are in?

For physical systems, such as driving a car, riding a bicycle, sailing a boat or overseeing a production/ assembly line in a factory, the means by which a change in rate or direction can be made are well known and readily available.

Describing the means by which the maturity of a safety culture can be improved is again not included in the HSE culture ladder, nor in any other maturity model (The Bradley curve implies it is a consequence of having fewer accidents, but that is not actually a practical method).

An often-proposed solution is leadership, but leadership is yet another example of a monolithic solution that creates more problems than it solves.

Above Right Hand image Sourced: Shutterstock_2492762449_Construction worker kneelin on rebars

Safety culture models

None of this can be provided with current safety culture maturity models. The most explicit and arguably also most popular of these, the HSE culture ladder *Figure 2* simply defines five separate levels, and the voyage is the unspecified progression up these levels. Safety culture was introduced as a solution to a problem.

The problem arose because societies, technologies, and activities had continued to develop, and therefore became what Perrow *(Perrow 1984)* called increasingly tightly coupled; and "normal" accidents began to happen for which none of the commonly accepted solutions were appropriate or effective.

TABLE 1: POPULAR MONOLITHIC CAUSES AND THEIR ANTIDOTES

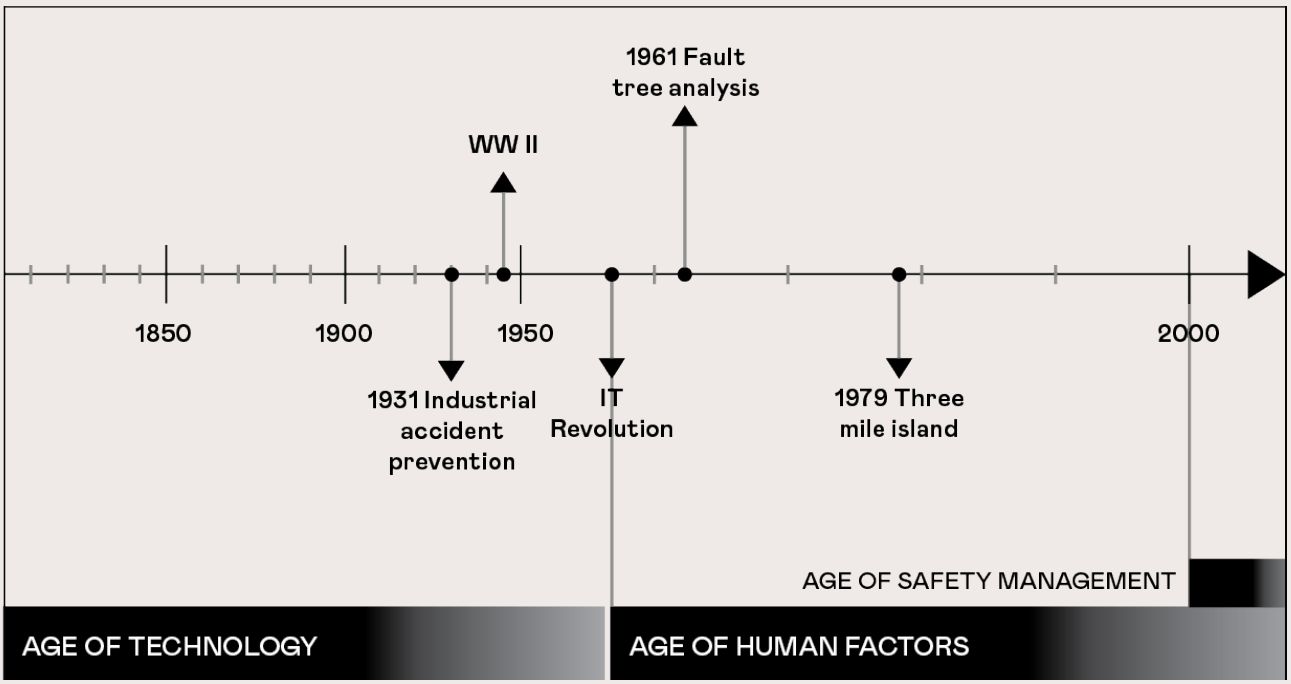
POPULAR MONOLITHIC CAUSES AND THEIR ANTIDOTES	
Monolithic cause (as a social construct)	Monolithic solution or "silver bullet"
Technology	Re-Design, construction,
Human error	Prevention, elimination, compliance, standards
Counterfactual condition (Lack of) X (e.g., trust, safety culture)	Provide or improve X (whatever was missing or deficient.)
Deviations from norms	Standardisation, compliance

This has happened time and again as our societies and the technologies we rely on have become more complicated, and non-trivial (it is marked by a parallel development in terminology, from machines to human-machine systems, to socio-technical systems, and, presently, to the infamous cyber-technical systems, that no one really understands). The main lines of this development were described by *(Hale & Hovden, 1998)*, who proposed three ages of safety *Figure 1*.

*Figure 1 on next page

Age of safety management

Figure 1: The three ages of safety, based on (Hale & Hovden, 1998).



The first age concerned itself with technical measures to guard machinery, stop explosions, and prevent structures collapsing, and was therefore rightly called the age of technology. During this age, the default explanation when something happened was that it was due to a failure of technology, which definitely was more clunky and less reliable than today *(Leveson, 1992).*

According to Hale & Glendon, *(1987)* UK factory inspectors were only interested in getting reports of accidents with technical causes, since others could not reasonably be prevented. (An unusual but refreshingly honest admission of own limitations.)

We will arbitrarily let the first age begin in the year 1776, which marks the start of the second industrial revolution, because this was the year that James Watt's steam engine was introduced commercially. The age of technology lasted from the late 18th Century until the end of the second world war (WW II) in 1945.

The mid-1940s saw the beginning of a new science, which at first was called "human engineering" *(Fitts et al. 1951)* and later human factors engineering, although it is not known where the "factors" came from and what it means. WWII also saw considerable research into personnel selection, training, and motivation as preventive measures, as there had been a significant number of accidents when enlisted personnel were put in charge of sometimes quite complicated technology that had been designed in a hurry by well-meaning engineers, often without military experience, based on how they imagined the equipment should be used.

This occasionally led to equipment that worked in counterintuitive ways for users who might have had less than adequate training and in addition had to work in stressful (combat) conditions with limited time to be thorough. WWII and the post-WWII period marked the beginning of the second age of safety thinking, which Hale & Hovden called the age of human factors.

Whereas the default explanation in the first age had been technical failures it now became the human factor, and increasingly "human error", a concept which Heinrich *(1931)* had inadvertently introduced when he named the second of the five pieces in the Heinrich domino model, "fault of person".

(Hale & Hovden, 1998) made clear that the transition from one age to the next happened as a reaction whenever it becomes obvious that the default explanations and solutions of an age no longer worked in practice. This happened in the transition from the first age of technology to the second age of human factors, and one more time when it led to the introduction of the third age of safety where the focus changed from the human factor to management systems. And it is bound to happen again, probably before we expect it.

"Just as the second age of human factors was ushered in by increasing realizations that technical risk assessment and prevention measures could not solve all problems, so were the 1980s characterized by an increasing dissatisfaction with the idea that health and safety could be captured simply by matching the individual to technology. [which otherwise was the foundation of human factors engineering]".

(Hale & Hovden, 1998, p. 130).
In hindsight this can also be described as a change in focus from the traditional sharp end towards the blunt end. These terms were, however, not commonly used in 1998, even though they had been introduced by Reason already in 1990.

The same need arose once again eight years after Hale & Hovden had published their paper, and at that time even safety management was insufficient as a solution. However, human ingenuity as always came to the rescue, and safety culture came into the world.

It is commonly accepted that this happened in the wake of the accident with the space shuttle Challenger in 1986 *(Vaughan, 2016)* and the accident at the nuclear Power Plant at Chernobyl in Ukraine also in 1986 *(INSAG-4, 1992)*, although some date it to the accident at Bhopal in1984 *(Bloch & Vaughan, 2024).*

Above Image Sourced: Shutterstock_2417199039_ Chernobyl Nuclear Power Plant

Counterfactual solutions

Safety culture is, however, a peculiar kind of solution, being a counterfactual conditional, rather than an actual practical solution.

A counterfactual conditional is something, a factor, or a condition (call it X), whose presence, in hindsight *(Fischhoff, 1975)*, might have prevented an accident from happening. (It is counterfactual because the accident which it hypothetically could have prevented did in fact happen.)

The reasoning goes like this: if only X had been present or if only there had been more of X, or if only X had been better, then the accident would not have happened. This inevitably leads to the question:

"How can we improve our X?"

Commonly used examples in addition to safety culture are communication, leadership, situation awareness, and resilience.

Counterfactual conditions are the favoured by self-anointed experts who in the aftermath of major calamities find it difficult or impossible not to share their wisdom and insights with others.
A counterfactual conditional usually is never and cannot ever be defined independently of the problem it hypothetically is supposed to solve.

Safety culture is not only a pseudo-solution, but also becomes a real problem when people try to apply it in practice. This is obvious from the several so-called "safety culture maturity" models of which an often-used version is the HSE culture ladder shown in *Figure 2* and defined in further detail by *Table 1.*

Figure 2: The HSE culture ladder (Hudson, 2007).

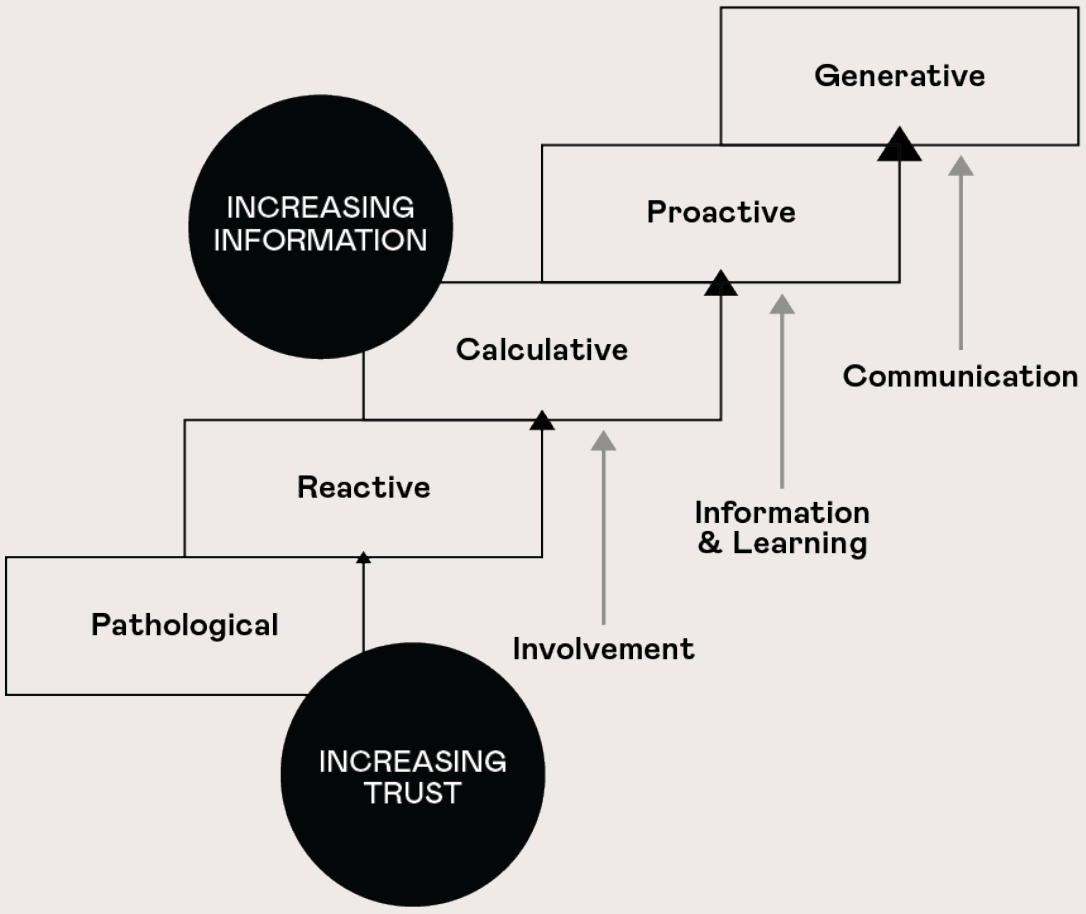


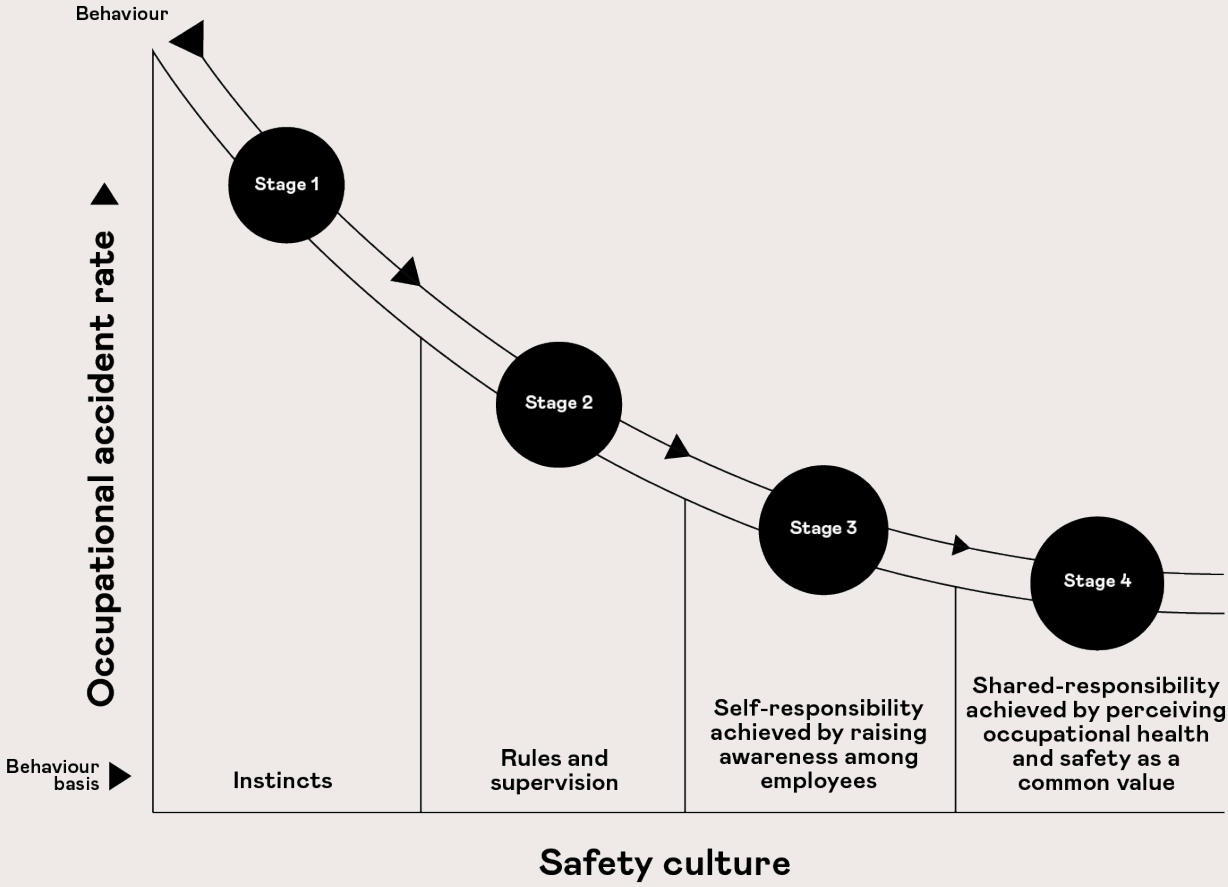
TABLE 2: THE 5 LEVELS OF SAFETY CULTURE (LAWRIE, PARKER & HUDSON, 2006).

Level of safety culture	Characteristic	Typical response to incidents/accidents
Generative	Safe behaviour is fully integrated in everything the organisations does.	Thorough reappraisal of safety management policies and practices.
Proactive	We work on the problems that we still find.	Joint incident investigation.
Calculative	All necessary steps are followed blindly.	Regular incident follow-up.
Reactive	Safety is important, we do much every time we have an accident.	Perfunctory investigation.
Pathological	The organisation cares more about not being caught than about safety.	No investigation.

The Bradley curve

Another popular safety maturity model is the so-called Bradley curve, seen in *Figure 3.* The corresponding definitions are listed in *Table 2.*

Figure 3: The Dupont-Bradley curve



Self assessment ▶	1 2 3	4 5 6	7 8 9	10 11 12 ▶
Attitude to accidents	Accidents are normal	Zero accidents is unrealistic	Zero accidents is possible	Zero accidents is the goal
Motivation	No motivation	Fear of punishment	Own health and awareness	Team spirit and shared values
Motto	You can't do anything about it!	Follow the rules!	Look out for yourself!	We need each other; we look out for each other; we help each other
Responsibility	Responsibility not /hardly ever displayed	Responsibility lies with management	Each individual takes responsibility	Employees take responsibility for themselves and others in the group
Activities /measures	None/limited (primarily by the safety officer	Activities implemented by management	Personal activities	Team activities
Popular opinion	Nobody wants/needs occupational safety	The people at the top want occupational safety	Occupational safety is a matter for me	Occupational safety is a matter for us

The Bradley Curve illustrates the relationship between accidents and corporate culture. Almost nothing is known about the Bradley curve, except that it is supposed to have been developed in 1995 by a Mr. Berlin Bradley, an employee somewhere in the DuPont company.

There are no publications that describe it, except promotional materials by the several companies that claim to rely on it in their practice, and no kind of scientific evidence whatsoever.

In contrast to the HSE culture ladder, there is not even an explicit characterisation of the four stages, or reasons for why they have been given the names they have. Part of its appeal is the continuous curve that shows the much-desired gradual reduction in accident rates. But no industry or company makes such continuous measurements.

TABLE 3: BRADLEY CURVE DEFINITIONS

Stage of Safety culture	Behavioural basis
Stage 1: Reactive	Reactive occupational safety based on instinct
Stage 2 : Dependent	Dependent occupational safety based on rules and supervision
Stage 3: Independent	Independent occupational safety based on employees' self-responsibility
Stage 4: Interdependent	Shared responsibility achieved by perceiving occupational health and safety as a common value

They are usually published at intervals, weekly, monthly, quarterly, or -- most often -- annually. Though appealing, the curve is totally fictitious and utterly useless.

The Bradley curve is even less capable of providing or supporting the three types of knowledge described above than the HSE ladder was.

(There is not even an upper or lower limit for the accident rate that matches the four stages.)

And apart from the obvious desirability of reducing the accident rate, in agreement with the irrational and unattainable ideal of the Zero Accident Vision, there is no suggestion of how a transition from one stage to the next can be brought about.

Levels of culture?

Another problem with the HSE culture ladder is whether the increasing information and increasing trust shown by *Figure 2*, are causes or consequences of moving up the levels. If they are causes, it raises the question of how one can increase trust, as increasing information is easily done, and far easier to do than to prevent.

The very idea of different degrees or levels of safety culture maturity implies that it is both desirable and possible to improve the safety culture maturity. The critical question is how this best can be accomplished.

(It is actually often described as a safety culture journey, which uses the analogy of moving or travelling from one place to another, but in a physical rather than metaphysical space) *(DeGiovanni & Bowles, 2012; Tiessen (2008).*

Although this is a very powerful and easily imaginable analogy, it does lead to a number of problems. In order to establish and maintain a safety culture, once it has been established, three types of knowledge are required (this requirement actually applies to any form of management, cf. Hollnagel *(2025)*. The requirements are based on the analogy between making a journey through physical space, and a metaphorical journey such as the safety journey.)

The word manage is, as in so many other cases, derived from a Latin word (manus), meaning hand, and in everyday language having something in hand means being in charge of it and being able to control it.

Managing a safety culture, therefore comprises what needs to be done to reach the defined goal state and to ensure that position is maintained remains once achieved, so that the system is able to function as intended under expected and unexpected conditions alike and to fulfil its intended purpose. Managing a safety culture from a Safety-II perspective *(Hollnagel, 2014)* also means ensuring as many acceptable outcomes as possible, and hopefully an increasing number as time goes by.

The first and the second types of knowledge unfortunately, but necessarily, require some kind of measurement, which raises the tricky question of whether and how safety can be measured?

Above Image Sourced: Shutterstock_2358765977_Construction site during concreting of basement stairs

Problems with the safety culture journey

The idea of a safety culture journey appeals to many, and with good reason. For who dares disagree with the desirability of improving how a company functions, be it in terms of safety, productivity, profitability or quality?

The journey idea is also appealing because it is rendered as an attempt to get to or approach something, the generative culture, or the interdependent stage, rather than to get away from or avoid something, the pathological culture or the reactive stage. But this relative strength is also a weakness.

The main problems with the concept of a safety culture journey have to do with all three types of knowledge. There are no indications of how the position (level or stage) can be established. Neither is there any way of defining the goal. The HSE culture ladder at least agrees with the cultural stereotype that the highest level is the best.

But the Bradley curve goes against the same stereotype by implying that the rightmost or last stage is the best. And none of them are explicit with regard to the means, to how a change can be brought about, except for vague implications about leadership and hearts and minds. However, leadership is of little value if the leader does not know what to do, and understand which means are at their disposal.

Being generative or resilient or being interdependent, as in the Bradley curve, sounds attractive but neither of these designations is very concrete.

Knowing your position, where you are, should not be a matter of opinion. The safety culture voyage is not the type of voyage that can rely on dead reckoning. (Dead reckoning does not work in this case, because it requires you know a position and your speed, and you cannot calculate your speed unless you either have a speed gauge or can measure your position at two different points in time.)

Few of us are as fortunate as Columbus who discovered the American continent, when he thought he had reached the Indies.

Another problem has to do with the second type of knowledge: knowing your current position. The five levels of the HSE ladder or the four stages of the Bradley curve sound reasonable, but the hard question is, how to determine precisely where you are? In the case of the five HSE culture levels, a further problem is that the five levels are based on a misinterpretation or overinterpretation of Professor Ron Westrum's proposal of two organisational climates, or leadership styles. *(Westrum, 1996).*

Professor Westrum originally provided a description of characteristic leadership styles.

The critical issue was the nature of the information flow in the organisation, from the personal power-oriented pathological, through the departmentally motivated bureaucratic, to the mission-oriented generative, and how these were shaped by the motivations and emphases shown by leaders.

"One useful indicator of the overall climate is the way that information is handled in the organisation. It might be useful to suggest a range of climates, using information flow as the indicator. One such range is the pathological, bureaucratic, and generative scheme."

(Westrum, 1996, p. 7 reproduced in Table 3).

TABLE 3: HOW ORGANISATIONS PROCESS INFORMATION (FROM WESTRUM, 2004.)

Pathological	Bureaucratic	Generative (later called resilient)
Power oriented	**Rule oriented**	**Performance oriented**
Low cooperation	Modest cooperation	High cooperation
Messengers shot	Messengers neglected	Messengers trained
Responsibilities shirked	Narrow responsibilities	Risks are shared
Bridging discouraged	Bridging tolerated	Bridging encouraged
Failure → scapegoating	Failure → justice	Failure → inquiry
Novelty crushed	Novelty → problems	Novelty implemented

The initial proposal was for the just two extreme conditions, the personal power-oriented pathological, and the mission-oriented generative where style of leadership is most influential.

The bureaucratic organisational culture actually signified the lack of strong leadership rather than a specific kind of leadership.

In the absence of strong leadership, people look for other types of predictability, and the easiest way of obtaining that is to stick to the rules and not take any chances. Only strong leadership may overrule this default way of functioning.

"The model was extended from three to five stages in a sequence, replacing the label bureaucratic with calculative and introducing just two extra stages, the reactive and the proactive.

With the cooperation of Westrum a possible internal structure was first fleshed out past the original communication model to a number of dimensions covering both Talk (what people say) and Walk (what they actually do) factors" *(Hudson, 2007), p. 702-703).*

Hearts and minds

The HSE Ladder does, in fact, propose a way to progress from one level to the next; the so-called "hearts and minds" tool (see www.energyinst.org.uk/heartsandminds).

The "hearts and minds" tool was, in turn, derived from a transtheoretical model originally developed for use by an anti-smoking campaign *(Prochaska & DiClemente, 1983)." (Hudson, 2007, p. 702)*

The 'hearts and minds' (H&M) analogy is problematic because it is too simple, at least in the way it is commonly used.

To smoke or not to smoke is for an individual an uncomplicated, unitary activity. And the decision to smoke or not to smoke is assumed to be equally uncomplicated, to wit a decision about doing something or not doing it – even allowing for the existence of social pressures for

or against as well as taxes. This decision is in turn based on personal preferences or attitudes.

Smoking is a personal rather than an organisational activity, which only benefits the person who does it. It therefore makes sense that if these attitudes are changed, then the person will no longer smoke.

The H&M analogy therefore fails miserably. The actions that together constitute our work are not determined only – and not even mostly – by individual attitudes and beliefs. They are determined by the actual and practical necessities of work.

Therefore, if we want to change what people do, we should not rely on changing their espoused values (hearts and minds) as the primary solution. We can only change what people do by changing the determinants of work, the reasons why they do things, as well as other determinants that have to do with the balance of demands and resources. These are especially the design of the workplace and the interfaces (the basis provided for Work-as-Imagined), the many factors and conditions that necessitate the ubiquitous performance adjustments that are essential to ensure the occurrence of acceptable outcomes, that we usually associate with safe performance.

The way that activities are supported – or hindered, the expectations that are hidden in the procedures and guidelines (representing the assumptions of Work- as- imagined) as well as the social expectations by peers, and of course also the attitudes. But never the attitudes alone. Indeed, it is just as likely that the attitudes change when the practices change, rather than the opposite.

The hearts and minds analogy is also misapplied because every day work cannot be reduced to a question of whether or not to do something. Everyday work is rarely about an individual making binary choices. In fact, it is more about creating the opportunities or alternatives for doing something, to make sense of a situation in order to know what to do - as in naturalistic or recognition-primed decision making.

It is a question of how to do something, not whether to do it. Rarely can a pilot decide not to land on arrival or a surgeon not to perform surgery once a patient has been prepared and sedated. Figuring out how to do something is furthermore part of a context or a non-trivial continuum, rather than a single isolated action (such as lighting a cigarette is).

Smoking is only exceptionally part of work but is in most cases rather an interruption of work. But actions, steps in everyday work are by their very nature part of something else and not isolated. And we never think about what we do as individual steps. (Designers and managers think so, but only when it concerns the imagined work of others, never when it concerns what they do themselves.)

Above Right Hand Image Sourced: Shutterstock_35001436_A steel worker takes a sample at steel company

The starting position

The reputed Irish reply to an enquiry as to how to get to a desired destination goes – “Ah well, if I were you, I would not start from here”!

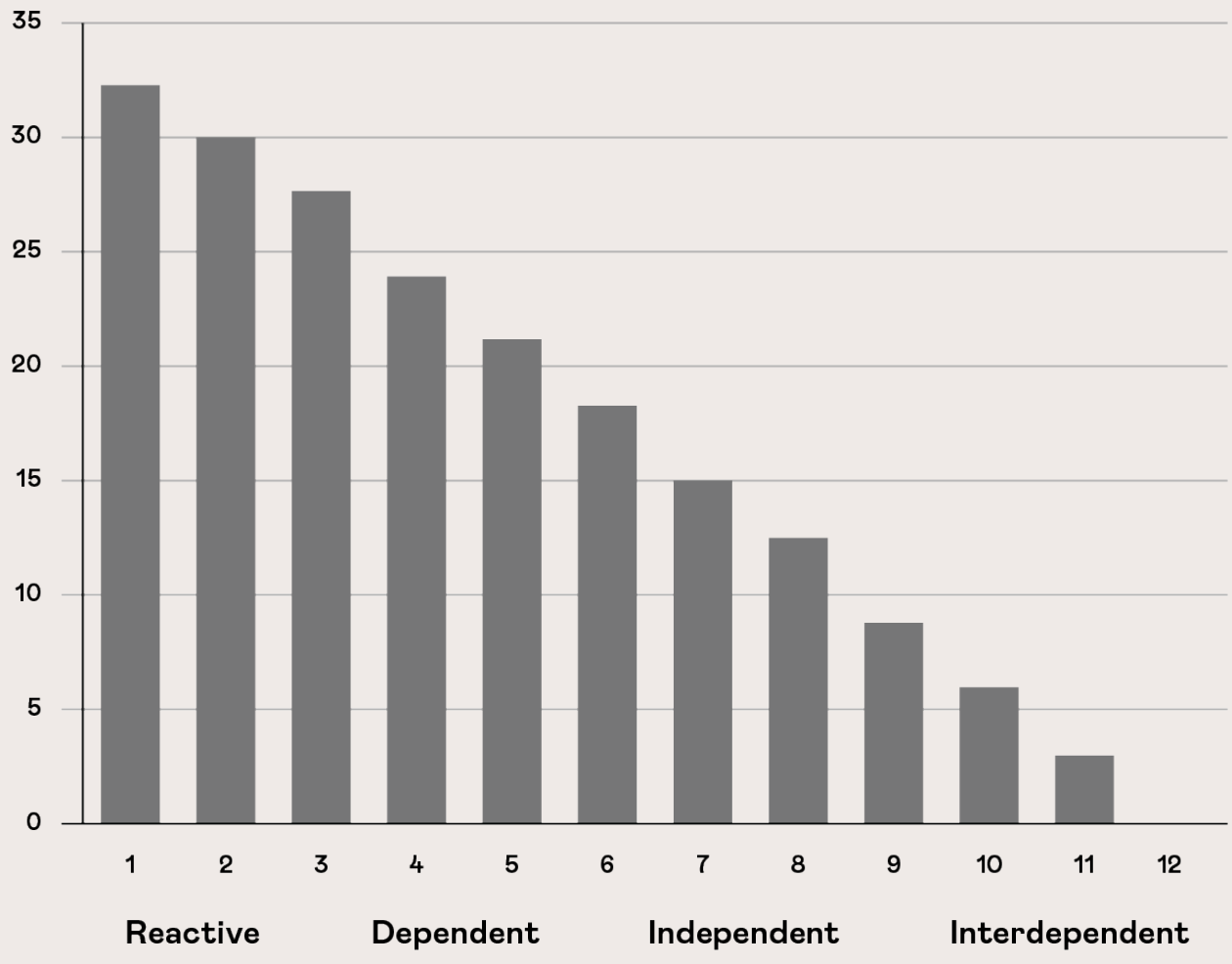
This same indeterminacy of starting point is equally a problem on the culture pilgrimage. However, it might be argued that the problem of knowing the position in principle is smaller for the Bradley curve because the stage you are in corresponds to a rate of accidents, of which one presumably is well aware.

The Bradley curve is unfortunately not a solution, because there are no known empirical data to support the curve.

Not even the most diligent company makes continuous measures like that, at best they are made weekly, monthly, or quarterly, which will result in a stepped graph rather than a continuous curve. *Figure 4.*

It might be argued that the problem of knowing the position is smaller for the Bradley curve because the stage you are in corresponds to a rate of accidents. The x-axis, called safety assessment, actually shows 12 unevenly distributed positions.

Figure 4: A realistic stepped bradley graph



Right Hand Image Sourced: Shutterstock_1177539979_Factory worker welding a steel structure

Conclusions

The concept of safety culture maturity, while compelling in theory, reveals significant limitations in practice. It promises a structured pathway to improved safety, but existing maturity models such as the HSE culture ladder and the DuPont Bradley curve fail to provide the necessary operational guidance.

These models are inherently vague, offering little more than aspirational goals that lack concrete metrics for determining current states, defining achievable endpoints, or specifying effective means of progression. This deficiency is not merely an oversight; it reflects a deeper issue with how safety culture has been conceived and implemented.

Safety culture maturity models exemplify the allure of monolithic solutions—oversimplified remedies to complex, non-trivial problems.

These solutions, including leadership, communication, and resilience, rely on persuasive rhetoric rather than substantive, actionable frameworks. While they may provide a veneer of progress, they falter when applied to real-world situations, where the complexity of socio-technical systems demands a better articulated systemic approach, an example being the systemic potentials management *(Hollnagel, Licu & Leonhardt, (2021).*

The trend in the development of safety paradigms, from the technical safeguards of the first age to the managerial systems of the third, underscores the need for a shift in thinking, moving away from reductive solutions and towards approaches that can accommodate the realities of present safety challenges.

A critical flaw in the maturity models lies in their reliance on counterfactual reasoning, which frames safety culture as a condition whose absence, in hindsight, is linked to failure.

This reasoning not only oversimplifies the causal landscape of accidents but also fails to provide proactive strategies for fostering meaningful cultural change. Moreover, the metaphor of a "safety culture journey" introduces additional challenges, as it assumes knowledge of starting points, destinations, and pathways—knowledge that is rarely, if ever, available in operational terms. The limitations of safety culture maturity are symptomatic of a broader problem in safety management: the tendency to prioritise conceptual appeal over practical utility.

To address this, future efforts must embrace a systemic perspective that acknowledges the complexity of socio-technical systems and prioritizes adaptability, contextual understanding, and operational relevance. Such an approach would shift the focus from idealised models to practical interventions that can be tailored to the unique challenges of individual organisations and industries.

In conclusion, safety culture maturity, as currently conceptualised, is not a solution but a problem disguised as one.

Its theoretical appeal masks its practical shortcomings, perpetuating a cycle of unfulfilled promises and unmet expectations.

Breaking free from this cycle requires a fundamental rethinking of how safety is understood and managed, one that moves beyond monolithic solutions and embraces the complexity of the systems we seek to protect.

Right Hand Image Sourced: Shutterstock_1845773620

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