

# Canaries in the Mind: Exploring How the Financial Crisis Impacts 21st Century Future-Mindfulness

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## Abstract

*Futures practices have always sought to bridge longer term, context uncertainty and today's actions. Despite the emergence of diverse foresight lineages, methods and tools, the differences between 'better proactive foresight' and 'better reactive preparedness' remain unclear. This paper focuses on the 2007-2010 financial crisis in order to clarify misconceptions and confusions concerning 'scenario planning'. We assess why the crisis is not unique and propose how scenarios might be helpful in overcoming the difficulties of learning from crisis. We focus on how scenarios were used in the run up to this crisis to clarify the nature, role and effectiveness of scenario work. We highlight implications for scholarship and practice, including: overcoming simplistic distinctions of scenarios as products or processes; and as outputs or inputs. We assess the power of scenarios as frames and their role in re-framing strategic conversation; and contrast the misapplication of probability in systemic risk analysis with the co-production of plausibility, between builders and users of scenarios. Finally, we explore why the promises of deploying scenarios to address normal accidents and systemic risks are not yet fully realised.*

**Keywords:** scenario planning; financial crisis; systemic risk analysis; normal accidents; plausibility

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## Introduction, Objectives, and Organisation of This Paper

This paper explores what and how we might learn about future mindfulness with the 2007-2010 crisis. It seeks to assess how strategic foresight approaches utilising 'scenario planning' work in such circumstances. We have adopted a 'physician heal thyself' stance in the sense that our aim is neither to apportion blame nor to offer (yet another) diagnosis of this crisis. Instead we aim to secure some of the pedagogical advantages this crisis presents. In our roles as scholars and reflective practitioners, having worked with those in banking and financial services, we use the crisis to clarify some of the confusions concerning scenarios. These include whether (and when) to deploy probability in scenario work; how to use scenarios effectively; and, what exactly (and when, how and for whom) is plausibility? We highlight implications for scholarship and practices to link scenario work with other approaches.

This paper is organised into seven sections. In section 1 we clarify what we mean by scenarios. In section 2, we review the value in taking a step back to consider what crisis we should be talking about. In section 3, we suggest the crisis is not unique but rather a normal accident, typical of many complex socio-technical systems. In section 4, we review why learning from crises is neither inevitable nor straightforward. In section 5, we describe how we developed scenarios to learn with this crisis. In section 6, we offer recommendations for scholarship on and practices using scenarios. In the 7<sup>th</sup> and final section, we consider differences between the 'search for better foresight' and the search for 'better preparedness'.

### *1) What we mean by 'scenarios'*

There is a need to clarify what we mean by 'scenarios', as the term is used in many fields, from surgery to film making - one can even get a prize in the Cannes film festival for being the best 'scenariste'. We have found that 'scenarios' in the financial services and banking world mean something very different from what they mean to us. Simply considering scenarios as a technique or tool, as a product or a process - as is too often done there - fails to capture the opportunity offered by scenarios to learn 'with' rather than 'about' the future.

We think of scenarios as plausible stories about future contexts of something. Scenarios come in sets. The scenario set can be deployed to test, contest or develop policy, strategy and plans of some one (or specific organisation or system of actors) and, in the process, reveal their key assumptions about the future and its role in the present (van der Heijden, 2005). Scenarios, for us, are developed and deployed as part of purposeful interventions; they are not the intervention itself. The role of deliberation in anticipatory knowledge is significant not so much for establishing 'facts' but firstly, in forging the vocabulary for strategic conversation; secondly in attending to the quality of judgement; and last but not least, in the co-production of plausibility required for effective decision making and action under uncertainty.

The (causal) logics that can be seen by looking back at the present from alternative futures help to enrich and contest henceforth unquestioned conventional wisdom as well as taken-for-granted framings (Kaplan, 2008) learned through past direct experiences or derived from data analysis and empirical research. To work with scenarios

is to treat the future as a fiction – which, in any given present, it is – and thereby attend to the weak signals from those future fictions that might undermine the existing dominant logic.

As we understand these, scenarios always come in sets of contexts – two or three but no more than four. This is because to use only one is the equivalent of forecasting, while to work with too many can lead to exhaustion in strategic analysis or paralysis - just think about all the scenarios that have been developed by a variety of organisations and actor groupings to inform policy making on global environmental change.

In the world of financial risk managers 'scenarios' are too often one-off imaginary events (counter-factuals) used to populate the 'fat tails' of the non-normal distribution models used to calculate risk. Those "scenarios" are 'within' the existing financial models, and reflect the clear, quantitative thinking and decision-making culture of the financial and banking sector and deeper assumptions. Important assumptions there are that more information improves decision making, that people are unbiased to new information, that uncertainties can be converted into risk and all risks priced/spread in the market, and that model accuracy is based on existing facts. Thus, for many financial risk managers, scenarios are events that lie within the extreme probability envelopes of their most sophisticated computer models. As such they do not seek to review the fundamental theory or assumptions on which such judgement rests. They are not scenarios 'of' the assumptions (questioning these), they are 'within' the assumptions (supporting these).

## 2) Crisis – but which crisis, exactly?

Many different perspectives on and diagnoses of the crisis have been (and are still being) offered on the so-called 2007-2010 'financial crisis'. The different views reveal diverse histories, future interests, professional perspectives, concerns, and assumptions about causes and effects.

As we write in November 2009, some appear convinced that the crisis is now over and suggest the economic downturn that it helped trigger into recession may also be coming to an end. Others instead focus on how the impacts of the crisis are continuing to be felt (e.g. in terms of an outlook of long-term unemployment or underemployment) and for them economic recovery is not a given. Yet others indicate that the crisis is just beginning, with its impacts still spreading into other systems and spheres of life. It is understandable that national governments, CEOs and regulators alike have engaged in an urgent scramble aimed at 'fixing' the crisis. Memories of the 1930s Great Depression and its aftermath have resurfaced, and scared people into action, even though no one is sure whether these actions will be effective: has action been targeted at treating the symptoms of the crisis and is a cure available for this crisis, and in a manner that doesn't kill the patient in the long run?

**2.1 A canary in the mind?** Although the world did not seize up, precipitating a 1930's-style global recession, it came very close to doing so. This paper is based on our realisation that this crisis, "the worst in the Western capitalist system for over 60 years", presents a 'canary in the mind' of modern approaches to strategic foresight<sup>1</sup>.

Canaries were used in coal mines because they stopped singing (or died) because of the build up of toxic gases, giving miners underground a clear warning and the time

to escape prior to the gas resulting in human deaths<sup>2</sup>. Using this as a metaphor, we suggest this crisis is a 'canary in the mind' as it provides an early warning about how we understand and enact foresight. The lessons learned from this crisis could avert continued misuse of scenario thinking in foresight in many domains (not only finance). The canary that has stopped singing signals that it is not only 'what' we think about the future but 'how' we think about the future that may be a peril in facing the turbulent conditions of the 21<sup>st</sup> century (c.f. Ramirez, Selsky, & Kees, 2008).

### *3) What we can learn from this crisis about the (in)effectiveness of scenarios in foresight*

Strategic foresight, strategy, and planning needs to be able to address the challenges of a world characterised by inherent uncertainties, turbulent changes and high and contested decision stakes. The evidence in the financial services sector and its regulators is that this is not the case, and requires urgent remedy.

The crisis has revealed something faulty in the way that foresight and scenarios have been used, for example by the Financial Services Authority (FSA) regulator in the UK, as well as by many financial institutions. Despite attempts for nearly 60 years to embrace non-linear, non-deterministic futures thinking, the effectiveness of foresight interventions using scenarios, remains unclear. As researchers (Bradfield, Wright, Burt, Cairns, & Kees, 2005) explored, the multiple origins and co-evolving lineages of scenarios have given rise to an innovative field which is also, alas, characterised by methodological confusions and insufficiently rigorous theory to distinguish effective from ineffective practices (Wilkinson, 2009).

**3.1 Was the crisis a normal accident?** The response to the crisis underlines the challenges of appreciating systemic risks. Framing the events of 2007-2010 as "a financial crisis" is one of many choices. Doing so this way reflects the politics and power distributions in determining action within the messy, puzzling challenges of greater global connectedness. Connectivity enhances the co-creation of both value and vulnerability for a wider system of actors, i.e. increasing systemic risk, contagion and transformation potentials.

'Normal accidents' are inevitably built into these conditions. In his book on 'Normal Accidents' Charles Perrow (1984) argues that catastrophic accidents are built-in unwittingly, and inevitable in tightly coupled and complex systems. He suggests failures will occur in multiple and unforeseen ways that are virtually impossible to predict.

Normal accidents and systemic risks are difficult to contain in a globally interconnected world, for the Icelandic pensioner is now linked to the Alabaman sub-prime mortgage holder, and the equities held in a Caribbean-registered hedge-fund shape the payslip of a Bangladeshi sub-contractor and the credibility of a Latin American budget minister. Beyond the financial services area, which since barter stopped being the mode of exchange is intimately linked to the 'real' economy, interconnections now also enrol and affect planetary boundaries of carbon, water and nitrogen. Interconnections work across multiple levels and include households, cities, national and international systems focused on energy and food security, public health, poverty alleviation, and so on. Containment is near impossible.

The emergence of this crisis and of the causalities it manifests invites us to attend not only to 'what' individuals, groups and organisations think about the future, but to 'how' futures thinking engages with both intervention and with causality itself.

The normal accident framing is instructive because those that confront it are led to believe that what is unfolding has been planned for. This is what behavioural economists now call 'anchoring' (Tversky & Kahnemann, 1986) – the human habit of relying on one piece of familiar (and thus in the past) data or information to make judgments, thus 'anchoring' our interpretation of new signals on past, proven events and accompanying frameworks. It is difficult to let go of these anchors, and to recognise that what we are facing is of an entirely new situation. Those anchoring the understanding of the new unfolding situation within the confines of a past experience and its conceptualisation will, when they look up their manuals, interpret them in ways that fit the past. A perverse aspect of 'normal accident' instances is that in doing so, the intervention that people acting this way engage in actually worsens, instead of the intended redressing, the situation they are now co-producing. It is beyond our scope in this paper to determine whether letting Lehman go under, or saving AIG; whether preventing GM's bankruptcy or introducing TARP (Troubled Asset Relief Programme) in the USA were appropriate moves to redress the crisis, or if in effect they compounded it as is the case in Normal Accident situations.

What is clear is that prior actions to 'improve' affairs in the US did co-produce the crisis, albeit unwittingly, as normal accident framing would lead one to expect: the creation of sub-prime mortgages to enable people who could not before afford houses to do so; the disbanding of the Glass-Steagall legislation by the Clinton administration, confusing 'public utility' with 'casino' banking; the creation of CDO's and CDS's and other very complex, computer-dependent and mathematically based trading and hedging mechanisms that did not 'spread out' risk – they spread and concentrated it also. We suggest that the way strategic foresight and scenario work were used cannot logically be separated out from the collusion of these forces to co-produce the crisis. Foresight as a 'not guilty' bystander is not a credible position. Foresight was (and continues to be) part of what regulators and financial services institutions do, and the way they did it at the very least did not prevent the crisis from unfolding and at the worst was eminently complicit in bringing it about.

A first step in addressing this issue is to make it explicit and to critically establish to which extent this might be so (see also Selsky, Kees & Ramirez, 2008). We are seeking research funding to begin to understand aspects of this situation, which may lead us to fundamental questions about how risk is framed and dealt with; what are the appropriate mixes in policy and strategy responses in terms of prevention, mitigation, and adaptation; and how foresight might be deployed better. It is this last item we begin exploring in the remaining sections of this paper.

#### **4) *Don't miss a good crisis***

The tendency of late lessons from early warnings is evident in many policy arenas (EEA, 2002). While early lessons from early warnings is an appealing concept, one recent review of what is actually known empirically about how people learn in, and from crises, reports underwhelming results (Starbuck, 2009).

Starbuck's findings suggest that *"most managers have very erroneous perceptions of their business environments"*. This ought to matter to scenario planners: scenarios are about the future of the business environment. As scholars and practitioners of scenarios this insight is the equivalent of the 'half empty/half full' perspective: bad news if we think we are to correct existing perceptions (for they are wrong already); good news if we think we can improve those perspectives, as they are already in need of repair.

**4.1 Why it is difficult to learn about (and in) a crisis and what scenarios can do about it** The research Starbuck has both conducted and reviewed implies that *"learning from successes yields short-run benefits but creates long-run handicaps, and that organisations learn very little from failures"*. He proposes that *"events that appear rare to academic observers likely appear unique to learners, and uniqueness impedes learning"*.

A catastrophic crisis is - by definition - a unique event. Since it is unique, whatever one learns from it is not considered to be relevant to nor applicable in other settings. So even if one were to learn something in such circumstances, the learning would be irrelevant to other situations in which it might be applied.

Since most people it seems learn almost nothing from failures, the failures in foresight that the crisis manifests will - other things being equal - produce few usable insights: *"Managers said large failures had idiosyncratic and largely exogenous causes, and the larger the failure the more so"*. Large failures tend to develop over long times, which compounds difficulty in explaining what has happened. Finally, on the emotional side of cognition, rare events are also unhelpful to learning: *"reactions to the uncertainty (of and in rare events) include wishful thinking, substituting prior beliefs for analysis, biasing probability distributions towards certainties, searching for more data, acting cautiously, and playing to audiences"*.

We suggest that the way senior politicians, government officials, policy makers, and managers of financial organisations (insurers, banks, hedge-funds, etc.) worked up to the crisis and within the crisis largely reflected Starbuck's research.

Similar to the value of counterfactuals used in the airline industry to learn from near misses, we suggest that scenarios offer alternative futures and that the combination of alternative histories and alternative futures can help clarify the unfolding messiness of current reality. In table 1 we suggest what scenario research can do about each of the points raised by Starbuck:

Table 1  
*How scenario-based approaches can help overcome barriers to learning from crisis*

<b>Emotional reactions to rare events identified by Starbuck</b>	<b>What scenario work can do to address the difficulties these present</b>
Engaging in wishful thinking and relying on prior beliefs	Underlining that the crisis means that continuity is stopped, and that the future is not going to be the past again later, more-or-less, within a range of sensitivities or probabilities; INVENTING alternatives to path-dependent lock-in and continued dominant logic or status quo
Exaggeration of perceived probabilities	Attending to possibility more than probability and rehearsing what could be in such circumstances, so as to avoid reasoning in terms of probability
Inclination to search for more data	Scenario work knows that the uncertain future has no data about it (which is why it is uncertain), and that attending to data is irrelevant as data is located in the past. There is no fact in the future as no action has yet happened there – even if we find many people taking something ‘for’ a fact it is not yet a fact. So in uncertain futures this inclination is non-sensical
Tendency to act more cautiously	Lack of data and increased uncertainty make that a natural tendency. But scenarios create conditions in which the costs and consequences of enhanced cautiousness can be explored ex-ante, and to do so safely. So scenarios constructed to challenge this tendency may invite people that take the scenarios seriously to consider whether acting LESS cautiously may be a better stance to take, and to explore this in safe conditions.
Tendency to play to audiences	Because scenarios can be staged and exercised in private, the tendency to do this can be arrested almost totally.

**5) A confusion about plausibility**

Scenarios developed by the UK Financial Services Authority – the banking regulator- foresaw the conditions under which the failure of a major bank might occur. For example, one of the FSA scenarios involves a reappraisal of global risk where *"carry trades unwind rapidly, resulting in increased exchange-rate volatility, which could lead to significant capital losses for investors"* (FSA, 2007, p.25). In another scenario, *"the deterioration in these returns as a result of mounting arrears, particularly in the sub-prime sector, could lead to increased credit losses for these firms"* (FSA, 2007, p.27).

The FSA notes also that *"firms should also use scenario planning as part of their stress testing and business-continuity planning. However, the scenarios that we consider here are not being advocated as the 'model' scenarios that all firms should use – firms should use the scenarios that are most relevant to their business model"* (ibid, p.30). A few months later, Northern Rock – a bank which had secured significant

growth in previous years with a business model relying on liquid inter-bank credit and historically low interest rates - went bust. Perhaps the scenarios it used to stress test its business model failed to consider conditions such as those in the FSA scenarios or perhaps the plausibility of the alternatives to the business-as-usual growth scenarios of the FSA were dismissed as unlikely.

Whatever the reasons, two points are clear: (1) building scenarios, if they are not used effectively, is pointless, and (2) the effectiveness of scenarios appears to be ill-understood. Scenarios are not predictions. Whether or not a scenario remains 'on the table' and actively attended to should not rest on the likelihood of whether or not the outcomes in any particular scenario will happen. Instead, interest in individual scenarios ought to rest upon the plausibility of the causal logics embodied in the scenario and on the relevance of the logics of the set as a whole. Plausibility should not be confused either as likelihood i.e. a particular scenario coming about, nor in terms of continuity with existing circumstances. This implies that greater attention needs to be paid to the notion of plausibility as a 'co-production' between scenario builders and users, both in individual banks and the regulator and between them, and as one of the key components in the effective use of scenarios.

The centrality of probability in financial services (it is inherent in risk, its pricing, and its trading) makes it difficult for decision-makers there to seriously consider plausibility. Plausibility is not evidence-based and calculative, nor can it be reduced to probability. In financial services 'futuristic' all too often means 'unreal'. If scenarios are confused with an extrapolation of current conditions on probabilistic terms, or with theoretical counterfactuals populating parts of probability distributions that lack relevant data, they will not allow decisions based on plausibility – which we think is what the financial services sector thinking needs to escape from the trap that dependence on probability has created for it.

Scenarios as we understand them question probability models. They throw up views on when such models are untenable. Because in financial services, risk is defined on historical data, so "scenarios" generated from those roots can be called 'scenarios of the past' (van der Heijden, 2010). In the mathematical models underpinning risk calculations in finance, the ongoing relevance of historical data and of the assumptions about how such data has been grouped are not verified empirically. As Colander, Föllmer, Haas, Goldberg, Juselius, Kirman, Lux and Sloth. (2009) noted, the crisis reflects a systemic failure by economists: *"the deeper roots of this failure to the profession's insistence on constructing models that, by design, disregard the key elements driving outcomes in real-world markets. The economics profession has failed in communicating the limitations, weaknesses, and even dangers of its preferred models to the public."* In the same way, an important factor in AIG's demise as reported in the Wall Street Journal in 2008 was that the assumptions in the proprietary model it used for trading were not questioned. As long as model-based strategic decision processes among regulators, policy and decision-makers continue to misuse 'scenarios' – they will co-produce 'normal accident' behaviour. Instead, we believe that henceforth scenarios and models should constructively challenge each other. It is in questioning models that scenarios can help decision makers to surface and acknowledge uncomfortable knowledge.

**6) *The opportunity to use scenarios as a research method to learn from this crisis***

The many different perspectives concerning the causes, the nature, the scope, the consequences, the responsibilities, and the implications of the crisis, means that the way the 'crisis' is framed matters a lot.

Depending on what 'frame' is adopted, the options for action ("solutions", policies, strategies) that will be enacted will vary considerably. The present situation is messy and, despite uncertainty, contradictory certitudes abound, with each of many solutions offered from each of many different problem-focused framings of the crisis.

We suggest that scenarios can provide alternative 'frames' of the future and as reframing devices offer an effective means to clarify the current messiness. By bringing the future into the present, scenarios help avoid the traps of projecting the future as a continuation of the past. In assuming plausibility scenarios qualify the quality of modelisable analyses and 'fit' with historical data.

**6.1 *The Oxford Scenarios: Beyond the Financial Crisis*** The 'Beyond the Financial Crisis' initiative started life as a voluntary collaboration of a small group of participants from the second Oxford Futures Forum ([www.oxfordfuturesforum.org.uk](http://www.oxfordfuturesforum.org.uk)), which was held in April 2008 (OFF, 2008). One of the conversations carried forth after the Forum continued to exchange ideas about scenarios, complexity and sense-making. The conversants began to use the unfolding financial crisis as a common point of reference to deepen our understandings of the nature of the complexity in our environment and on the roles scenarios can play in relation to this. After a year of exchanges, this group decided to develop a set of scenarios.

The resulting set of two scenarios illustrates how two alternative futures (and histories) can be utilised to frame - and reframe - the crisis. This approach follows on earlier work by the first author, where scenarios were used as a method of research to explore how the perception of today's major risks to society are framed by assumptions about the future. Those scenarios highlighted different ways used by societies to organise influences on the nature and priority of perceived risks (Wilkinson, Shirin, & Eidinow, 2003)

The role scenarios have as framing and reframing devices is important to not only understand but to propose as a central service which scenarios offer, if scenarios are to enable social learning and avoid misdirecting actions. It is not only the 'what' choice of the framing that matters, but also the quality of the framing that scenarios obtain that matters. For example, the archetype scenarios deployed within the influential Intergovernmental Panel on Climate Change (IPCC Fourth Assessment, 2007) in which the 'north-south' axis depicts possibilities as '*either economic or ecologic*' has reinforced rather than revised the environment-economy tradeoff in key policy conversations for at least a decade. The 'successful' influence of framing that such scenarios have may in the end be counter-productive, in the IPCC case because it precluded options that would be both ecological and economical from being seriously considered for quite a lot of time – arguably, until Al Gore starting screening his 'An Inconvenient Truth' film.

The scenarios our OFF 2008 - derived group developed (InSIS, 2009) frame the current crisis as either a 'problem' WITHIN the financial services industry that calls for a (technocratic and policy) 'solution', or as an 'early warning' of a yet-to-come sys-

temic mess that will ENCOMPASS water, food, energy, urban, and other systems comprising the whole planetary ecology - as well as the financial system.

In so doing, we make scenarios a tool of inquiry in sense-making (Weick, 1995), a research method much more than, even instead of, a product or process or an object of study.

Used this way, the crisis itself (whatever it might be) is not an objective phenomenon, but an opportunity for complexity and interconnection - and the challenges that provides for strategic foresight to be explored and possibly re-defined. This is why we have called the article 'A canary in the mind': the mind of the financial services regulator, central bank governor, minister of finance (as is the case in the first scenario); or the minds of those concerned about how sustainable the current arrangements we have built up to sustain our lives and those of others in our planet will be. There are two minds minding what unfolds, they mind it differently, and in minding it differently consider it differently. But in both cases the canary is in the mind, alerting each mind as to the pitfalls in strategic foresight it utilises.

Assumptions are difficult to surface and inspect. Crises and their possibility invites one to do this and to consider it more important - and essential if survival is at stake. To attempt to surface the assumptions of the crisis and of the foresight devices that accompanied it, we aimed at 'staying with the problem' rather than 'finding the solution'. We tried to appreciate how and why all actors (not just those in the financial service sector, but also individual borrowers, households, business people, etc such as all members of our team) had become complicit in manufacturing and sustaining ever easier access to seemingly unlimited financial debt, at historically very low prices.

The two scenarios offer 'platforms for discussion' and describe the characteristics of two different paths that have been emerging in response to the crisis (see Table 2). The first path—*Growth*—is characterised by familiar financial assumptions and tools but with a greater degree of oversight and transparency, accompanied by a shift in regulatory structures and culture. The second path—*Health*—is based on a profound shift of emphasis from financial opportunities to the health of the financial system as a whole and its unbreakable interdependency with other systems.

*Growth* sees the financial crisis as a unique problem. This scenario explores what might happen when the system is put back on track. In *Growth*, national governments focus on restoring capital liquidity and trust in the financial system, making the invisible hand more visible. In this story, systemic risks of the future will become anticipated, wider externalities will be priced, and most debts are managed. *Growth* explores whether a greener growth path and a more risk-controlled financial system might paradoxically lead to other systems becoming brittle. The canary in the mind here has to do with how plausibility and probability can co-exist in the financial services world going forward.

*Health* sees the financial crisis as the 'canary in the mind' of twentieth-century approaches to sustained progress, economic growth, and risk management. It explores what might happen if the financial system is managed as part of a wider system. This story raises the prospects of greater systemic resilience and a slower growth world. *Health* highlights how coping with complexity in a more interdependent world requires rethinking and transformation—of systems, institutions, and many taken-for-granted concepts.

Table 2  
*Summarised comparison of The Oxford Scenarios: Beyond the financial crisis*

	<i>Growth</i>	<i>Health</i>
<b>System Assumptions</b>	Equilibrium—independent, closed systems	Dynamic complexity—interconnected, open systems
<b>System Objectives</b>	Sustained <i>Growth</i> —increasing national efficiency	Vigorous <i>Health</i> —increasing systemic resilience
<b>Tools</b>	GDP, stock price, CO2 emissions, real-time intervention	Feedback loops, critical linkages, early warning systems for emerging risks, adaptive capacity, redundancy
<b>Approach to Environment</b>	Based on optimising separately for each environmental issue; risk management	Based on recognising a complex, interconnected environmental-economic-social system

Both scenarios are equally plausible. In each the crisis alerts us to tacit assumptions. As a set they offer incompatible, yet plausible framings of the crisis. From the point of view within each of the scenarios, the assumptions made in the other scenario are nonsense.

**7) Implications for scholarship and practice**

**7.1 Scholarship** As our reflections show, scenario work is not always used properly or with a clear purpose. In our view, scenarios should not test the sensitivities within a financial model (or any other form of formal model) or about the financial system - those should be called counterfactuals to avoid confusion.

Instead, scenarios will serve their potential best if they are deployed to question the model and/or system its assumptions, and determine the conditions in which the distribution of the model or relationships within and boundary of the system no longer apply.

An important challenge in scenario work is not only to avoid the misapplication of probability in systemic risks analysis but also to attend to the co-production of plausibility, between builders and users of scenarios.

Scenarios need to be treated as both outputs and inputs in a wider intervention in order to be effective. In essence, we see the role of scenarios as a means to improve the quality of judgment rather than avoid it. In suggesting that scenarios can render explicit and questionable metaphors such as 'frames' and 'platforms', we are proposing that scenarios can be better understood as a means to ask better questions, not as analytical 'products' or 'tools' for decision testing. This articulates Kaplan's (2008) suggestion that it is important to attend to the important role in strategy, where the contesting of multiple frames is welcomed.

Our recommendations for scholarship on scenarios are as follows:

- Scenarios ought to be studied as social, embedded processes of framing and assumption surfacing, as enabling sense-making, rather than analytical products or techniques
- Turbulent fields make it useful for grounded theory and engaged scholarship to be deployed to appreciate the strengths of different epistemological and onto-

logical assumptions, so as to prevent premature foreclosure and enhance effectiveness (Ramirez et al, 2008). There is value in engaging beyond the futures field, to other walks of life, as demonstrated by the productive value of the first two Oxford Futures Forai.

- Keeping up with a highly innovative field also requires that we reconsider research methods to include more engaged scholarship and reflective practice
- Many practitioners already recognise the dangers of extending 'best practices' from corporate and military planning contexts to new and systemic contexts e.g. multi-lateral, inter-organisational, cross-sectoral, multi-stakeholder. However, there is limited literature or research pertaining to scenario work beyond the organisational level, e.g. at the field level and in nascent contexts of multi-stakeholder, so-called 'public interest' project-based interventions (Wilkinson & Eidinow, 2008). Again, this is a gap we are actively researching.

### 7.2 Practice

- Attention to Scenarios as frames and their role in policy and strategy processes in which frames are contested would help organisations such as the FSA to better use the investment in scenarios they undertake.
- Scenarios should seek to highlight and extend the value of alternative histories/counterfactual frames, as they support the learning in developing and using alternative futures which scenario work entails.
- In considering scenarios as framing devices, it is essential to be most attentive and critically reflexive about anything related to power, and not just the quality of strategic conversation.
- This essay suggests that explicitly situating scenarios as context setters is of help. Here scenarios are neither an output nor an input, instead they are boundary/transitional objects developed in embedded sense-making processes or purposeful interventions.

### 8) Concluding remarks: scenarios as better foresight or a role in better preparedness?

Futures practices have always been in a race with an ever complexifying world and the gap between effective practice and need seems especially large today.

The promise of deploying scenario-based approaches, interventions aimed at appreciating and addressing normal accidents and systemic risks, to help individual organisations to engage with turbulent field conditions, is not yet being realised as fully as one might expect (Ramirez et al, 2008).

A variety of lineages, methods and tools aimed at enabling and harnessing foresight have emerged. The current era is perhaps best characterised by an ongoing contest between those seeking 'better proactive foresight' and those arguing for 'better reactive preparedness'. This contest, in turn, is providing alternative ways of perceiving the role and value of scenarios and the practice of scenarios.

With better proactive foresight, some remain confident that we can eventually, with new tools and new approaches, master a new and more effective approach to foresight, with increasing reliance on smart monitoring systems and automated systems that act on behalf of human actors. They place confidence in scenarios developing on a more scientific and rigorous basis, as an analytical product aimed at problem-

solving in competition with other methods and practices e.g. crowd sourcing methods (prediction markets, IT-enhanced monitoring and horizon scanning systems).

With better reactive preparedness, others anticipate that there may well be a category of events that are simply "unknowable" and no positivist or reductionist approach will capture these results. Scenarios here are about creating options for action, readying multiple responses.

Building on Ackoff's work (1974), who found a 'third way' through interactive planning and design (see also Normann & Ramirez, 1993 & 1994) we suggest that deploying scenarios as framing/reframing devices and social learning processes is in and of itself a form of purposeful intervention. Here scenarios are neither the beginning (as in the reactive mode) nor an end in themselves (in the proactive mode). In this perspective successfully deploying scenario work must overcome several challenges, which include:

1. Extending the applicability of scenario work beyond its traditional context (i.e. for single organisations) to inter-organisational situations;
2. Centering the approach to futures and uncertainty more on plausibility than probability, and better understanding of how plausibility can be collectively established.
3. Facing up to uncomfortable knowledge of possibilities such as 'normal accidents' (where the accident has been unwittingly built into a system, but without anyone realising it is there until it is too late and the accident unfolds); systemic risks and sudden, unexpected crisis have become the norm. In these circumstances, which have been described as 'Post-normal science' (Funtowicz & Ravetz, 1993), conventional crisis and risk management fail.
4. Insights produced through scenario work can be tested through prototyping, in situations that simulate those in the scenario, should it unfold. But many organisations fail to do this prototyping. They fail to engage in courageous experiments, or to become progressively familiar with clumsier governance arrangements. This failure shuts out opportunities for futures thinking and practices to enable effective institutional innovation, to establish adaptive capacity, to 'unlock' existing situations, and/or to develop more 'sustainable' socio-technical systems.

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## Notes

1. Canary Wharf, in London, got its name from the import of products from the Canary Islands. Today, Canary Wharf rivals London's traditional financial centre, The Square Mile. It contains the UK's three tallest buildings and its tenants include major banks, such as Barclays, Credit Suisse, HSBC and Citigroup. It used to be home to the European headquarters of AIG.
2. Psychologist, John Scott Haldane, pioneered the use of canaries in coal mines to detect the presence of carbon monoxide. His research led to the discovery that gas poisoning affected small birds and animals more quickly than men, due to their faster metabolism. By deploying canaries in cages in coal mines, his work established an 'early warning system' that enabled miners to escape catastrophe. Similarly, we suggest, scenarios can be deployed as 'canaries in the mind' to help test where our (often implicit) assumptions about the future, and its role in the present, are wrong and enable the time to develop a better course of action.
3. The aim of the Oxford Futures Forum, established in 2005, is to bring together the under-theorised field of scenario practices with 'another walk of life' in a generative dialogue that aims to reveal (grounded) theory and contribute methodological insights that have impact on and value to practices in the 'real' world. The first Oxford Futures Forum brought together the Causal Textures Theory and scenario practices and produced two books. The second OFF, in April 2008, as already indicated, brought together scholars and practitioners in two different communities: 'scenarios' reflecting the legacy of Pierre Wack and the so-called Shell 'intuitive logics' method of scenarios (Wack, 1985) and 'sensemaking' in the tradition established by Karl Weick in his work related to high reliability organisations (Weick, 1995).

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