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Augmenting the intuitive logics scenario planning method for a more comprehensive analysis of causation

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ABSTRACT

This paper shows that, in practice, the standard approach to scenario planning, known as 'intuitive logics', is overly focused on uncovering causes of one type, known as 'efficient cause'. We outline and apply a broader consideration of causes, leading to a more sophisticated analysis of uncertainty. Our focus is on the incorporation of Aristotle's nuanced analysis of causation. We incorporate the features of our augmented scenario development approach in a practical step-by-step methodology, and draw out several implications for expert knowledge elicitation.

1. Introduction

Scenario planning is a technique for thinking about the future that is employed widely by both business and government organizations. It is designed to broaden and challenge decision-makers' perspectives, allowing them to reconsider the standard assumption of 'business-as-usual' (van der Heijden, 2000; van der Heijden, Bradfield, Burt, Cairns, & Wright, 2002).

In a review of the literature, Wright, Bradfield, and Cairns (2013) found that the three main objectives of the application of scenario methods are to: (i) *enhance our understanding* of the causal processes, connections and logical sequences underlying events, thus uncovering how a future state of the world may unfold; (ii) *challenge conventional thinking*, that is, reframe perceptions and change the mindsets of those within organizations; and (iii) *improve decision-making*, so as to inform strategy development. Wright et al. (2013) emphasize that understanding the connections, causal processes, and logical sequences which determine how events may unfold to create different futures, will challenge conventional thinking and will also prove of benefit in improving organizational decision-making and strategies.

As such, scenario methods are often qualitative in approach rather than quantitative, and are targeted at providing, side-by-side, alternative views of the nature of a broad-brush future, where these views are elicited from problem experts within a scenario team. This approach is in sharp contrast to the common aim of expert knowledge elicitation (EKE) methods, where the focus is on quantifying experts' single-point estimates of uncertain quantities, with some experts' judgments potentially being given more weight in the combination (c.f. Aspinall, 2010; Bolger & Rowe, 2015; Morgan, 2014). Another difference between the scenario approach and typical EKE yields is that scenario planning has no objective standard against which to calibrate the validity of individual experts' judgments. In scenario planning, the focus is often on the distant future, and the scenarios themselves are not forecasts but very different alternative plausible futures that are intended to 'bound' the range of future possibilities, with each individual scenario (if thought of as an intersection of many events) having an infinitesimal likelihood of occurrence. In

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addition, scenario planning also combines individual expert opinion informally, often within a workshop setting. In such situations, the scenario team facilitator's role is to generate a divergence of opinions, before finally facilitating the convergence of these opinions into (usually) four scenario storylines. See Wright and Cairns (2011) and Wright et al. (2013) for more details of the scenario method.

There are a number of alternative approaches to scenario planning (see Bradfield, Wright, Burt, Cairns, & Van Der Heijden, 2005), but the one applied by far the most commonly is that known as 'intuitive logics' (IL); see Schwartz (1991), Foster (1993), and Vanston, Frisbee, Lopreato, and Poston (1977) for examples of the diversity within the IL approach. IL is a plausibility-based approach that enables participants, usually within a workshop setting, to create narratives that describe unfolding chains of causation, which resolve themselves into sets of distinct future outcomes, usually four (Goodwin & Wright, 2010; Phelps, Chan, & Kapsalis, 2001). Because it is based on plausibility rather than probability or projection, it is argued that a key advantage of IL over forecasting is its ability to facilitate the management team's consideration of challenging futures (Wright & Cairns, 2011; Wright & Goodwin, 2009).

Bradfield et al. (2005) identified four main areas of usefulness of scenario work: making sense of a particular puzzling situation; strategy development; anticipation; and adaptive organizational learning. The flexibility of the IL method lends itself to a wide range of scenario purposes, whether descriptive or normative, the scope of which can be either extremely broad, as in the development of global scenarios, or narrow, if focussed on the viability of a single focal organization. See Wright and Cairns (2011) for a discussion of the importance of defining an 'issue of concern' clearly at the start of any scenario enquiry. The present paper's discussion focuses on the causes of transformation in the business environment, and therefore we consider our arguments and conclusions to be applicable to all purposes that are inherent in scenario work.

Recently, the effectiveness of IL in providing the benefits of both understanding causality and challenging business-as-usual thinking has been questioned (Wright et al., 2013). In addition, IL has been shown to be deterministic (Derbyshire & Wright, 2014), in that 'surprise' futures that have no salient causal linkage to participants' present viewpoints are not considered. Reflecting this inherent determinism, IL has been shown to increase the focus on the scenario workshop participants' perspectives as to the full range of plausible futures, which may be overly narrow (Wright et al., 2013). Finally, the IL method has been shown to lead to an increased confidence in views of causality that may be mistaken (Wright & Goodwin, 2009).

The present paper argues that many of these problems stem from a contradiction that is at the heart of IL. Specifically, it purports to be a technique for thinking about the future that eschews prediction; yet, in practice, its foundations can be viewed as being built upon a predominant focus on causes of one type, known as 'efficient cause'. As we shall argue, this over-focus on efficient cause is one of the main factors that leads IL to narrow decision-makers' perspectives as to the range of plausible futures, rather than broadening them, as intended.

We argue that, in order to resolve this contradiction, it is necessary to rethink the IL approach to developing scenarios, such that it does not narrow the perspective by focusing on only one type of cause. A nuanced and sophisticated attempt to grapple with the inherent uncertainty of the future requires us to consider as full a range of *different* types of causes as possible, and to be aware of the conditions under which identified causes lead to unexpected outcomes, due to contingent conditions or countervailing factors. We outline the underpinning logic for, and practical application of, augmentations of the current 'standard' approach to IL so as to enhance the analysis of causality. Our focus is on the incorporation of Aristotle's nuanced analysis of causation.

In the next section of this paper, we provide an overview of the conventional IL scenario development process and demonstrate its reliance on the identification of efficient cause. Section 3 then shows the limitations of this focus. Section 4 demonstrates how the scenario development methodology can be augmented to take into consideration a much broader set of causes. Finally, Sections 5 and 6 develop and demonstrate a practical augmented IL scenario development process which incorporates the broader cause set. Thus, our paper enhances the analysis of cause within the scenario process.

2. The current foundations of scenario development

2.1. The 'standard' IL approach to scenario development

While there are many different approaches to scenario construction, Postma and Liebl (2005) have shown the predominant approach to be that known as 'intuitive logics' (IL). Following Ramirez and Wilkinson (2014), the present paper refers to IL as the 'standard' approach to scenario planning.

In chronological order, the approach requires the scenario team members to identify an 'issue of concern' at Stage 1, and predetermined elements and critical uncertainties at Stage 2. This identification is initiated by asking the scenario team to consider each of the six PESTEL dimensions in turn (political, economic, social, technological, environmental, and legal). These separate driving forces, of which there are often over 200 in a typical scenario exercise (c.f. Bradfield, Cairns, & Wright, 2015; van der Heijden et al., 2002; Wright, Cairns, & Goodwin, 2009), are then re-composed into clusters of 'related' forces, at Stage 3. This clustering is achieved across the PESTEL dimensions by linking individual forces through 'arrows of influence' (as is illustrated in Fig. 1).

This allows the generation and naming of causally-linked clusters of elements that are largely independent of one another. In Stage 4, two 'extreme' but plausible sets of outcomes are defined for each of the clusters. Stage 5 involves the identification of those cluster headings that combine: (i) a high impact on the focal issue of concern (usually the viability of the host or focal organization), and

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