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Potential surprise theory as a theoretical foundation for scenario planning

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ABSTRACT

Despite some recent progress, scenario planning's development as an academic discipline remains constrained by the perception it is solely a practical tool for thinking about the future, with limited theoretical foundations. The paper addresses this issue by showing that G. L. S. Shackle's 'Potential Surprise Theory' (PST) contains much that can lend theoretical support to scenario planning - especially its use of plausibility rather than probability, and its focus on potential extreme outcomes. Moreover, PST and scenario planning share the same ontology, viewing the future as constructed by the imagination of individuals. Yet, under PST, while the future is imagined and, therefore, subjective, individuals nevertheless seek to identify the 'best' option through a deductive process of elimination. PST therefore assists in overcoming the divide between the constructivist and deductivist perspectives in scenario planning as it employs both. Finally, the paper shows that theoretically underpinning scenario planning with PST would place it at the heart of contemporary debates on decision making under uncertainty taking place in economics and other fields, enhancing its status and profile as a discipline.

1. Introduction

Scenario planning is a tool for considering the future that is widely used by business and government (Derbyshire and Wright, 2014, p.215; Evans, 2011, p.461; Chermack and Swanson, 2008; Weimer-Jehle, 2006, p.335; Bowman, 2015, p.79; Bradfield et al., 2005). Yet, despite this, scenario planning has not yet become a fully-developed academic discipline. One reason is argued to be the perception that, despite recent efforts to provide it with a more solid theoretical underpinning, scenario planning remains a practical tool with limited theoretical foundations (Dragos Aligica, 2005; Wilkinson, 2009).

Chermack, some time ago, commented that 'the status of theory development in the area of scenario planning is dismal' (Chermack, 2002, p.25) and that there is insufficient development of theory to support the 'fast growing' practice of scenario planning (Chermack, 2005, p.60). However, some progress has been made in addressing this issue in recent years - for example, by Phadnis et al. (Phadnis et al., 2014), who have recently set out an explicit set of theoretical axioms for scenario planning in this journal. Similarly, a number of augmentations to the 'standard' Intuitive Logics' (IL) approach to scenario planning have been set out in the recent literature, and the case for making these adaptations has drawn on theoretical discussions related to, for example, structuration theory (MacKay and Tambeau, 2013), indeterminism (Derbyshire and Wright, 2014; Wright et al., 2013; Wright and Goodwin, 2009) and complexity theory (Wilkinson et al., 2013), thereby adding more theoretical flesh to the practical scenario-planning process. Yet, despite this, it is still widely held, including by those having carried out what theoretical work does exist, that scenario planning remains underdeveloped theoretically. For example, Phadnis et al. (Phadnis et al., 2014) state that there remains a 'lack of theoretical grounding' for scenario planning, and Bowman (Bowman, 2015, p.79), writing very recently, implies the same.

Bradfield (Bradfield, 2008) suggests that this 'lack of theoretical grounding' has come about because the growth in popularity of scenarios has happened for practical rather than theoretical reasons. Godet (Godet, 1990) similarly states that 'theoretical research and sophisticated tools have been neglected in favour of multiple applications' and Bowman (Bowman, 2015) notes that 'an absence of theoretical belonging has left scenario-based approaches drifting between a multitude of frameworks'. The implication in each instance is that scenario planning requires more solid theoretical foundations to rectify this issue. Indeed, Kuhn (Kuhn, 1962), in his work on the evolution of scientific paradigms, showed that a lack of commonality in terms of practical approaches, as is evident in relation to scenario planning (Bowman, 2015), is an indicator of a discipline that remains in theoretical flux and is yet to coalesce around a commonly-agreed theoretical standpoint. When the latter finally occurs, the discipline stabilises and proliferation of practical methods is reduced, for a time at least. Scenario planning has not yet reached this stage and the expectation is that a clearer theoretical underpinning is needed for it to do so (Dragos Aligica, 2005). Rather than a set of rigid axioms, this theory would likely consist of a set of generally agreed-upon over-arching principles that guide the implementation of scenario planning as it is tailored to suit the particular context in

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which it is applied. While a number of different approaches would remain, reflecting the manifold contexts in which scenario planning is applied, these over-arching principles would be the common thread that joins them together.

Yet, theoretical frameworks that could potentially fulfil this role have already, from time-to-time, been identified, only to remain undeveloped and, eventually, forgotten. For example, Loasby (Loasby, 2011) has recently noted that as long ago as the 1980s scenario planners working at Royal Dutch Shell recognised the similarity between the non-orthodox economist G. L. S. Shackle's theory of 'potential surprise' (Shackle, 1938, 1943, 1945, 1949a,b,c,d, 1950–1951, 1952, 1953, 1955a,b, 1958, 1959, 1961, 1967, 1970, 1972, 1979, 1980, 1983, 1984; Earl and Littleboy, 2014) and scenario planning. Shackle himself also recognised the similarity, as evidenced by private correspondence to Shell's then Chief Economist, Michael Jefferson (Jefferson, 2014, p.210), in which Shackle refers to the 'essential unity' between his ideas and scenario planning as then practiced at Shell. However, subsequent to highlighting this fact, Jefferson goes on to note (Jefferson, 2014) that 'as I look [today] at the 30 or so books on my shelves focussed on scenarios…not one refers to George Shackle'. Shackle's extensive corpus of work, then, is a prime example of a potential theoretical framework for scenario planning which has gone undeveloped and largely overlooked by scenario planning scholars. Those researching within the field continue to bemoan scenario planning's limited theoretical foundations, not realising that a theoretical framework capable of lending strong support to scenario planning has been in existence for many decades already.

As this paper will show, the failure to develop the link between Shackle and scenario planning is a significant oversight. The connection between Shackle's theoretical ideas and the practical tool that is scenario planning is, if not one of 'essential unity' as Shackle put it, then at least one of considerable consilience. It is sufficient, at least, for Shackle's theorising to contribute significantly to the creation of a theory of scenario planning, and, potentially, it is adequate to form the central plank of such a theory. In short, Shackle's PST can potentially provide a significant part of the theoretical backbone needed to frame discussion on scenario planning, facilitating its stabilisation and development as an academic discipline, and assisting in reducing the current proliferation of practical approaches. This potential, however, requires consideration and discussion among scenario planning scholars, which this paper aims to stimulate.

In this vein, Shackle's ideas are particularly salient to recent (and long-running) debates on the use of plausibility compared to probability in scenario planning (Ramirez and Selin, 2014; Millett, 2009). As practiced at Shell, scenario planning exclusively employed plausibility (Jefferson, 2012) and this was a primary reason for the 'essential unity' Shackle identified between PST and scenario planning. PST provides a detailed theoretical justification for the use of plausibility; it also provides a theoretical bolster to justify scenario planning's focus on extreme outcomes. PST and scenario planning share the same ontology, viewing the future as constructed by the imaginings of individuals - implying a strong indeterminism - rather than existing objectively as a fully-specifiable choice set. Yet, under PST individuals constructing the future through imagination nevertheless seek to deductively identify the best (subjectively conceived) option; PST therefore assists in overcoming the divide between the constructivist and deductivist perspectives on scenario planning, which currently acts as a constraint on its development as a discipline (Wilkinson, 2009; Millett, 2009).

To summarise, the paper therefore has the following objectives:

1) To show that theoretical considerations are not divorced from practical ones when it comes to scenario planning; the two affect, and are affected by, each other. We argue that, despite some progress made in recent years, scenario planning remains theoretically underdeveloped, and that the lack of agreement in relation to scenario planning's theoretical underpinning has led to a proliferation of methods and approaches. This can only be reduced by detailed empirical work to identify those techniques that have the most efficacy. Yet, empiricism of this type firstly requires a certain level of theoretical development. Scenario planning may therefore be stuck in something of a cleft stick in which a reduction in the proliferation of techniques and a more theoretically-settled discipline requires greater empiricism; yet, for this to occur, there has to be at least some initial agreement on what should be empirically tested, which in turn requires a certain amount of initial theoretical common ground. The paper shows that PST contains much of use in establishing this theoretical common ground.
2) To provide a brief outline of PST and the aspects of it that led Shackle and those working at Shell in the 1970s and 1980s to consider it the theoretical manifestation of the practical technique of scenario planning. Central among these aspects is PST's rejection of probability as a means for considering the future, the reasons for which are explained in detail through a discussion of what Shackle referred to as 'crucial decisions', which are *not* amenable to probabilistic methods, in contrast to what he called 'divisible, seriable experiments', which *are* amenable to probabilistic approaches to decision making. The former is the realm of fundamental uncertainty with which scenario planning is concerned, the latter is instead the realm of risk, in which conventional forecasting techniques are more applicable. The paper shows that ever since the advent of subjective expected utility theory - the foundations for which were laid by Savage (Savage, 1950; Savage, 1954) at approximately the same time that Shackle was setting out PST in the 1950s (Basili and Zappia, 2009; Zappia, 2014; Basili and Zappia, 2010) - mainstream economists, and those in other disciplines that seek to mimic their approach, have made no distinction between fundamental uncertainty and risk, assuming that both can be dealt with in the same way using probabilistic (albeit, subjective probabilistic) techniques. However, the view that risk and fundamental uncertainty are essentially the same and do not require different treatment is increasingly questioned, thus bringing Shackle's ideas back to contemporary prominence (Basili and Zappia, 2009). For this reason, building scenario planning's theoretical foundations on PST situates scenario planning at the heart of contemporary discussions on uncertainty and how it can be dealt with, taking place in fields such as decision making and economics. Becoming part of this broader discussion can enhance scenario planning's status and profile, assisting in its development as a disciple.
3) To show how PST is able to lend theoretical support to other (i.e. not only the use of plausibility) important aspects of the Intuitive Logics approach to scenario planning, such as its focus on potential extreme outcomes, and to show that PST and scenario planning share the same ontology, viewing the future as constructed by the imaginings of individuals, rather than existing objectively as a fully-specifiable choice set. As such, both PST and scenario planning place indeterminism stemming from free will and choice at the centre of consideration of the future; however, both also envisage this indeterminism as bounded, rendering anticipation of the future possible.
4) To show how scenario planning theoretically underpinned by PST accommodates both a constructivist and deductivist perspective, resulting in an abductive scenario planning, as advocated in the recent scenario planning literature. And to evidence a link between PST and the antifragile approach to dealing with uncertainty (Taleb, 2001, 2007, 2012), which has recently been transformed into a novel approach to scenario planning (Derbyshire and Wright, 2014).

It should be emphasised that, in exploring the potential for Shackle's ideas to provide a theoretical foundation for scenario planning, the paper does *not* downplay the importance of scenario planning's practicality. In accordance with Shackle's own view (Jefferson, 2014), the view adopted here is that scenario planning's 'real world' practicality is its main strength. However, as described in the next section, this