Creating narrative scenarios: Science fiction prototyping at *Emerge*

Michael Burnam-Fink *

Arizona State University, Human and Social Dimensions of Science and Technology, Consortium for Science, Policy & Outcomes, PO Box 875603, Tempe, AZ 85287-5603, United States

A R T I C L E   I N F O

A B S T R A C T

Scenarios are stories. In the diverse field of scenario planning, this is perhaps the single point of universal agreement. Yet if scenarios are stories, their literary qualities are often underdeveloped. Scenarios used in business and government frequently do not contain a relatable protagonist, move a plot toward resolution, or compellingly use metaphor, imagery, or other emotionally persuasive techniques of literature. In these cases, narrative is relegated to an adjunct role of summarizing the final results of the workshop. While this neglect of narrative may be reasonable in some contexts, the power of narrative should not be underestimated. Scenario planning methodologies can benefit from using diverse narrative techniques to craft compelling and infectious visions of the future. This article explores the relationship between science fiction and scenarios as story genres and investigates a creative story-telling technique, "Science Fiction Prototyping" (Johnson, 2011). While the method is promising, it is an ultimately problematic means to incorporating narrative into scenario planning.

© 2014 Elsevier Ltd. All rights reserved.

1. Introduction

The development of scenario narratives is a complex task requiring substantial expertise and resources. The weight and relevance of narrative depends on the purpose that the scenarios are intended to serve within and outside of an organization. While the final output of a scenario might be new options or better decision-making, a crucial interim step is often rendering a story. As scenarios are typically developed by a small group (e.g. a strategic planning commission, executive management), and then disseminated to a broader community for implementation (e.g. the public, external stakeholders), they must be credible and persuasive to have an impact on the future course of events. Narrative is an important mechanism through which meaning coalesces and is conveyed. Therefore scenario methodologies should be scrutinized with attention to how story telling can be best incorporated into the process.

The application of creative and literary techniques is an emerging issue in the development of scenario methodologies. A recent issue of *Technological Forecasting & Social Change* explores the use of creative prototyping in forecasting projects for urban design, 3D printing, networked economy, robotics, and organizational developments, as well as theories for using tacit knowledge in forecasting while avoiding tacit biases. (Graham, Greenhill, & Callaghan, 2014) "Crime Sourcing" uses a short story to explore the workings of a crowd-sourced system for solving murders (Graham and Mehmood, 2004). In *Futures*, Bell

* Tel.: +1 818 261 1916; fax: +1 480 727 8791.
   E-mail address: mburnamf@asu.edu

et al. describes classic science-fiction such as the works of Arthur C. Clarke as "applied fictions" which inspired technological development and provoked dialogue about the direction of the future (Bell, Fletcher, Greenhill, Griffiths, & McLean, 2013). Wright et al. review "intuitive logics" scenario methods, concluding that causal logic, which combines thinking forwards from the present as well as backwards from a forecast future, should be critiqued at each step by dialectical inquiry to develop more robust and fully understood scenarios, arguing that narrative should be reinforced with structured argumentation to produce best results (Wright, Bradfield, & Cairns, 2013). Story telling has long been a central ingredient in scenario planning, with key players, such as Shell, hiring professional story tellers like Betty Sue Flowers to work with management to better imagine scenario stories (Flowers, 2003). Despite this recent surge of activity, sustained attention to more creative ways and new techniques to tell stories in the context of scenario development has been sparsely tended to in the literature, with notable exceptions of Johnson's Science Fiction Prototyping (Johnson, 2011), Bleecker's Design Fictions (Bleecker, 2009), and Shearer's application of the dramatic pentad to scenarios (Shearer, 2004).

Science Fiction Prototyping is one creative narrative technique which has received a significant degree of attention in the commercial sector. In ordinary use, prototypes are ways for engineers and designers to understand the details and complex interactions of emerging technologies, as an iterative step toward the finished product. As developed by Brian David Johnson, a futurist at Intel, Science Fiction Prototypes are a way for engineers to think humanistically about the technologies they are developing, and to link the imaginations of product developers and future users. Science Fiction Prototypes are short works of fiction, grounded in scientific fact, crafted for the purpose of starting a conversation about the implications, effects, or ramifications of technology and the future. These prototypes use literary techniques to test the development of a new technology, evoking some of the complexity and messiness of the real world through the affective and emotional lenses of fictional characters impacted by a changed future (Johnson, 2011).

The summoning of "science fiction" in Science Fiction Prototyping invites revisiting the relationship between scenarios as stories and science fiction as a literary genre. This paper will extend the engagement between scenarios and science fiction by discussing why story matters for scenario planning and how science fiction can aid in thinking about the future. Next, Science Fiction Prototyping is described as a process methodology, drawing from the author's ethnographic studies into the technique at an event at Arizona State University, *Emerge: Artists and Scientists Redesign the Future* which occurred in March of 2012. Drawing on ethnographic data enables a more in-depth accounting for the workings and dynamics of the approach, and creates an opportunity to analyze the risks and trade-offs of the creative technique and its relevance for scenario planning.

2. Why story telling matters in scenario planning

Theories of scenario planning have described scenarios as aids for reperceiving (Wack, 1985), decision wind-tunnels (Lempert, Scheffran, & Sprinz, 2009), and memories of the future (Weick, 1995), but in all cases they serve as a way of a method for turning the unknown into a resource for strategic planning. By extrapolating the interplay of driving forces, predetermined elements, and critical uncertainties, a set of scenarios spanning the space of plausible futures is developed and fleshed out (Schwartz, 1996). Scenarios are about creating representations of the future, and evaluating the quality and consequences of those representations. The scenario process is both analytic and synthetic, as it seeks to reduce the overabundance of available knowledge to the most critical elements, and then blend combinations of those elements to create possible futures. These three tasks place divergent demands on scenarios and their generative methodologies. The 'gentle art of reperceiving' is internally focused, requiring the long-term presence of senior decision makers in settings where they feel secure enough to recognize unsustainable assumptions and adjust their mental models. A decision wind-tunnel tests plans against many possible scenarios so that strategies that are robust across many potential futures can be identified. These memories of the future provide guidance, serving as a compass that keeps an organization on track in times of turmoil.

The results gleaned from scenario exercises are thus varied: a new perceptual frame, a test of plans, an experience that creates shared values. Yet a common problem in the use of scenarios is sharing the insights generated in the workshop with a broader community. Molitor, as a means of provoking a discussion on the relevance of scenarios in the *Journal of Future Studies*, argued that in his 50 years of scenario practice, many of his scenario exercises were dismissed as 'paper bluster' by hard-headed managers (Molitor, 2009). Molitor's assessment of this problem with scenarios methodologies lies on the consumption side: getting others to take up scenario-based knowledge about the future without being involved in the often lengthy process of building scenarios collaboratively.

One entry point into this dilemma is helped by a look towards Selin (2006a), who frames this problem by characterizing scenarios as lacking in neither the domain of truth nor accuracy, but rather that of *trust*. "Trust is a psychological state comprising the intention to accept vulnerability based on upon positive expectations of the intention or behavior of another" (Rousseau, Sitkin, Burt, & Camerer, 1998). In scenario planning, those making plans must trust that the scenarios will not lead them into a mistake, yet "Our central means of establishing trust—relying on previous positive, reassuring experiences, or gathering of factual evidence, are thwarted when we deal in future terrains" (Selin, 2006a). Selin develops the various dimensions of trust that impact scenarios: Sources, content, methodology, dissemination, and narrative. Sources, the people involved in the scenario are the first aspect. Better known sources are more trusted, and people trust themselves most of all, forgiving major lapses in logic as long as they originate within the group. Content credibility refers to the strength and reliability of the data and information used to generate the scenarios. Methodological trust refers to the process used to create the scenario, that there are identifiable steps that proceed logically from beginnings to ending. A chaotic or unclear