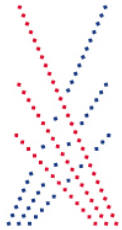


BRITISH ACADEMY
OF MANAGEMENT

BAM
CONFERENCE

3RD-5TH SEPTEMBER

ASTON UNIVERSITY BIRMINGHAM UNITED KINGDOM

This paper is from the BAM2019 Conference Proceedings

About BAM

The British Academy of Management (BAM) is the leading authority on the academic field of management in the UK, supporting and representing the community of scholars and engaging with international peers.

http://www.bam.ac.uk/

A never ending story? Expertise, crisis incubation and the Brexit decisions.

Introduction

> "Heraclitus is supposed to say that all things are in motion and nothing at rest; he compares them to the stream of a river, and says that you cannot go into the same water twice." – Plato ***Cratylus*** (cited in Stern, 1991, p. 580)[1]

The opening quote, attributed to Heraclitus, generates a series of issues relating to the ways in which organisations and policy makers deal with dynamic and complex socio-technical systems and the ways in which crises can be incubated. In particular, it highlights the dynamic nature of a crisis, the processes through which the crisis is incubated, and the notion of a transition between one systems state and another. Turner's (1976, 1978, 1994) notion of 'incubation' - along with the work of Reason (1990a, b, 1997b) on 'latent conditions', Perrow's (1984) 'normal accident theory', and Tenner's (1996) concept of a 'revenge effect' – all contribute to the ways in which we see the prior actions of decision-makers as contributing to the conditions that serve to generate a crisis. Taken as a whole, these contributions point to the role of decision-making, systems design, and the role of expert judgment in shaping the nature of the pre-conditions of crisis – a process that Smith (1990a, 1995) has termed the "crisis of management". The Brexit process has been seen within elements of the media (including social media) as akin to a crisis. This discourse has taken place without much, if any,

[1] Whilst the interpretation of Heraclitus is commonly that provided by Plato, there is debate amongst philosophers as to the precise nature of the quote. In particular, whilst it is physically possible to step into the same river, it is the waters that have changed. See, for example, Graham, Daniel W., "Heraclitus", The Stanford Encyclopedia of Philosophy (Fall 2015 Edition), Edward N. Zalta (ed.), URL = <https://plato.stanford.edu/archives/fall2015/entries/heraclitus/>.

theoretical understanding of what a crisis actually means. Commenting on the on-going Brexit process is akin to trying to capture the dynamics of a river by taking a series of short-term snapshots of its behaviour at defined points in space and time. The notion of flow and emergence sits at the core of the phrase attributed to Heraclitus who also points out change is necessary in order to deal with the demands of shifts in the context of our actions. Thus flux, dynamism and change are essential components of the crisis of management as is the nature of expert judgement under uncertainty. Both of these issues can be seen to sit at the core of the debates around Brexit.

The implication here is that a decision taken at one point in time might not make sense at another point when the information, knowledge and understanding of the processes may have changed. Clearly this has echoes of the call for a second referendum on the conditions associated with Brexit as it is clearly a dynamic process that is beset by turbulence in the environment which generates sufficient uncertainty as to make the prediction of outcomes problematic. As such, the process can be seen to represent a complex socio-technical system in which there is considerable potential for emergence within it and little in the way of predictive validity associated with the assessment of risk (and vulnerability).

The paper draws on the process of "incubation" outlined by Turner (1976) as a starting point for considering how organisations and policy makers take decisions that generate the pre-conditions for a crisis and where a trigger event can move the organisation into a state of crisis. In essence, the Brexit 'decisions' can be seen as akin to a "vibrating string" (de Boer & Sanders, 2002) in which the reverberations of the various decisions will have echoes further down the time line and which will generate new challenges which will have the potential for crisis

at at later date. As such, decision-makers become the authors of their own misfortune by creating the very conditions of crisis that they subsequently have to manage or, as in the case of David Cameron, leave to others to manage.

The aim of this paper is to consider some of the key elements associated with the role that expertise can play in the generation of crisis events and to apply them to the referendum-related posturing of political decision-makers around Brexit as well as the narrative that has emerged around the so-called "Project Fear". The paper looks at events surrounding elements of the Brexit decisions and uses the academic literatures on crisis management, science policy, and systems ergonomics as a means of considering the claims made by some politicians about the nature of risk, uncertainty, and the role that expertise can and should play in the decision-making process. The paper seeks to consider the relationships between the actions of key actors in the Brexit debate and the potential for the incubation and subsequent generation of a crisis due to the intractable nature of the decision problem. It does so by a focus on three key issues.

Firstly, it considers the ways in which uncertainty is dealt with by policy actors who are ideologically motivated and the ways in which their belief systems may prevent any effective challenge to their world-views. This relates to the ways in which evidence and ideology interact together to create problems associated with the burden of proof within policy debates. Risk analysis as a calculative practice is best suited to engineered systems in which the failures modes and effects are random in their nature. This allows for the collection of data on the probabilities of failure and the nature of their consequences. Within socio-technical systems such as policy decisions, the role of human agency in the decision that there is a lack of *a priori* evidence on which to base any calculative

practice in relation to the Brexit decisions. As a result, any attempts at prediction are likely to be bounded by high degrees of uncertainty. Even if there was clarity around the evidence base on which the decision was made, then it would still be difficult to determine the probabilistic nature of the issues due to the intractable nature of the changes to the system that are being considered. The challenges here are around emergent conditions and the trans-scientific nature of the burden of proof.

Secondly, it extends that discussion by considering the nature of expertise in making decisions under conditions of uncertainty. Whilst there has been considerable discussion of the risks associated with Brexit (in terms of likelihood and consequence) we have little in the way of meaningful data that provides predictive validity when dealing with prediction. The paper considers the influence of post-modern views on expertise – that many potential risks are social constructions and thereby erodes the potential role played by experts in the determination of risk – as a factor in shaping policy discourse (Giddens, 1990). The increased role played by social media in this regard is also considered to be a factor in shaping counter narratives around proof. Thus, predictive validity, incubation, and the erosion of expertise and its replacement by populist accounts around vulnerability are all characteristics of the current discourse relating to Brexit.

Finally, the paper frames the Brexit decision as a potential trigger event for a wider set of crises that are incubating, both within the UK and the European Union, as a function of the changes to their own processes and policies along with the financial challenges associated with the UK's exit. Put another way, the question of whose crisis Brexit is, will ultimately become highlighted as a function

of the spatial and inter-generational effects of a range of policy decisions taken by different organisations at various points in time. Brexit, therefore, highlights the "vibrating string" effect (de Boer & Sanders, 2002) of crises where the origins and consequences of the events are separated out in space-time and the role of emergent conditions in generating new forms of consequences (Smith, 1990a; Turner, 1976).

Inevitably, the paper should not be seen as a thorough critique of Brexit – that would clearly be premature at this stage in the process – but instead it seeks to set out some bridgeheads into a range of literatures that will hopefully provoke others to explore elements of Brexit as the ramifications of the decision unfold over time.

The Wisdom of Fools? The (Br)expert syndrome and the incubation of crisis

> "Thou shouldst not have been old till thou hadst been wise". (Fool, Act, 1 Scene 5). *King Lear*

King Lear, highlights the challenges and tensions associated with the transfer of power from a leader to his successors, and the scheming and betrayals that it generates, seems relevant to the debates following the Brexit referendum. It also highlights the ways that individuals with an ideological perspective on a problem can frame the nature of that issue to suit their own agenda. The discourse invariably moves away from an empirically-based assessment of the issues, and the inherent risks that might be associated with it, to a more normative and ideologically-driven assessment. It is in this policy space that much of the discourse around public management relating to "calculative practices" (Mikes,

2009; Miller, 1998, 2001) has been situated. It is this notion of determining the risks associated with Brexit that prompted some of the political responses within the debates and it is here that the notion of Brexit as a crisis, or as the potential incubation of a crisis, is framed.

Many commentators on the risks associated with Brexit have used the term crisis without reference to its contested nature and certainly do so without reference to the academic literature on what makes a crisis and how it unfolds to cause harm. Crisis is, therefore, an often-used term, but one that is often misunderstood by those who use it (Smith, 1990b; Smith, 1995). For our present purposes, we can define a crisis as:

> an event that exceeds, or has the potential to exceed, the abilities of the organisation to cope with the increased task demands that it generates with the result that considerable harm is generated in physical, financial, social, or reputational terms.

It is this inability to deal with the task demands that are generated by a crisis that is perhaps most significant in the Brexit discourse, along with the uncertain (and one might argue, indeterminate) nature of the problems and benefits that it might generate.

Whilst there has been much talk in the popular press and social media about the nature of Brexit as a crisis, it is probably better to think of it as a series of interconnected processes and outcomes that have the potential to incubate a full-blown crisis further down the timeline. Rather than see a crisis as an event in a fixed point in space and time, this paper frames it as a dynamic process in which a series of events move the various organisations away from their designed-for operating parameters and into areas for which they have little or no evidence base on which to make decisions. One critical interpretation of the initial Brexit

decision has been to frame it within a narrative that sees a patient making a decision on the basis of incorrect information provided by their GP[2]. The patient is told that they have a terminal illness that will be painful and debilitating. They therefore make the decision to seek out a euthanasia clinic in Switzerland in order to deal with the problem. Having booked their place in the euthanasia clinic and paid for their one-way flight, they are told by their doctor that the initial diagnosis was incorrect. Rather than re-evaluate their decision and cancel the trip, they decide that the initial decision should be followed through. Clearly such a decision would be nonsensical and yet there are those who liken this analogy to the decision to go ahead with Brexit despite the information that highlights the costs of the decision and the lack of transparency and accuracy in the information presented to the public by those who advocated leaving. In contrast, those who advocated leaving the EU might well point out that the analogy highlights the difficulties associated with the expert determination of risk. However one looks at it, the analogy points to the need to take a Bayesian approach to dealing with risk and incorporate new information as it becomes available. Where necessary, this should involve a reassessment of the initial decision.

This highlights another issue, namely whether the results of the referendum and the decision to trigger Article 50 are non-reversible. The claims by the UK Government that Article 50 is non-reversible have been challenged by its author who has stated that it is (see Weaver, 2017; Merrick and Stone, 2017). Thus, the notion that because a decision has been made there is an irreversible rational for continuing with it, despite any new information that highlights the

[2] This account was provided, under Chatham House rules, which require it to be provided anonymously.

potential problems associated with it, is akin to embedding "error cost" (Collingridge, 1992) into that decision that will have the potential to generate a crisis.

The issue of Brexit has many of the characteristics of such an incubated crisis. Some would argue that the decision to hold the Brexit referendum was itself a perceived solution to a problem of unrest within the UK's Conservative party whilst the underlying drivers (immigration, industrial decline) are a function of a set of forces and processes that are global, rather than European, in their scope (see, for example, Hudson, 2001, 2008, 2009b). Brexit has, however, served to polarise both the UK electorate and the political classes and it has done so in ways that has seen many of the discussions centre around the costs, benefits, and uncertainties of the UK's decision to leave or remain within the European Union. The evidential basis of those debates has been relatively scant, especially given the significance of the decision, with individuals on both sides of the debate highlighting those costs and benefits that could be seen to serve their own ideological worldview. There have been few interjections from politicians that have highlighted the nature of the uncertainty associated with the Brexit decision – it is, after all, the first time that a country has chosen to leave the group – and the problems associated with predicting such a complex set of outcomes. The question of what will happen remains shrouded by uncertainty and, at this point in time, a high degree of indeterminacy around a range of key issues, such as the economic and social dynamics of any disengagement from the EU that will occur over an extended time period. Whilst there has been some discussion of the short-term impacts - largely through issues of import and export tariffs, the implications for currency exchange, and the loss of highly skilled individuals who may no longer

have the right to work in the UK after its departure from the EU – there has been little systematic consideration of how the decision may generate the potential for more long-term crises in a globalised economy and the role of embedding the error cost of the decision for future generations to deal with. The evidence base for such analyses is limited, and the predictive validity of any assessments is constrained as a result. In other words, the decision is riddled with normative assumptions that are often not surfaced rather than with strong empirical proof. Thus, the potential for error cost is high and policy-makers should, perhaps, have considered a more precautionary approach as a consequence. The additional turbulence generated by political posturing on both sides of the debate will simply add to that uncertainty and may impact adversely on the quality of subsequent decisions taken by the negotiating teams. The argument presented here is that the Brexit decision was itself the result of a long-standing incubation process that has operated at multiple levels within the political, social, and economic activities within the UK, and has been shaped by a wider set of drivers that have arisen out of the processes of globalisation.

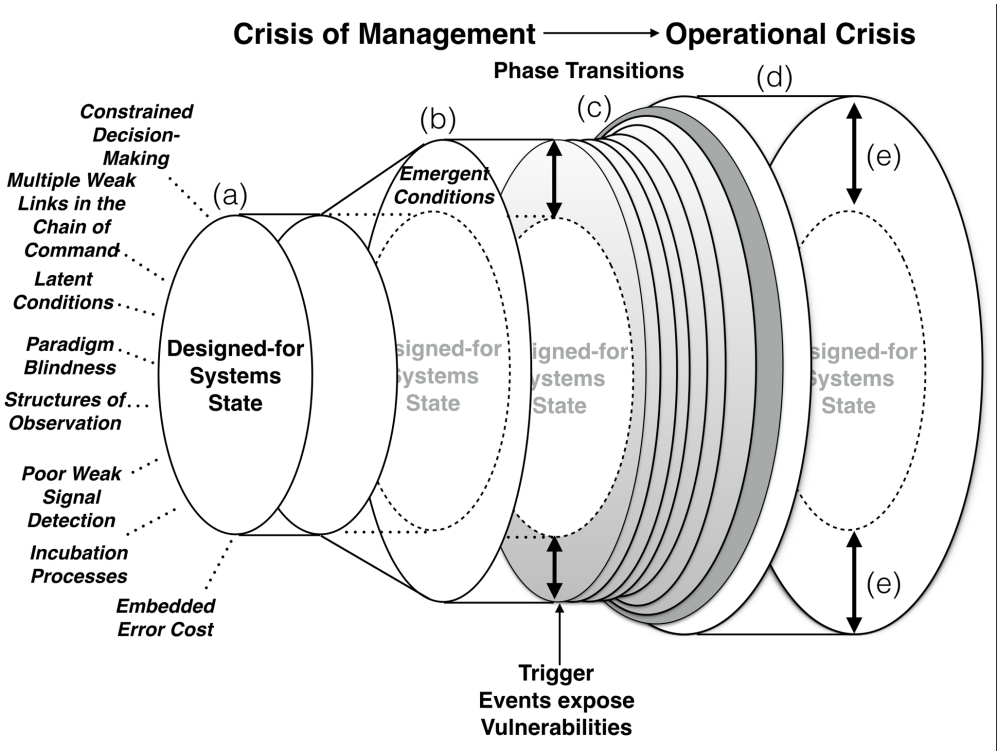
The interplay between uncertainty, expertise, cognitive bias and normative judgements can be found in many aspects of organisational failure and especially around those policy decisions that have a long time horizon. In part, this is compounded by the potential that exists for the generation of emergent properties through the interaction of elements of the system that create unforeseen, but not always unforeseeable, consequences. It is also a function of the shifts that take place in the environmental setting in which the decision is grounded. The outcome is that organisations are seen to incubate the potential for failure as a consequence of their decisions (Turner, 1976) and embedded error cost (Collingridge, 1992) in

these policies that are difficult to reverse due to their scale, uncertain outcomes, and complex nature. The potential for the incubation of crisis sits within the broad environmental context shown within Fischer's framework. If we take Brexit as a designed-for systems state – that is, Parliament will take a conscious decision to leave the EU and will likely vote on the parameters of that arrangement – then a number of factors can be seen to contribute to the potential to incubate the root causes of subsequent crises within that decision. The notion of incubation was initially outlined by Turner (Turner, 1976, 1978, 1994) and has been refined further by other authors (Collingridge, 1992; Perrow, 1984; Reason, 1997a). In essence, the costs associated with decisions taken at one point in space and time, have implications in other settings and they may not be realised close to the point at which the decision is taken. Crises have a history and trajectory that goes beyond the visible high-profile stage and a number of commentators have illustrated that crisis events transition though a number of stages (Smith, 1990a). Our discussions here locate Brexit within a framework for crisis management that operates across three main but interlinked stages – the crisis of management, the operational crisis, and the crisis of legitimation. Each of these stages are important in shaping the way in which the series of interconnected events that form the crisis interact to cause harm. For our present purposes, the focus is on the crisis of management phase identified by Smith (Smith, 1990a, 1995) in which the actions of those who lead the organisations involved in a crisis may serve to shape the nature of the event.

The main elements of the crisis of management phase of a crisis are shown in figure 1. Given the emergent nature of the decision, the focus here is on the processes around incubation – the ways in which the potential for crisis can be

incubated as a function of the leadership behaviours of those figures who led the debates, the promises that they made to the electorate, and the ways in which 'evidence' (loosely described) was used and manipulated to set out a case to leave the European Union. The emergence of a fear narrative within the campaigning highlighted an important shift in the ways that risk, uncertainty, and vulnerability are framed in public debates (a process which has continued uninterrupted since the Scottish Independence debate in 2014) and the labeling of those calculative practices as 'project fear'. By offering a counter narrative to the idealised state, opponents of 'independence' (from both the EU and from the UK) have been vilified even though the existing evidence base In particular, it highlights the potential role that toxic leadership can play in the generation of crisis (Fischbacher-Smith, 2016) and do so across the main stages of the crisis management process.

Figure 1: Elements of the crisis of management



SOURCE: (Fischbacher-Smith, 2016), p. 76.

What domain specific expertise cannot do is predict the outcome of future events that are essentially indeterminate - what Weinberg (1972, 1977) would term 'trans-scientific' - as they go beyond the ability of science to prove. The whole purpose of expert opinion in this context is to recognise the nature of that uncertainty, the boundaries of existing knowledge, and also to highlight the potential vulnerabilities within the system that arise as a consequence. A failure to do so would undermine the professionalism of that expert judgement and expose it to criticisms around its normative, rather than its empirical or evidential basis (see, for example, Fischer, 1980). The conditions around Brexit allowed politicians to call expertise into account, and especially when it challenged their own ideologically-motived views. Gove, for example, set out his own views on the role played by expert judgements by observing that:

> "The trouble with technocrats is because they believe they're smart, expert indeed, they don't do what all humans should – and all politicians must – acknowledge when they've made mistakes, learn from errors and adjust their assumptions..... Because to do so would be to challenge their conception of themselves as bearers of superior insights who are not as susceptible to error as the rest of us," - Mr Michael Gove (2016) (October).

Gove's comments, made in the context of the Brexit referendum, has been the focal point of many discussions within both academic and policy circles about the ways in which politicians see the value of expert opinion when it runs counter to their own ideological views. The comment was made in response to a statement by the Governor of the Bank of England, Mark Carney, about the potential impacts that Brexit could have on the performance of the UK's economy. Gove's outrage could be seen as somewhat misplaced, in that expert judgement is of critical importance within the decision-making process and especially when there is considerable uncertainty around cause-and-effect relationships. In an ironic twist, the Brexit debates had effectively asked the public to suspend any concerns about the lack of evidence and associated predictive capability and simply trust a set of politicians who promised that things could only get better once the UK was free of the EU. For Gove to criticise experts after his role in this ideologically-motivated process does raise questions about the roles that empirically-based evidence can play in policy debates.

Gove is incorrect in assuming that experts are as susceptible to knowledge-based errors as non-experts. Clearly, such a notion would go against the very construct of expertise as having extensive domain-specific knowledge. It does, however, raise the question of what constitutes an expert and the manner through which that expertise is assessed and validated. By definition, we would expect experts to have more insights into the specific areas of their expertise than non-

experts do. Yet despite their knowledge and insights, experts are still susceptible to error-inducing conditions, and whilst this does give them greater reliability around their judgments (Nicols, 2017) it does require them to reflect on the difficulties of prediction under conditions of uncertainty. Expertise inevitably breaks down once an individual strays out of their knowledge domain or where the conditions of uncertainty surrounding the issue are high, thereby requiring them to caveat the boundaries of their assessment. It is here that Gove could have made a substantial point about the limits of expert judgement in those complex issues where the burden of proof is weak and the potential for cognitive bias or paradigm blindness is potentially high. In these contexts those with a particular worldview may see what they expect to see and may become blind to alternative interpretations (Baum, 1980; Fischbacher-Smith, 2012; McMaster, 2015). The ideologically-based decision-making of political actors may also lead to a form of paradigm blindness, in which they cannot see beyond the contours of their own ideologically-framed world-views. These world-views have been long held to impact on the ways in which decision-makers can create the potential for moving their organisations into a state of crisis (Mitroff, Pauchant, Finney, & Pearson, 1989; Reason, 1997a; Turner, 1976). Unfortunately for Gove, politicians are also susceptible to their own cognitive biases, but they often do not have the merits of expertise in areas on which they make proclamations and judgments and so their judgements are often shaped by normative factors.

Through a glass darkly: Brexit and expert judgement

> "*Get thee glass eyes, and like a scurvy politician seem to see the things thou dost not*' – William Shakespeare **King Lear** (Act 4, Scene 5)

The comment by Shakespeare was meant as a clear rebuke to what he saw as the biased decision-making practices of his contemporary politicians – a problem that is clearly also prevalent within the modern era if the political landscape in the UK over the last five years is any indication. The notion of the ideological drivers of decisions, and their impact upon which evidence is used to support a particular decision, could be seen as a theme that runs through *King Lear*. These ideological drivers have also been seen within the debates around Brexit in which politicians provided 'evidence' in support of their particular stance and ignored the caveats that were associated with that information. The claims around the payment of £350 million a week to the EU serves as the epitome of the ways that ideological drivers can lead to a distortion of the evidence in support of a particular policy stance.

The debates around Brexit represented the outcome of a long-standing sense of anger about the perceived control that was exerted by the EU within sections of UK society. Much of this resentment was, however, as much a response to the problems generated by globalisation as it was about the EU (Hudson, 2016, 2017). In addition to the concerns within the electorate, a number of political parties in the UK also had divisions within their membership about remaining within the EU. The result was a constant interplay between a mosaic of ideologically-driven policy actors, political activists, and communities – some of whom had been severely disadvantaged by globalisation. Thus, risk and uncertainty were implicitly interwoven into this discourse. The ways in which risk and uncertainty were expressed and dealt with in the policy-making environment can be seen, therefore, as central to the Brexit debates.

Invariably, there is an expectation that politicians will be ideologically motivated in terms of their approach to issues. In the midst of the various promises made to the electorate but were never acted upon, there was also the now infamous and widely quoted, although later disputed (Gove, 2017), claim made by Michael Gove that the country had had enough of experts (Deacon, 2016; Mance, 2016):

> "I am asking the British public to take back control of our destiny from those organisations which are distant, unaccountable, elitist……I think that the people in this country have had enough of experts…with organisations with acronyms…. from organisations with acronyms saying that they know what is best and getting it consistently wrong" – Michael Gove (3rd June 2016), Sky News[3]

Gove (2017) was later to claim that his words were taken out of context and he was referring to those experts within a number of financial institutions who happened, coincidentally, to disagree with his own judgement on the economic risks of Brexit. He was later to provide a further degree of clarity about what he meant by such a criticism of expert judgement. In a column in the Telegraph newspaper, he criticised the Governor of the Bank of England - Mark Carney - for an alleged lack of humility in dealing with the potential economic challenges arising out of Brexit. Many might find this statement somewhat ironic given the history of Mr Gove's own expert comments on both the economy, education, and, more significantly, counter-radicalisation (see, for example, Gove, 2014). His requirement that experts show the same level of humility as elected politicians – because "nothing so enhances authority as a dash – now and then – of humility" (Gove, 2016), p. 27. – seems even ironic given the promises made around the

[3] The full interview with Faisal Islam on Sky News can be found at https://www.youtube.com/watch?v=GGgiGtJk7MA

funding of the NHS in the Brexit referendum and, particularly, claim about the £350 million per week that could be diverted to funding healthcare.

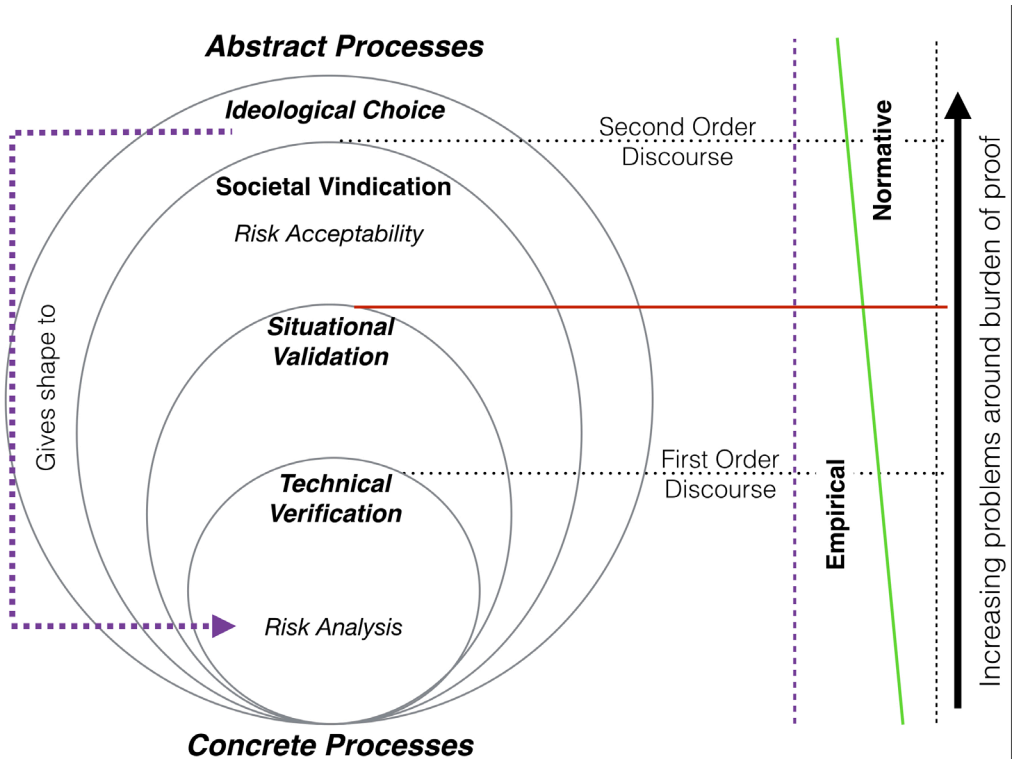
The role of expertise in the policy process, and its relationships with ideological choice, has been the subject of considerable discussion within the academic literature. Fischer (1980, 1990, 2006), for example, has considered the relationships between the technical verification process for policies (which should be an essentially empirical process) and the ideological choices that are associated with them at different levels of spatial granularity (which are essentially normative decisions). Figure 2 illustrates the key elements of Fischer's framework. It can be seen to involve a set of nested processes that operate at different levels of granularity within geographical space in which the discourse between levels is a key element in shaping the policy environment. The relationships between these levels can be seen to involve a set of multi-level processes and they have the potential to generate tensions between the more concrete determination of risk and the more abstract discussion around future states for a system, especially one that is shrouded by uncertainty. At the empirical end of the debate, the issues are around the evidence base for the technical verification of risk and they often involve a range of "calculative practices" (Miller, 1998, 2001) around risk and uncertainty. Essentially, these debates should be empirical and require an established evidence base, although for many issues in the policy environment the evidence base might be contested. Figure 2 highlights the gap that exists between the normative and abstract processes relating to ideological choice and the more concreate, empirically-based processes around technical verification. The Brexit debates can be seen to sit within this broad setting in which the social construction of the merits and risks associated with the

decision moves the discourse between the two extreme positions of empirical- and normative-based approaches. This is seen as a normal aspect of the scientific process as the refutability of theories is a cornerstone of science. Poole (2017), for example, highlights the relationship between trust and fact and observes that:

> "Facts are fuzzy and changeable; in scientific practice, matters of truth and evidence are always at issue. The best scientific theories are social constructs" (p. 43).

Thus, the construction of proof within the context of policy debates should be seen as a dynamic process in which the abstract and the concrete interact together within the conflict of policy discourse.

Figure 2: Fischer's policy framework



Source: Adapted from Fischer (1980)

Whilst figure 2 is an idealised representation of these relationships, it does serve to provide a starting point for a discussion of the role that expertise plays in the process. There is an argument that could be made that the processes around technical verification are also subject to influence by normative processes. Whilst science should conform to the test-retest validity requirements, this tends to break down in real-world settings were intervening variables cannot be controlled effectively. It is the introduction of uncertainty at the interface between the calculative processes that take place within technical verification and the acceptability of their outputs at the level of situational validation that takes place in the immediate hinterland of the activity being assessed. Certainly, for point-source forms of hazard such as environmental impact or major hazard risks, this relationship holds true. Local conflicts centre on the nature of burden of proof debates (see, for example, Smith, 1990b, 1991) in which disagreements around the technical determination of risk are invariably technical and relate to cause-and-effect relationships. Once debates move to a more regional or national scale then this process becomes more difficult due to problems associated with determining precise cause-and-effect relationships. The debates then shift to a more normatively-driven process. It could be argued that at this level of abstraction, there is insufficient granularity around cause-and-effect processes to allow for scientific knowledge and expert judgement to play a substantive role in shaping the discourse, as ideological factors can simply point to the lack of a clear evidential basis in framing the issues. As a consequence, Gove's almost abstract critique of expertise is allowed to gain some traction as it becomes difficult (but not impossible) to refute his claims with verifiable evidence – after all, that would require the very expert insight and judgement that he is seeking to critique.

Ultimately, the debate moves away from a discussion around evidence to one about ideology, with powerful elites pitching their ideologically-based arguments to elements of society in the hope of obtaining vindication that would not be achievable by using empirically-validated evidence. From a Brexit perspective, those ideologically-motivated actors actively sought to shift the debate into a more abstract phase where normative arguments formed the dominant element of the discourse.

Although, Brexit can be seen, by definition, as a UK phenomena the underlying drivers and their connecting social, political, and economic fabrics have more global consequences. These can be seen in the aftermath of the 2008 economic crisis, the election to office of Donald Trump, and the growth in anti-immigration movements across Europe and the ferment of unrest in the Middle East. The shifts that have occurred in the spaces of production and consumption (Hudson, 2000, 2001, 2009a) have led to the creation of spaces of destruction (Fischbacher-Smith & Smith, 2015) in which disenfranchised groups within society have been isolated from the benefits that globalisation brings and have borne a disproportionate burden of the costs. The result has been a rejection of the political elites, the emergence of nationalism, and increased social exclusion. As such, the debates are driven by ideological choice and evidence and expertise has been eroded as a consequence. Within this context, Brexit can be seen as part of a set of bifurcations arising out of the emergent conditions generated by globalisation processes. As a response to these emergent conditions, Brexit can also be seen to have the potential to serve as a trigger event for a range of subsequent crises that arise out of the new conditions generated by the departure of the UK from the EU. In order to explore the potential for crisis within the Brexit

discourse, we first need to consider the ways in which expertise has been eroded in policy debates.

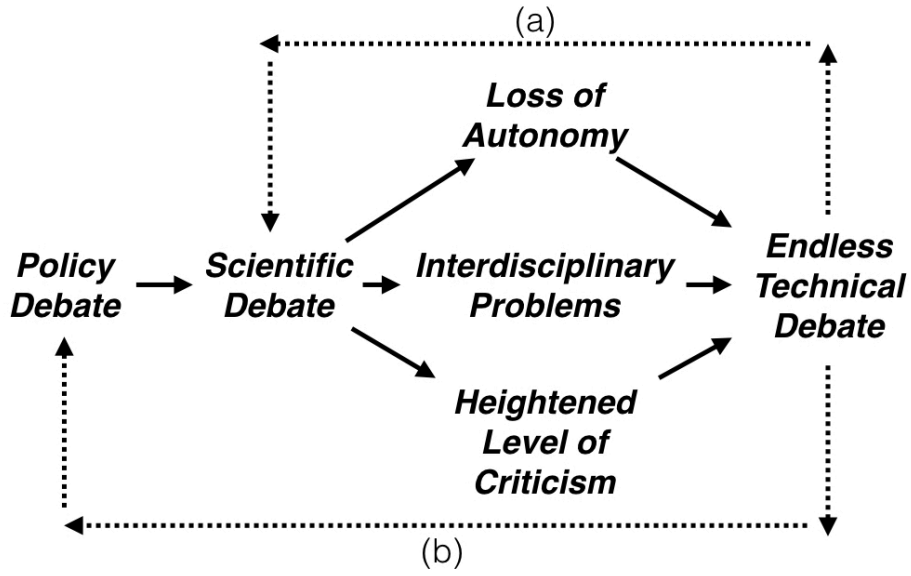
Science, expertise and proof in a post-truth policy environment

The undermining of technical expertise by politicians has long-standing implications for public management and the continued erosion of the trust that some public groups have in expert judgements around risk (Nicols, 2017). This distrust of expertise is not new and there have been several attempts to frame the role that expertise and evidence can play in the policy making process, especially where power and science collide (Collingridge & Reeve, 1986; Collins, 2013; Galison & Stump, 1996; Nelkin, 1990). Wynne (1996), for example, highlighted the importance of local forms of knowledge in the determination of risk and the mitigation effects of local practices. His research with Cumbrian sheep farmers in the aftermath of the Chernobyl accident challenged the assumptions that were made by policy makers in Whitehall about the grazing behaviours of sheep and the impact that it had on exposure to radioactive fall-out (Wynne, 1989, 1991). Irwin (1995, 2001) has highlighted the role that citizen scientists can play in risk debates, especially where the expertise of local publics can provide different perspectives on phenomena that challenge established scientific perspectives. In both cases, the arguments are grounded in empirical rather than normative settings and evidence is seen as a central part of the discourse. Other research has examined the role that powerful interests can play within the scientific process in terms of determining the legitimacy of that evidence. In exploring the nature of this process, Collingridge and Reeve (1986) set out two extreme systems states in

which science is held to be incapable of providing effective inputs into the policy process.

The first of these systems states is framed as an over-critical model of science (figure 3) in which competing interests in a debate are unable to provide a dominant and accepted account of how a particular phenomena can be effectively explained by scientific theory and evidence. The result is an on-going debate in which the burden of proof remains contested and where there is continuing research about the issue in question. In some respects, this has much in common with the challenges described by the wicked problem construct (Churchman, 1967; Head & Alford, 2015; Rittel & Webber, 1973). In the context of the Over-Critical model, the intractable nature of the scientific problem meets one of the criteria set out by Rittel and Webber for designation as a wicked problem in that there is no obvious solution to the issue.

Figure 3 – the Over-Critical model of science



Source: adapted from Collingridge and Reeve (1986), p. 32

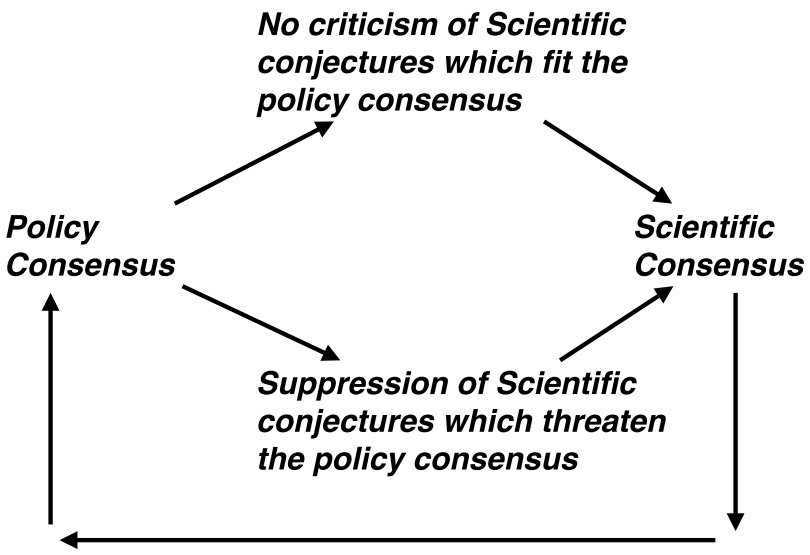
Collingridge and Reeve argue that a policy debate stimulates scientific discussion and research relating to the phenomena in question. This is especially the case where the burden of proof associated with a policy initiative is not particularly well-established. This scientific debate is often marked by issues around multi-disciplinarity, especially when dealing with real-world policy debates. These debates often bring with them a loss of autonomy and result in a heightened level of criticism (Collingridge & Reeve, 1986), especially as other disciplinary perspectives and ideologically-driven views are brought to bear. The outcome is a situation in which endless technical debate ensues and where the policy issue can ostensibly be seen as a wicked problem. Figure 3 has been adapted from the originally conceptualization by Collingridge and Reeve to include two feedback processes (shown as dotted lines). The first of these, marked (a), frames a self-perpetuating cycle in which the technical debate around the issue feeds back into the scientific debate. In this process, additional research is undertaken within the various paradigmatic perspectives on the problem. Put another way, the problem is framed by considering it within the same analytical lens and more research is undertaken within that framework in an attempt to develop a solution to the problem. Thus, the problem is seen through the same lens of theory and evidence production rather than seeking to develop a different conceptualization of the issues. The second feedback loop occurs where the technical debates feed back into the policy discourse. This can have the effect of fragmenting the more normative policy discussions and can serve to stimulate more scientific debate as the competing ideologies undertake more research that supports their particular stance. Nichols (2017) argues that policy debates are in effect:

> "rooted in conflict, sometimes conducted as respectful disagreement but more often as a hockey game with no referees and a standing invitation for spectators to rush onto the ice" (p. 25).

The result, for Nichols, is that established knowledge and its associated expert base, is constantly under attack, a process that is perhaps exacerbated by the effects of social media and the proclamations of politicians. The Brexit debate, and the interventions by politicians such as Gove, have fueled this process such that there is a high degree of conflict around the potential risks associated with leaving the EU. This is despite the uncertainty that obviously surrounds these decisions and the considerable potential for emergent conditions associated with it.

In contrast to the over-critical model, Collingridge and Reeve (1986) set out an alternative view that sees science being dominated by powerful elites who shape the debates. They term this the Under-Critical model in which those in positions of power are able to mobilise their resources to subdue or undermine any scientific evidence that is presented and which undermines the particular policy stance taken. To an extent, this process is also evident within the Brexit debates and is likely to become more prominent if one ideological grouping is allowed to dominate the discussion. In a study of major hazard debates in the 1980s, Smith (1990b) found that the under-critical model could be seen to dominate in a period of economic downturn as the power of capital was able to more easily shape the discourse.

Figure 4 – The Under-Critical Model



Source: (Collingridge & Reeve, 1986), p. 33

Perhaps the greatest shift in the more traditional approaches to incorporating evidence in the policy-making process has taken place in the USA where President Trump has tapped into populist fears and anxieties and taken to social media to put forward a different perspective. This construction of 'evidence by twitter' – or perhaps more accurately, the generation of alternative facts – has further undermined the role that expertise and evidence should play in policy making. The Trump administration's travel ban on passport holders from certain counties has not only caused a backlash from some sections of American society, and has led to widespread international criticism, but it isn't always clear what the evidence base (or legal basis) is for the specifics of such a ban. The argument is that the countries involved in the ban have insufficient checking processes in place to reassure the US administration that members of the travelling public do not pose a terrorist threat to the USA. If the underlying concern is indeed

terrorism, then questions need to be asked about the evidence base that points to the citizens from those banned countries actually carrying out terrorist acts on US soil. To-date, the country whose citizens would be close to the top of this list would be Saudi Arabia (15 out of the 19 9/11 terrorists were Saudi passport holders), and yet there is no ban on its citizens at the time of writing. At the same time, the Trump administration's views on climate change also point to a selective reading of the evidence. The problems associated with Fake News are such that Tim Cook, the CEO of Apple, has called for the creation of greater public awareness amongst young people about the dangers that such propaganda can bring (Heath, 2017). The ambiguity and confusion that this post-truth political environment generates in policy circles was brought into sharp focus in President Trump's press conference on the 16th February 2017 when he claimed that the intelligence leaks suffered by his administration were true but that the reporting of them was, somehow, inaccurate:

> "Well the leaks are real. You're the one that wrote about them and reported them, I mean the leaks are real. You know what they said, you saw it and the leaks are absolutely real. The news is fake because so much of the news is fake." – Donald Trump (2017) cited in (BBC News, 2017; Lynch & Whiteside, 2017)

The extent of the problem within the public sphere is now such that the word 'post-truth' was identified as the word of the year by Oxford Dictionaries (BBC News, 2016) and the issue was also raised in the World Economic Forum's annual report on global risks (World Economic Forum, 2017). These discussions have clear implications for the ways in which expertise and evidence are used in the policy-making process and the transparency and trust that is afforded to them. Several examples serve to illustrate the problems that alternative facts can create in public management. The debates around Scottish independence and the Brexit

referendum were both marked by the emergence of contested narratives relating to the future state of the 'nation' (however defined) and at varying levels of granularity. They also illustrated the power of social media in developing that discourse and the trust that people had in these proclamations about the likely risks. In many such examples, expertise (often loosely defined) was used to support a case that in some cases depended more on ideology than evidence, thereby rising questions about which expert judgments were valid and which were simply the expression of an opinion that was framed by ideological considerations.

In some cases, supposedly independent experts (including some in the academic community) failed to disclose the extent of their political affiliations and sought to portray their evidence as neutral when it was, in fact, ideologically motivated[4]. Whilst expertise is normally associated with a domain of knowledge, and one that can be evidenced, it has not stopped some individuals moving beyond their knowledge domain to claim expertise in other areas, usually by virtue of an affiliation to an organisation such as a university department. There is, for example, an expectation that holding a post in a university department means that an individual has clearly defined expertise in an area of disciplinary knowledge. However, this does not stop any individual academic from moving beyond the area of their accredited knowledge base into another domain whilst implying that they are an expert in that new area of academic activity. The same problem also exists in the area of consultancy and other sectors involved in the knowledge generation

[4] In some cases, the academics involved were (or had been) members of those political parties supporting a particular policy stance but they failed to disclose that fact when putting their evidence forward, thereby effectively undermining their neutrality as researchers.

process. However, these problems are often overshadowed by the claims around evidence that are increasingly made by politicians.

Conclusions

> "Informed estimates should not be presented as exact data ..... Expertise can breed arrogance and false certainty; specialisms fall prey to group-think. Experts must be challenged and their work robustly interrogated. But that is very different from attacking evidence merely because it undermines your arguments ……. and instantly impugning the motives of those who have produced it" - (Wright, 2016)

The question of whether the Brexit decision is, or is not, a crisis, and the implications that the aftermath of the referendum may generate for policy making and the wider democratic processes around managing risk, the validity of expert judgment, and the accountability of governments and individual politicians is likely to occupy discussions of public sector management for a considerable period of time. At the outset, the Brexit decision clearly has the potential to generate the conditions for a range of crises that span economic, social, and constitutional domains. Clearly, the potential role of the "glass eyed politician" highlighted by Shakespeare is not going to disappear any time soon!

These three issues – the incubation of the crisis, the erosion of trust in expert groups, and the demonizing of the calculative processes around risk assessment – have implications beyond the Brexit debates. Indeed, the publication of the Chilcot Report also has overtones of these same issues around the ways in which the crisis generated by the invasion of Iraq (and subsequent crisis events that followed) was self-induced by the mis-use of expert judgement (in this case

intelligence reports), the rush to action, and the failure to acknowledge the uncertainty in the decision-making itself. There are some potential parallels between Brexit and Iraq that point to a fundamental malaise at the core of government decision-making and which have longer-term implications for public management.

Baum, H. S. 1980. Analysts and Planners Must Think Organizationally. ***Policy Analysis***, 6(4): 479-494.

BBC News. 2016. 'Post-truth' declared word of the year by Oxford Dictionaries. ***BBC News***, 16th November 2016(Accessed on line at http://www.bbc.co.uk/news/uk-37995600 on the 28th January 2017 at 1455 hours).

BBC News. 2017. Full transcript of Trump press conference. ***BBC News (US & Canada)***, 16th February 2017(Accessed on line at http://www.bbc.com/news/world-us-canada-38987938 on 19th Februar 2017 at 1820 hours).

Churchman, C. W. 1967. Guest editorial: Wicked problems. ***Management Science***, 14(4): B-141-B142.

Collingridge, D. 1992. ***The management of scale: big organizations, big decisions, big mistakes***. London: Routledge.

Collingridge, D., & Reeve, C. 1986. ***Science speaks to power: the role of experts in policy-making***. London: Francis Pinter.

Collins, H. M. 2013. Three dimensions of expertise. ***Phenomenology and the Cognitive Sciences***, 12(2): 253-273.

de Boer, J. Z., & Sanders, D. T. 2002. ***Volcanoes in human history. The far reaching effects of major eruptions***. Princeton: Princeton University Press.

Deacon, M. 2016. EU Referendum: Who needs experts when we've got Michael Gove. ***The Telegraph***, June 6th 2016(Accessed on line at http://www.telegraph.co.uk/news/2016/06/06/eu-referendum-who-needs-experts-when-weve-got-michael-gove/ on 27th February 2017).

Fischbacher-Smith, D. 2012. Getting pandas to breed: Paradigm blindness and the policy space for risk prevention, mitigation and management. ***Risk Management***, 14(3): 177-201.

Fischbacher-Smith, D. 2016. Leadership and crises: Incubation, emergence, and transitions. In J. Storey (Ed.), ***Leadership in Organizations: Current issues and key trends***, 3rd ed.: 70-95. London: Routledge.

Fischbacher-Smith, D., & Smith, L. 2015. Navigating the "dark waters of globalisation": Global markets, inequalities and the spatial dynamics of risk. ***Risk management***, 17(3): 179-203.

Fischer, F. 1980. ***Politics, values, and public policy: The problem of methodology***. Boulder: Westview Press.

Fischer, F. 1990. ***Technocracy and the politics of expertise***. Newbury Park: SAGE.

Fischer, F. 2006. Participatory Governance as Deliberative Empowerment. ***The American Review of Public Administration***, 36(1): 19-40.

Galison, P. L., & Stump, D. J. 1996. ***The disunity of science: Boundaries, contexts, and power***: Stanford University Press.

Giddens, A. 1990. ***The consequences of modernity***. Cambridge: Polity Press.

Gove, M. 2014. ***Celsius 7/7***. London: Weidenfeld & Nicolson.

Gove, M. 2016. 'Experts' like Carney must curb their arrogance. ***The Times***, Friday October 21st 27.

Gove, M. 2017. Diary. ***The Spectator***, 333(9830): 7.

Head, B. W., & Alford, J. 2015. Wicked Problems: Implications for Public Policy and Management. ***Administration & Society***, 47(6): 711-739.

Heath, A. 2017. Fake news is killing people's minds, says Apple boss Tim Cook. ***The Telegraph***, 10th February 2017(Accessed on line at http://www.telegraph.co.uk/technology/2017/02/10/fake-news-killing-peoples-minds-says-apple-boss-tim-cook/ on the 27th February 2017 at 2053 hours).

Hudson, R. 2000. ***Production, places and environment. Changing perspectives in economic geography***. Harlow: Prentice Hall.

Hudson, R. 2001. ***Producing Places***. New York: The Guilford Press.

Hudson, R. 2008. Cultural political economy meets global production networks: a productive meeting? ***Journal of Economic Geography***, 8(3): 421-440.

Hudson, R. 2009a. Resilient regions in an uncertain world: wishful thinking or a practical reality? ***Cambridge Journal of Regions, Economy and Society***, 3(1): 11-25.

Hudson, R. 2009b. Resilient regions in an uncertain world: wishful thinking or a practical reality? ***Cambridge Journal of Regions, Economy and Society***.

Hudson, R. 2016. Rising powers and the drivers of uneven global development. ***Area Development and Policy***, 1(3): 279-294.

Hudson, R. 2017. Facing forwards, looking backwards: Coming to terms with continuing uneven development in Europe. ***European Urban and Regional Studies***, 24(2): 138-141.

Irwin, A. 1995. ***Citizen Science. A study of people, expertise and sustainable development***. London: Routledge.

Irwin, A. 2001. Constructing the scientific citizen: Science and democracy in the biosciences. ***Public Understanding of Science***, 10(1): 1-18.

Lynch, C., & Whiteside, P. 2017. President Trump launches unprecedented attack on media. ***Sky News***(Accessed on line at http://news.sky.com/story/trump-launches-unprecedented-attack-on-media-10770556 on 19th February 2017 at 1806 hours).

Mance, H. 2016. Britain has had enough of experts, says Gove. ***Financial Times***, June 3rd 2016(Accessed on line at https://www.ft.com/content/3be49734-29cb-11e6-83e4-abc22d5d108c on 27th February 2017 at 1749 hours).

McMaster, R. 2015. Ethical challenges to economic thought from the financial crisis. In T.-H. Jo, & F. S. Lee (Eds.), ***Marx, Veblen, and the Foundations of Heterodox Economics: Essays in Honor of John F. Henry***: 155-175. London: Routledge.

Mikes, A. 2009. Risk management and calculative cultures. ***Management Accounting Research***, 20(1): 18-40.

Miller, P. 1998. The margins of accounting. ***European Accounting Review***, 7(4): 605-621.

Miller, P. 2001. Governing by Numbers: Why Calculative Practices Matter. ***Social Research***, 68(2): 379-396.

Mitroff, I. I., Pauchant, T. C., Finney, M., & Pearson, C. 1989. Do (some) organizations cause their own crises? Culture profiles of crisis prone versus crisis prepared organizations. ***Industrial Crisis Quarterly***, 3: 269-283.

Nelkin, D. 1990. Selling science. ***Physics Today***, 43(11): 41-46.

Nicols, T. 2017. ***The death of expertise.*** New York, NY: Oxford University Press.
Perrow, C. 1984. ***Normal Accidents***. New York: Basic Books.
Poole, S. 2017. Lies, damned lies and alternative facts. ***New Statesman***, 19-25th May 2017: 42-43.
Reason, J. 1997a. ***Managing the risks of organizational accidents***. Aldershot: Ashgate.
Reason, J. T. 1990a. The contribution of latent human failures to the breakdown of complex systems. ***Philosophical Transactions of the Royal Society of London***, B,37: 475-484.
Reason, J. T. 1990b. ***Human error***. Oxford: Oxford University Press.
Reason, J. T. 1997b. ***Managing the risks of organizational accidents***. Aldershot: Ashgate.
Rittel, H. W. J., & Webber, M. M. 1973. Dilemmas in a general theory of planning. ***Policy Sciences***, 4(2): 155-169.
Smith, D. 1990a. Beyond contingency planning - Towards a model of crisis management. ***Industrial Crisis Quarterly***, 4(4): 263-275.
Smith, D. 1990b. Corporate power and the politics of uncertainty: Risk management at the Canvey Island complex. ***Industrial Crisis Quarterly***, 4(1): 1-26.
Smith, D. 1991. The Kraken wakes - the political dynamics of the hazardous waste issue. ***Industrial Crisis Quarterly***, 5(3): 189-207.
Smith, D. 1995. The Dark Side of Excellence: Managing Strategic Failures. In J. Thompson (Ed.), ***Handbook of Strategic Management***: 161-191. London: Butterworth-Heinemann.
Tenner, E. 1996. ***Why things bite back. Technology and the revenge effect.*** London: Fourth Estate.
Turner, B. A. 1976. The organizational and interorganizational development of disasters. ***Administrative Science Quarterly***, 21: 378-397.
Turner, B. A. 1978. ***Man-made disasters***. London: Wykeham.
Turner, B. A. 1994. The causes of disaster: Sloppy management. ***British Journal of Management***, 5: 215-219.
Weinberg, A. M. 1972. Science and trans-science. ***Minerva***, 10(2): 209-222.
Weinberg, A. M. 1977. The limits of science and trans-science. ***Interdisciplinary Science Reviews***, 2(4): 337-342.
World Economic Forum. 2017. ***The Global Risks Report 2017***. Geneva: World Economic Forum.
Wright, B. 2016. There's a sinister strain of anti-intellectualism to Gove's dismissal of 'experts'. ***The Telegraph***, 21st June 2016(Accessed on line at http://www.telegraph.co.uk/business/2016/06/21/in-defence-of-experts-whether-they-support-leave-or-remain/ on the 27th February 2017 at 1850 hours.).
Wynne, B. 1989. Sheepfarming after Chernobyl: A case study in communicating scientific information. ***Environment: Science and Policy for Sustainable Development***, 31(2): 10-39.
Wynne, B. 1991. After Chernobyl: science made too simple? ***New Scientist (London)***, 129(1753): 44-46.
Wynne, B. 1996. May the sheep safely graze? A reflexive view of the expert-lay knowledge divide. In S. Lash, B. Szerszynski, & B. Wynne (Eds.), ***Risk,***

Envionment and Modernity. Towards a new ecology.: 44-83. London: Sage.