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## Science fiction prototypes: Visionary technology narratives between futures



Frances Bell<sup>a</sup>, Gordon Fletcher<sup>a</sup>, Anita Greenhill<sup>b,\*</sup>, Marie Griffiths<sup>a</sup>, Rachel McLean<sup>c</sup>

<sup>a</sup>Salford Business School, University of Salford, The Crescent, Salford, M5 4WT, United Kingdom

<sup>b</sup>Manchester Business School, Booth Street West, Manchester, M15 6PB, United Kingdom

<sup>c</sup>Liverpool John Moores University, Mt Pleasant, Liverpool, L3 5UZ, United Kingdom

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### ABSTRACT

Futures research has lived up to Wells' prediction by becoming a legitimate scholarly discipline. In this paper, we explore the role of science fiction in creating prototypes of imagined and better futures evident in these narratives even when they are distinct from the futures they predict. We explore the contributions and warnings of utopian and dystopian stories to the development and the specific realisation of future business visions. By drawing on Mannermaa's framework, a selection of science fiction writings, and the description of sources for innovations, we are able to examine the impact of prototyping on business management. Within this paper we describe scenarios as the mechanisms that test strategic direction while the prototype offers a mechanism for the analysis of business vision.

We explore the synergy that exists between creative fiction authors and futurologists, discussing the predictive elements and the source of inspirations for innovators. We argue that while business futurologists appear to offer pedestrian "predictions" and future models, the most impact is achieved with views of the future that are presented as prototypical stories; stories that plant a seed that germinates and comes to fruition in a more distant future.

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## 1. Introduction

At the beginning of the 20th century, H.G. Wells anticipated that futures research would become a "scientific discipline" [1] cited in Ref. [2] as indeed it has. This development was fuelled to some extent by post-World War 2 uncertainty and the need to deal with complex technologies in an uncertain world. Nearly seventy years after Wells' prediction, the editorial in the first issue of *Futures* noted that:

Rapid change has affected human thought in another way. The future is no longer regarded as predestined – an existing landscape that will be revealed to us as we travel through it. It is now seen as the result of the decisions, discoveries, and efforts that we make today. The future does not exist, but a limitless number of possible futures can be created. From this mode of thought it is a natural step to the idea of establishing desirable goals towards which we can

\* Corresponding author. Tel.: +44 161 2003508; fax: +44 161 3063505.

E-mail addresses: [frabell@gmail.com](mailto:frabell@gmail.com) (F. Bell), [g.fletcher@salford.ac.uk](mailto:g.fletcher@salford.ac.uk) (G. Fletcher), [A.Greenhill@manchester.ac.uk](mailto:A.Greenhill@manchester.ac.uk) (A. Greenhill), [m.griffiths@salford.ac.uk](mailto:m.griffiths@salford.ac.uk) (M. Griffiths), [R.McLean@ljmu.ac.uk](mailto:R.McLean@ljmu.ac.uk) (R. McLean).

deliberately work, ranging from the conception of a desirable [but feasible] form of transport to the scenario for a desirable society [3].

This utopian focus on the creation of a better society echoes writing throughout history, notably Plato's *Republic* and More's *Utopia*, that each outline a particular vision of a 'better' society [4,30].

In this paper, we explore the role of science fiction in creating prototypes of imagined and better futures that are evident in these narratives even when they are often distinct from the futures they predict. We explore the contributions and warnings of utopian and dystopian stories to the development and the specific realisation of future business visions. By examining technological predictions found in various works of fiction and exploring the degree to which they have contributed to the political and intellectual development of human societies, we set out to understand how these trajectories have been shaped by intersecting relationships between technological development and works of fiction. We explore the synergy that exists between creative fiction authors and futurologists and discuss the predictive elements of science fiction-writers as well as futurologists and the source of inspirations for innovators. We argue that while business futurologists appear to offer pedestrian "predictions" and future models, the most impact is achieved with views of the future that are presented as prototypical stories that plant a seed that germinates and comes to fruition in a more distant future.

### 1.1. Approaches to futures research

Futures research has lived up to Wells' prediction by becoming a legitimate scholarly discipline. Sustained scholarly attention accelerated in the 1960s with the growing complexity of business and global problems.

Mannermaa [5] characterises futures research into three paradigms:

- *Descriptive* – historicism that assumes that laws of historical evolution can be used to present a view of the future.
- *Scenarios* – that assume that the future is not wholly predictable and constructs alternative futures.
- *Evolutionary* – that assumes complexity and conceives of [the present and] the future as multiversal realities that are examined and developed through prototypes.

By drawing on Mannermaa's framework, and a selection of science fiction writings as well as the description of sources for innovations offered by contemporary innovators, we are able to examine the impact of prototyping on business management. Within the context of business management and development we mirror Mannermaa's [5] paradigmatic trinity of futures research by articulating a relationship between the forms of model, scenario and prototype as the basis for innovating. Johnson's [6] description of a prototype helps guide the current work.

A prototype is a story or fictional depiction of a product. The prototype is not the actual thing that we want to build; it is an example, a rough approximation of the thing we hope to one day build [6].

Johnson's definition lays out the rationale for the conceptual form of prototypes that shifts markedly from the traditional prototype found in engineering that expects a tangible and solid form to be presented. The contemporary capacity to present and manipulate concepts and ideas without physical form enables a shift away from the need to produce and be locked into a prototype 'in hand'. Similarly, the concept of the scenario requires clarification and differentiation from the form of the prototype. We utilise Gregory and Duran's [7] description of the scenario as a distinct but related concept from the prototype.

Scenarios are stories that depict some future event. . . Regardless of how scenarios are created, they have been shown to alter people's expectations about the depicted events. Evidence suggests that the ease with which a scenario is imagined or constructed, or the plausibility of a scenario, upwardly biases beliefs that the depicted event could occur [7].

Within this paper we describe scenarios as the mechanisms that test strategic direction while the prototype offers a mechanism for the analysis of business vision. Drawing on the quotes, above the difference of form might be seen as subtle. The prototype expresses a 'hope' and approximation of the future that is a consolidation of inspiration. The scenario, in contrast, is a specific set of predictions that depicts a future that could occur and actively encourages its realisation.

We assume that totalizing predictions of the future are flawed, biased and ultimately fix specific aspects of an imagined future. It can be argued that "a revolutionary technology defies predictions" [8:38] or, as Clarke [9] famously claimed, becomes indistinguishable from magic. Predictions of the "unthinkable" are often ridiculed by those who assume and adopt the *descriptive* paradigm of futures. This conflict is explained through this paper with the understanding that the descriptive model exists at the operational level of management where the near-present future is produced through evolutionary changes that can only be identified retrospectively in an historical context. Taken together the concepts of the prototype, scenario and model present individual articulations of the differing levels of business management (Fig. 1).

Van Vught [2] highlighted the popularity of inductive approaches where generalisations from past experience are applied to the future thereby assuming that the future is similar to the past. This normative view of business development echoes descriptive models of operational management and requires the foundational assumption that change is primarily slow, sequential and evolutionary. Van Vught cites the difficulties of the "problem of tomorrow" reasoned by Hume to show that this inductive argument cannot be logically justified. It is also relevant to recognise that most futurologists base their

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