Safety and Proportion: A Qualitative Study of Expert Perceptions of OSH Decision Making in the UK

Laurence N. Ball¹

¹ Department of Geography, King's College London, UK

Correspondence: Laurence N. Ball, Department of Geography, King's College London, UK. E-mail: laurence.ball@ramarisk.com

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Abstract

Since the early 1970s the UK has been a global pioneer of a risk-based approach to OSH, a key element of which is that duty holders are responsible for assessing risks and on that basis determining which controls are necessary. According to the accompanying legislative doctrine, duty holders may be penalized if there is a failure to implement necessary controls. Events have also shown that duty holders who implement controls which are deemed to be disproportionate may also be criticised. This paper describes an investigation of how the risk-based regulatory regime is perceived 50 years on by a cohort of UK experts, and the nature in their view of any difficulties encountered by duty holders in achieving proportionality. It is concluded that while the risk-based approach continues to enjoy widespread support, duty holders face a challenging task in striking an appropriate balance, and some system-related perils render this task problematic.

Keywords: occupational safety and health, decision making, proportionality, reasonable practicability, duty holders, UK

1. Introduction

The UK's Health and Safety at Work etc Act (HSWA) of 1974 heralded the introduction of a risk-based approach to occupational safety and health (OSH) which flowed from an earlier review of factory safety by Lord Robens (1972). Robens had concluded that the existing traditional system of control needed a radical overhaul, being too prescriptive and fragmented for the modern age, and which inadvertently promoted a management style overly reliant upon imposed rules (Robens, 1972). Robens' idea was that there was "too much law of the wrong type" and that a horizontal, goal-setting and principle-based regime was needed. The HSWA was the regulatory vehicle for bringing about this change and made duty holders responsible for determining what controls were necessary to satisfy the guiding principle of 'as low as reasonably practicable' (ALARP).

This approach to OSH has now been running in the UK for close to half a century, with aspects of it having influenced regulatory styles around the globe. However, while there is much wisdom in delegating decision making to duty holders, they being best placed to understand their operations and the attendant risks, this does present an obvious intellectual challenge, and recent history in the UK has identified issues, many to do with 'proportionality' in decision making, which hark back to the longstanding question posed by Starr (1969) and later Fischhoff, Slovic, Lichtenstein, Read and Combs (1978) of 'How safe is safe enough?'

Thus, on a weekly and even daily basis, reports emerge of duty holders having been convicted and fined for breaches of health and safety law (IOSH, 2017). This accords with the 1984 book by Kagan and Scholtz which categorised non-compliant businesses as 'amoral calculators,' 'political citizens,' and/or 'organisationally incompetent.' The impression is given that duty holders are failing to implement the required controls and are thereby necessarily blameworthy. In contrast, in recent years, it has in UK policy circles become the norm to also talk of 'proportionality' or 'proportionate' decision-making and by 2008 the UK government felt compelled to instigate a series of high-level inquiries into safety decisions which were considered in some way to be excessive (Young, 2010; Löfstedt, 2011; DWP, 2015). Largely, this concern reflected the fact that safety comes at a cost in terms of money or lost opportunities, and so society must decide what it wants to regulate and what its priorities are (HMT, 2018), but there was also a feeling that disproportionate decisions might damage the whole OSH enterprise. To quell this tide of questionable decisions, a so-called 'Myth Busters Challenge Panel' was *inter alia* established with the remit of providing a mechanism ".... for anyone (whether on behalf of a company or

organisation, or as an individual) to challenge advice or a decision taken in the name of health and safety that they believe to be disproportionate or inaccurate" (HSE, 2022). To date, the Panel has reported on hundreds of such cases (HSE, 2022), an implication of which is that duty holders are being over cautious as opposed to amoral or incompetent. Overall, this behaviour has contributed to a popular view that the application of OSH has in some instances become excessive and counterproductive (Leka et al., 2016; Rae et al., 2018; Smith, 2018; Stretton, 2022).

Given the central importance to the UK system of proportionate risk control and the signal role of duty holders, it is noted that duty holders remain curiously under-researched in recent literature. Studies have tended to focus instead on regulatory perspectives, compliance, and enforcement (e.g., Hood, Rothstein and Baldwin, 2004; Rothstein et al., 2015). This paper seeks to address this gap by investigating the challenges duty holders face in achieving a proportionate approach, and the factors that may drive them to regulate risks in an excessive manner. Although written in the context of the UK, with its distinct legal system so far as risk management is concerned, it plausibly has wider resonance as the UK's approach attracts global interest. Thus the purpose of this article is to report the views of a cohort of UK safety experts concerning the current state of risk decision making in the context of the requirements of its regulatory system. The implications of these views will be discussed in terms of future directions. Although clearly drawing from UK experiences, it is anticipated that the findings will have resonances in other jurisdictions which have been influenced by the UK's approach.

2. Method

2.1 General Matters

First, duty holders do not operate in isolation and are buffeted by numerous forces. The level of complexity that this gives rise to is illustrated in Figure 1 by the UK's former Risk and Regulation Advisory Council (RRAC, 2009) which displays the array of stakeholders involved in the 'Risk Landscape' and how these interact via multiple feedback loops.



Figure 1. The risk landscape (RRAC, 2009)

The inference is that the system under study resembles a 'complex adaptive system' or CAS (Holland, 2014; Sweet, 2015), having implications for study design because features of a CAS include non-linear interactions between components, dependence on system history, and the fact that system output differs from the summed outputs of its components (Chapman, 2004). Consequently, the chosen investigative approach was inductive and qualitative. As Chapman (2004, p51) has said, ".... the human activity system needs to be approached and understood in terms that are quite different from the normal linear, mechanical framework used".

Consequently, an emergent design was used in that research questions were broad and flexible (Punch, 2005; Braun and Clarke, 2006). Additionally, although the dominant research tool was interview, other data sources were used as a means of triangulation in an approach sometimes referred to as bricolage (Rogers, 2012; Denzin and Lincoln, 1999) or complexity theory-based research (Gear, Eppel and Koziol-McIain, 2018).

Secondly, the scope of the study was purposefully restricted to the UK, one reason being that the UK has been in the vanguard globally in promoting risk-based governance and this thinking has come to colonise the regulatory regime (Rothstein et al., 2013) such that the UK provides a special case for study. A further implication of the UK's being unique is that duty holders' views and experiences reflect this society in which they operate, and therefore the boundary of the study must be set within their social and geographical domain.

2.2 Specific Matters

One of most used instruments in qualitative research is the interview (Packer, 2011) and one of the most thoroughly documented of these approaches is thematic analysis as described by Braun and Clarke (2006). The general approach is to record and transcribe interviews and collect data in the form of example statements, allowing concepts to be investigated which might otherwise be missed (Patton, 1990).

2.2.1 Participants

In-depth interviews took place with 34 UK risk experts from a range of sectors straddling OSH, the high-tech industries, and the public sector. Many participants spanned more than one sector through diverse careers, and several held, either previously or currently, senior positions in prominent organisations (see Tables 1 and 2 for details). Collectively, interviewees had over 1,000 years of professional risk management experience between them. The majority had witnessed the evolution of practices within their sector, giving them deep contextual awareness in relation to current practices. The diversity of participants meant that a no more than semi- structured interview process was indicated in order to permit freedom of expression and allow novel insights to emerge that might otherwise be precluded by a more formal process (Gear, Eppel and Koziol-McIain, 2018).

Item		Categories	No. of Participants	Percentage (%)
Age group		Under 35	1	3
		35-50	5	15
		Above 50	29	85
Gender		Female	1	3
		Male	33	97
Work		Under 15	1	3
experience	in	15-30	4	12
risk (years)		>30 years	29	85

Sector	Number of participants
Aviation	6
Nuclear	5
Engineering	5
Law	4
Occupational safety	11
Public safety	12
Consultancy	6

Table 2. Summary of occupational sectors of participants (n = 34). Note: some experts had experience of multiple sectors

2.2.2 Procedure

Interviews were conducted via telephone, Skype or face to face and later transcribed with permission. Interviews lasted between 30-90 minutes. Introductory questions asked were: i) How would you describe your sector's approach to risk assessment and subsequent decision-making? ii) Have you noticed any trends or changes over time? These questions were solely to guide the conversation towards certain areas of interest. Respondents were free to answer at any length and cover any ground that they wished.

2.2.3 Analysis

The responses were transcribed and anonymised and then analysed using the inductive thematic analysis procedure as described by Braun and Clarke (2006). This involves several steps including: the data were read open-mindedly to identify units of text relevant to the research topic; text units dealing with the same issue were organised into groups of analytic categories; the data were reviewed for consistency and tabulated. In the final step illustrative quotes were assembled and the collected data compared with other data sources and interpreted.

3. Findings

The inductive thematic analysis resulted in 31 categories which were grouped into six key themes as shown in Figure 2. The text now describes these themes using selected quotes as illustrations of meaning (Packer, 2011; Niehues, Bundy, Broom and Tranter, 2013).

Philosophical underpinnings	Technical issues of risk assessment	External factors	Internal factors	Bureaucracy	Importance of context	Quality of understanding	Miscellaneous
UK's non- prescriptive approach	Complexity of risk assessment unappreciated	Demands of legal system	Reputational anxiety	History of excessive paperwork	Different environments require different approaches	Risk education is poor	Criteria for tolerable risk
Importance of ALARP	Object-focus of risk assessment	Requirements of insurers	Fear of legal process	Drive to restore proportionality	The HSWA / MHSWR need interpretation in context	Courses should teach to think	Safety assessment versus risk assessment
Conflicts of hazard and risk-based thinking	Adequacy of 'Five steps'	Sentencing council guidelines	Understanding of risk and risk philosophy			Form-filling and proceduralism	Gross disproportion
Zero harm /Vision zero dilemma	Terminology incorrectly used	National and international standards	Business requirements			Need for higher level education	
Rule-based vs. flexibility	Risk perception factors	Inconsistent regulation				Professional bodies as thought leaders	
	Process-driven					Influence of research	
	Numeracy						
	Confusion between risk and consequence						
	Utility of risk rankings						

Figure 2. Themes and categories identified

3.1 Theme 1: Philosophical Underpinnings

Participants made substantial reference to the UK's approach to risk and the philosophy behind it and were strongly supportive:

"We're very lucky in the UK, we have the underpinning HSWA – it is very proportionate, and very sensible."

The non-prescriptive, principle-based approach was cited as a strength: "I think the concept of the HSWA was so far reaching:

"The UK approach has always been a lot more flexible, and many other countries have adopted it, the whole concept that you don't lay down a number – you say 'show us' – I think is superb."

The underlying risk-based philosophy was commended for begetting a thinking approach and continuous mental engagement, as had been advocated by Robens, rather than simple adherence to any set of prescriptive rules.

Alongside this support were comments on alternative approaches such as 'zero harm' polices. These policies generated a range of views. Positive comments, which were in the minority, included the benefits of having this as an overarching aspiration, whilst other participants criticised zero harm policies as grounds to justify disproportionate policies which did not recognise inevitable trade-offs or unintended consequences. As one respondent observed, this led to an underlying conflict:

"I think the safety profession falls into two different categories. You get those safety professionals who are very hazard oriented. And because they're focused on the fact that this incident could happen, this harm could result, they start to go down that line of 'we have to have zero tolerance', e.g., in construction. But there are other environments and sectors where that's not the appropriate way to go. And my profession is about being what I would term 'likelihood' focused. So, in terms of likelihood, in our risk assessment process we have two sides – a hazard analysis and a likelihood analysis, where the latter part answers the question of what makes that event more or less likely to occur, i.e., the controls and competence of your workforce – that's the focus for me."

Despite such reservations, much was said in favour of the UK's principled approach and Figure 3 summarises the aspects of 'positive talk', which were revealed. However, there was a good deal of 'negative talk' too (Figure 4) as emerged in the other themes.



Figure 3. 'Positive talk' as derived from interviews (Ball-King, 2020: p116)



Figure 4. 'Negative talk' derived from interviews (Ball-King, 2020: p117)

3.2 Theme 2: Technical Issues of Risk Assessment

The second theme concerns the practice of risk assessment itself which is integral to the process of identifying proportionate controls. A recurring concern among participants was that the actual complexity of risk assessment was being downplayed:

"In an attempt to make things understandable for small business, they've made things meaningless, and they're inherently inaccurate in their approach. They've not only dumbed it down, but they've actually got it wrong."

The perception was that risk assessments were being falsely portrayed as simple. As one participant put it:

"We teach people to do rudimentary risk assessments, but the reality is, it's very, very difficult to do, and it's not an exact science."

Responsibility for this was in part ascribed to the chief regulator, the UK's HSE:

"And I'm afraid, whilst a bit cynical about this – I don't think HSE have helped themselves. They got into a terrible mess about risk assessment being the be all and end all, and then went through a phase of saying that actually risk assessment isn't that complicated – I think this was in response to some of the bad press they had, all the Myth of the Month things. But in the high hazard industry, as I am, you have got to do it extensively. You can't have a onepage risk assessment that covers an explosives manufacturing site. And it's worse than that in a way, because although the mantra they like to put out is that it's a logical, systematic, simple process, when they want to challenge – suddenly all those words go out the window, and it's: 'it wasn't extensive enough, it wasn't systematic enough, it didn't look at all the factors, it didn't do this and that', and they've sort of got you over a barrel."

At a broader level there was also concern pertaining to the language of risk itself and the basic philosophy (ALARP). Terms such as 'suitable and sufficient', 'practical', and 'competence' have become pervasive, but are often vague and left undefined:

"We don't use the term reasonable practicability all the time – we use due diligence, practical, and others – all

those different terms for what appears to be the same goal. Is that useful? Risk assessments should be 'suitable and sufficient' – what does that mean? Twenty people will give twenty different views."

Risk ranking methods such as matrices were also raised. Respondents questioned the provenance of such tools: *"It certainly didn't come through science or peer-reviewed research."* Other comments included the delusory simplicity of matrices, and the susceptibility of their inputs to manipulation. A representative comment was:

"I'm in some doubt as to whether the very common use of risk matrices is actually useful. Because of two things. First to get a risk matrix right, there are a number of technical things that you need to get right. They look simple but they're not. And a slightly trained person who's not a risk expert can fill in a matrix and it looks convincing. But I wouldn't rely to be honest on that matrix, because the numbers can be inputted in all sorts of different ways and you get all sorts of different answers, from very slight changes in judgment. So, I'm very doubtful whether these matrices, and the end part with the final risk ratings, adds any value. I think the value lies in the thought process the assessor goes through. It's in the list of hazards in each column. And the safeguards in my opinion should be very clearly connected to the causal mechanism."

Overall, it was evident that participants were sceptical of the utility of such tools. Scepticism also extended to prominent guidance such as the HSE's 'Five steps to risk assessment' (HSE, 2014):

"Some of the older stuff like HSE's Five steps was fundamentally flawed – because it was hazard orientated as a process. It didn't lead you through 'how likely is that accident to occur'."

3.3 Theme 3: External Factors

This theme denotes the various external forces to which duty holders are subject. One such force that featured heavily in responses was insurance companies:

"I think insurers now, more than the HSE, in many areas actually drive the approach [to managing risk]."

Respondents highlighted the potential for the interests of insurers and of organisations to be misaligned. For example, insurers would place onerous demands on organisations, regardless of how low risk the operating environment was:

"So, the influence of insurers for example has grown very considerably, I think. And often their own policies are much more focused towards their own reputations than proportionate health and safety."

This exemplifies what is known as 'secondary risk management' – managing the risk of liability rather than the risk itself (Power, 2004). It was believed that this could drive excessive bureaucracy:

"Insurers will look at that and say 'where's the risk assessment?' – it's about proving a breach rather than managing risk"

"The emphasis is on paperwork, as a way of providing the evidence. I think that's one of the big issues"

"Basically the insurance companies want documentation for everything."

Nonetheless, insurance companies were not seen as universally alike:

"There are some enlightened insurers, but others who don't want to think about this too hard, they just need to know that the documentation is in place."

However, other respondents were clear that their overall influence was negative:

"Without a doubt, insurance companies drive disproportionate behaviour. There's a certain amount of, in the same way as some of the large consultancies up-sell on the basis of fear – I think insurance companies do the same. There's been that fear of civil litigation."

National and international standards were also raised as an additional influential factor, and were viewed in a mixed light:

"I think standards are very important. They can give rise to difficulties in that I think it's sometimes difficult for firms to know whether they actually need to meet particular standards or not, and as you know standards are often used in prosecutions and so forth. The issue is always are these standards transparent, are they actually evidencebased? If they are then in the main that's fine. But if they've just been invented by someone who has a particular view and there's no evidence one way or the other then they can be very harmful I think."

"One thing that comes up is standards – sometimes they're great, sometimes they're not. Just because there's one in existence doesn't mean it's going to be suitable or applicable to your situation. This whole thing about trying to find a standard that fits your situation rather than the other way around. Expert judgment is really more important than complying with x or y standard."

3.4 Theme 4: Internal Factors

This theme is about factors which emanate, or which could be controlled partially within an organisation including business factors, reputational issues, concerns about legal liability, and understanding of the core philosophy of ALARP. On the one hand business interests were influential:

"In my view, the perhaps single most important factor is cost. Because safety is a non-revenue activity, so any kind of risk management or risk assessment process, appears to be a non-revenue generating activity."

The implication of this is that duty holders would refrain from disproportionate interventions. But competing against this was a host of other pressures including:

"The issue then, for the larger companies, is not the financial penalties but the attack on their reputation, which can be highly damaging."

Alternatively, the legal process was a major issue: "The driver really comes down to the fear of litigation."

"But the legal profession, the compensation claims – the civil cases - they're all over it to try and get compensation. And that is the big problem."

This was compounded by a belief that the legal profession itself was not entirely comfortable with the UK's riskbased approach, resulting in uneven application of the law:

"And I think one of the biggest difficulties in health and safety law is that judges do not understand risk. Now we're putting them in a position where they have to talk about risk in order to sentence. But I've got a big problem, I'm not going to employ a high court judge to help me manage risk. Because he doesn't have the experience. But that's effectively what we are asking them to do."

"The worry I have is that although the law requires you to look at risk, the courts tend to say I don't know how infrequently you said it could happen – it has happened – and therefore we're going to look at the consequences – at the hazard, instead of the risk."

On top of this was layered lack of understanding of the essentially proportionate approach embodied in the HSWA's philosophy:

"I think most people aren't good at it [taking a proportionate approach]. If you look at the broader aspects of risks, whether it's financial risk, personal safety, I think many organisations don't understand what's required of them, unless they're quite big.... Even then, some of the big ones don't."

"What I keep seeing is a fundamental problem where people don't understand proportionality because they've been told such diverse things by different people."

"I think there's a big challenge around education. Helping people to understand the philosophy of risk."

3.5 Theme 5: Bureaucracy

One of the drivers for the UK government's investigation of OSH in the 2010s (Young, 2010; Lö fstedt, 2011) was the bureaucracy which had come to accompany it. Almost a decade on from the inquiry respondents felt the problem had not dissipated:

"I think there are large consultancy companies and consultants who are making money out of generating fear, and that is a big issue. They have professional salespeople who go out to businesses – so not OSH professionals; professional salespeople – and sell OSH services based on fear and misunderstanding."

"They'll say if you don't have a folder like this, a foot of paperwork, you're not going to be covered. And companies don't know any better, so they buy this service, this book of paperwork, and think that they're covered, but of course they don't do anything with that paperwork, and it's completely meaningless."

"High dependency on the paperwork, and low dependency on the complexities of the decision-making behind every risk decision."

"So, I think there's a big issue with companies upselling without taking them through what's actually required. There is an over-generation of paperwork. If you're an SME and you've got more than a few sheets of paper on health and safety documentation, then quite frankly you're doing something wrong. It doesn't require all that. So, I think there's an education piece around businesses understanding what services they need, and quite often they can deliver it themselves. But because there is this fear around health and safety, they'd rather get someone else in and they get mis-sold."

3.6 Theme 6: Quality of Understanding

The final theme highlights the variability in the quality of understanding of duty holders, as perceived by the interviewees. This was attributed by many to training and education:

"I think there's a big challenge around education. Helping people to understand the philosophy of risk."

Training courses were viewed in many cases as inadequate, with an emphasis on form-filling and memorising procedures as opposed to the thought processes behind decision-making:

"All you get is that you go and look up this ACOP (Approved Code of Practice), or that industry piece of guidance. You are giving people fish rather than teaching them to fish. And so, they're never going to change."

As another respondent put it:

"I think it's quite clear that risk isn't taught much at all that I can say, and particularly what is not taught is an overall view of risk. It's not taught in schools at all. And you see it in regulatory authorities themselves. For example, the Food Standards Agency's advice that you shouldn't burn your toast is not based on any view of risk known to me. It's not evidence based, it's not proportionate to what the risk might be if there is a risk. And I think this has led to highly intelligent people just seizing on issues which happen to interest them, and not seeing them in the context of a risk spectrum at all, and therefore giving people potentially highly misleading advice."

A further criticism was that training courses had not evolved:

"What we've had for the past umpteen years, is the same NEBOSH (National Examining Board in OSH) courses, the same courses coming out of IOSH, saying the same messages. And these are borne out of the 1980s not out of the 2010s. They're dated messages that are out of step with where things need to be."

Low levels of understanding among practitioners were also linked to a lack of risk education and formal teaching of risk. As one participant observed;

"You probably need to change the profession fundamentally first, which is obviously where higher education comes in."

This mirrors a recommendation of the Löfstedt (2011) review, which called for increased focus on risk education programmes at both school and university levels rather than reliance on industry training.

4. Discussion

Perhaps the most important finding from the thematic analysis is the enduring enthusiasm for the risk-based approach to safety decision making, the primary strength of which is seen to lie in its non-prescriptive, flexible style which places leadership and responsibility for proportionate decision making with duty holders. However, the themes and sub-themes disclose that duty holders face an array of challenges in operating in such a risk-based system. These range from technicalities of risk assessment to the sometimes-unrecognised complexity of decision making, coupled with the need for a shared and supportive understanding of the underlying philosophy by the wider community of stakeholders (as in Figure 1) involved in managing risk.

At a fundamental level understanding has not been aided by the existence of competing philosophies such as 'zero harm' or, with more subtlety, the 'hierarchy of control' found in the UK's own Management of Health and Safety at Work Regulations (MHSWR, 1999) which originated from European law (Ball-King, 2021). While the HSWA's focus is on managing risk, zero harm is about risk elimination and, likewise, the MHSWR are themselves arguably more hazard- based than risk-based. As Leka et al. (2016) reported of the influential EU legislation:

"As one trade union attendee noted, the EU regulatory framework differs from the UK framework (which in principle is risk based): "When you get in Europe, the big complaint about European directives is that they are hazard based, and not risk based. That's the general criticism."" (Leka et al., 2016, p72).

This philosophical conflict is not confined to OSH. In the parallel domain of healthcare, the view has also been expressed that we should shift our focus from creating absolute safety (meaning the elimination of error and harm) towards doing a better job of actively managing risk (Amalberti and Vincent, 2019; Thomas, 2019).

Inevitably this contradiction leads, in whatever field, to cognitive dissonance when proportionate risk control is being considered. The inherent conflict also resonates with Hollnagel's concept of rule-based versus flexible management systems as expressed in his concept of Safety I and Safety II, whereby Safety I's approach is anchored in a belief in linear (i.e., non-CAS) systems and compliance with protocols as a means of preventing harmful events, whereas Safety II recognizes the complexity and inevitable uncertainty of work environments and places more emphasis on the training and adaptability of duty holders (Hollnagel, 2014). Once again, there is a parallel with healthcare. Seedhouse and Peutherer (2020) come to similar conclusions about the need for healthcare

workers to be less bound by fixed protocols, rules and standards.

The implementation of the risk-based approach has also not been helped by ongoing discord around technical issues including the terminology of risk. The fact that misunderstanding persists over 'foundational terminology,' as it is described by Aven and Zio (2014), after almost half a century of the passage of the HSWA is surprising. The finding applies, as described by the interviewees, to not just duty holders but other stakeholders including the courts. It will likely persist for longer still, as common ground remains elusive. As one interviewee ominously remarked; "the concept of risk has been misunderstood."

Overlying these philosophical and technical issues, internal and external pressures are found to have deflected duty holders from the optimal, proportionate path. These pressures included demands for substantial bureaucracy which were attributed mainly to the legal system, insurers, and international standards. It is reported that the chief regulator, the HSE, has tried to contain the bureaucratic tendency, for example, by encouraging the British Standards Institution to build proportionality into the UK guidance for the new international standard (ISO 45001:2018) on health and safety management systems (Pointer, 2018). In this respect it is notable that the National Foreword of the UK version of the ISO says "requirements of 45001:2018 should be met in a way that is proportionate to the hazards identified and the OH&S risks to be managed" and that organisations should create documented information systems "to the extent necessary." However, the ISO itself nowhere refers to or defines proportionality, instead stressing risk minimisation and continual improvement, and the HSE has felt it necessary to issue its own guidance on interpretation of the ISO (HSE, 2020b).

Despite the above 'success' the HSE has linked the ISO to what it calls a growing 'Blue Tape' burden, which it defines as inter-business health and safety obligations which are "disproportionate or lead to ineffective risk control and ownership." It has noted the dangers of certification becoming "a costly paperwork exercise for winning business" and that due to perceived complexity of health and safety businesses feel driven to seek third party help in the hope that it will buy regulatory compliance. As such, one of HSE's stated near-term priorities is "to work across the health and safety system to share learning on Blue Tape issues and identify ways to promote proportionality in the system," a key part of which will be "proportionate implementation" of ISO 45001 (HSE, 2019). The fear of 'Blue Tape' business rules discrediting sensible regulation has also been highlighted latterly by IOSH, who aver their commitment to fight for proportionate decision-making (IOSH, 2019).

The managerial tendency has also been observed by academics. Power remarked almost two decades ago how the "appearance of manageability is created by a material abundance of standards, textbooks and technical manuals ..." (Power, 2004; p59), and Dekker also has noted that safety "...increasingly means deference to liability concerns, to protocol, to insurance mercantilism, to fear of regulation and litigation" (Dekker, 2014 p.vi).

Finally, and given the central importance of duty holders in the UK's risk-based system, the quality of instruction on proportionate decision making is crucial, yet 'quality of understanding' was a recurrent theme of the interviews, spotlighting the adequacy of the training available to them. Interviewees were strongly of the view that basic training courses had not evolved, were adrift of evolving ideas, and tended to teach a formulaic approach to safety based more on pursuance of protocols and with little time for encouragement of a deeper level of awareness. Leka et al. (2016) similarly reported the need for continual training, and re- education was repeatedly highlighted by interviewees in their survey of OSH practitioners. Additionally, they drew attention to the following:

"It is important for training and education programmes to clarify the concept of risk and also adequately cover content on new and emerging risks rather than focusing primarily on traditional OSH issues. Linked to this issue is the clarification of the concept of 'low- risk' and how the classification of sectors, activities, areas, businesses and industries come to be as such."

5. Conclusions

Looking back, it has often been said that the ultimate question for those managing risk amounts to the following: 'How safe is safe enough?' as expressed long ago by Starr (1969), and later by Fischhoff, Slovic, Lichtenstein, Read and Combs (1978) in seminal publications. Fifty years on this same question has lost none of its resonance. Although originally targeted at risk issues in general, it also has echoes with OSH (Waterson, 2017). The important implication of the question is that there is a non-zero level of risk that is tolerable. This notion is consistent with the UK's HSWA which requires risks to be reduced ALARP. Therefore, it must be expected that accidents will happen even in a well-run business, some of which will have serious consequences. A difficulty is that if an incident with a serious consequence occurs, it is likely to attract regulatory interest (Woodruff, 2005) with the possibility of prosecution, in which case the defence of duty holders is to show that they had done everything that was reasonably practicable. This is referred to as 'the reverse burden of proof.' However, defending such cases is never easy. All the prosecution may need to do is find an imperfection in a safety management system and allege a causal

link.

While there continues to be widespread support for the UK's risk-based approach to OSH amongst UK risk professionals, there remain problems in its implementation, and it may be considered that duty holders are too quickly singled out as miscreants when something goes amiss. In seeking a proportionate approach, which is the essence of what being risk-based is about, trade-offs have inevitably to be made and a level of residual risk tolerated. Thus, duty holders face an unenviable task of balancing priorities, which relies largely upon a subjective decision-making capability. If the basis of such decisions is not understood by or shared with other stakeholders, conflict will inevitably arise.

To bolster the system, most fundamental perhaps is to promote greater awareness and understanding of the UK's risk-based philosophy, not just amongst duty holders but also the many other stakeholders involved in the implementation of the risk-based regime. As Power has put it, there is a need to "develop public understandings and 'civic epistemologies' of how risk issues are processed and potentially amplified by the institutions of media and law" (Power, 2004: p62). Notably, the HSE set out to do this in its 2001 flagship publication 'Reducing risks, protecting people' (HSE, 2001), but this now is twenty years old and the document is not widely seen in contemporary OSH circles. Instead, it is found that there has been a proliferation of piecemeal advice and protocols for all manner of hazards, coupled with the introduction of ISOs which take a different line. These developments tend to generate a rule-based culture akin to the situation of the pre-Robens era. The problems of this have not passed unnoticed. For example, in a recent statement by the former Chair of the HSE (Dame Judith Hackitt), in the context of the Grenfell Tower disaster Inquiry, the following statement was made: "... duty holders could no longer rely on 'I did what the rules said." (Hackitt, 2020)

Second, greater recognition should be given to the challenges of risk assessment. As emerged from the interviews, risk assessment has been portrayed as simple, but this position is open to serious question with even the definition of basic terms being contested. On top of this, qualitative or subjective risk assessment is often applied in OSH situations, frequently where human behaviour is a factor, adding complexity to an already difficult task. Forecasting the behaviour of people when controls are introduced is not straightforward and often requires judgement.

Third, there has been considerable comment on the adequacy of much risk training. Courses, even those lasting only a few days, need to be regularly updated because risk assessment and decision-making has been found to be a rapidly evolving field. Basic principles also need to be covered if the problems associated with the identified foundational issues and terminology are to be tackled. Higher education courses, of which there are currently few, clearly have much greater potential to address these matters, but their presence needs to be flagged at all levels.

A further challenge faced by duty holders is that ideas about risk management are evolving. Prominent authors such as Dekker (2014), Hollnagel (2014), Borys et al. (2009) and others see the need for change if progress in OSH is to be maintained. Dignan (2019), for example, argues that traditional management models and operating systems are no longer fit for purpose. These 'best practices' of the past developed through the 20th century and emphasised centralised control, scale and bureaucracy. Whilst such approaches conceived formidable organisations in decades gone by, these ways of working have increasingly become sub-optimal in the present era of constant change. Dignan further contends that modern organisations are more akin to organisms or networks, and are interconnected, dynamic and exhibit emergent properties (i.e., are CAS-like). He proposes that such complex systems require a different approach centred on collective intelligence, self-regulation, and giving people freedom to use judgement and find their own ways to achieve organisational goals. This proposition is not dissimilar from Robens' vision.

6. Limitations and Further Research

This project overall looked at a broad and evolving policy area for the purpose of identifying issues and trends. It was therefore necessary to selectively sample the field, which is an inherent weakness, but an unavoidable one. To limit the vulnerabilities, the full study utilised triangulation until 'saturation' was achieved, a full account of which can be found in XXX (2020). The synoptic nature of the study also unavoidably meant that depth was sacrificed but in defence, and as noted by Graham and Wiener (1995), the broad-based viewpoints of generalists are also essential.

Conflicts of Interest

The author reports no conflicts of interest.

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