

AI-Enabled Strategic Risk Scenarios: Combining Generative Models and Probabilistic Forecasting for Executive Planning

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Abstract

This “reflections from practice” piece explores some of the implications of emerging, artificially intelligent tools for the futures and foresight prac-ademic community. The authors provide background on these emerging, artificially intelligent tools, and explore, with special emphasis on scenarios, a specific tool named “Chat Generative Pre-trained Transformer” (hereafter, Chat GPT). The authors examine the utility of scenarios generated by artificial intelligence (AI) and explore whether or not the futures and foresight prac-ademic community should selectively embrace advances in AI to assist in the generation of scenarios. In particular, the authors will consider (1) the utility of using scenarios generated completely by AI, (2) whether what is produced, in fact, constitute scenarios, based on conventional definitions, and (3) assess the utility of using AI to assist in the production of scenarios.

Keywords: artificial intelligence, ChatGPT, scenarios, strategic planning, Chat Generative Pre-trained Transformer.

INTRODUCTION

This “reflections from practice” piece is not, in any way, supposed to be a definitive statement or the final word on AI assisting in the development of scenarios. It is, instead, meant to be a first stimulation and invitation to explore the frameworking of AI- assisted scenario planning, and, as such, explores some of the implications of emerging, artificially intelligent tools for the futures and foresight prac-ademic community. The authors examine the utility of scenarios generated by artificial intelligence (AI) and explore whether or not the futures and foresight prac-ademic community should selectively embrace advances in AI to assist in the generation of scenarios. In particular, the authors will consider (1) the utility of using scenarios generated completely by AI, (2) whether what is produced, in fact, constitute scenarios, based on conventional definitions, and (3) assess the utility of using AI to assist in the production of scenarios. In the end, the authors insist that the utility of AI-generated and AI-assisted scenarios is largely predicated on the user's ability to coax the appropriate “raw material” from the artificially intelligent bot, which implicates, the authors contend, that such bots can usefully provide base material for the development of scenarios but are unlikely to fully eclipse scenarists in the production of scenarios. This position on AI-assisted scenarios is closely aligned with the “hybrid AI-Expert foresight approach,” as articulated by Geurts et al. (2022, p. 2), regarding the potential impact of big data, narrow AI, machine learning algorithms, and the limits of computing capacity on futures and foresight practices, as well as

Gigerenzer's (2022) and Grüning's (2022) insistence on the uniqueness of human intelligence and the need to synthesize human and artificial intelligences, respectfully. Additionally, the authors recommend that the futures and foresight prac-academic community pay especially close attention to artificially intelligent tools for novel insights with regard to the differences in human cognition and, in this case, the logic of large language model outputs. As we shall see, this exploration suggests that AI-generated scenarios, in theory, provide managers with primary material for constructing strategy with virtually no transaction costs as compared to the work of (human) facilitators or consultants. Thus, companies, especially those in turbulent environments and those that need to increase their portfolio of strategic options in anticipation of disruption, may very well benefit from incorporating AI-generated scenarios into their strategic planning practices, as well as, the authors recommend, increase the “futures literacy” or “futures consciousness” of their employees, especially managerial staff, by frequently discussing, and interrogating future scenarios generated by artificially intelligent tools even in practices beyond occasional strategy development. Still, there are some lingering issues the authors would be remiss not to also explore, in particular, whether or not facilitators of scenario planning should embrace AI in scenario planning more generally (and, perhaps, how and when) as well as a long-standing issue in futures and foresight work on using scenarios that were generated by “someone else” or, in this instance, not someone, but an artificially intelligent something.

LITERATURE REVIEW

AI-generated and AI-assisted scenarios is largely predicated on the user's ability to coax the appropriate “raw material” from the artificially intelligent bot, which implicates, the authors contend, that such bots can usefully provide base material for the development of scenarios but are unlikely to fully eclipse scenarists in the production of scenarios. This position on AI-assisted scenarios is closely aligned with the “hybrid AI-Expert foresight approach,” as articulated by Geurts et al. (2022, p. 2), regarding the potential impact of big data, narrow AI, machine learning algorithms, and the limits of computing capacity on futures and foresight practices, as well as Gigerenzer's (2022) and Grüning's (2022) insistence on the uniqueness of human intelligence and the need to synthesize human and artificial intelligences, respectfully. Additionally, the authors recommend that the futures and foresight prac-academic community pay especially close attention to artificially intelligent tools for novel insights with regard to the differences in human cognition and, in this case, the logic of large language model outputs. This would effectively outsource scenario development to an artificially intelligent third party thus freeing the facilitator (or consultant) to focus their energies on other avenues of value-generation for the client. The authors explore this proposition based on insights from a thought-provoking piece on the problem of quality control in scenario planning. After all, as Ramirez et al. (2021) frame the matter, in their playful article, “Seven Sure-fire Ways to Do Scenario Planning Badly: A Guide to Poor Practice,” “The practice of scenario planning has no barriers to entry.” To this, the authors add, the barriers to generating scenarios are so low that now artificially intelligent tools could join the roguish, largely unchecked cottage industry of scenarists. And why not? Currently, according to Ramirez et al. (2021), “scenario planners have neither to pass a bar exam ... nor do they have to be certified by a professional body, ... that quality control is non-existent, [and that] the result of too-few competent scenario planners is the ease with which scenario planning can produce results that are simply not useful if not harmful and waste valuable time and money.” Thus, there is nothing to really stop the use of AI-generated scenarios in practice. Finally, returning to the literature, it was van der Heijden (2005) who first singled-out the importance of building scenarios

together with the users (see, also, Rowland & Spaniol, 2021). Wack (1984, p. 68), van der Heijden's predecessor, had focused on writing compelling scenarios that promised to change the “microcosm” of the cognitive maps inside the heads of clients and make them, as Kleiner (2003) put it, “shed their natural defenses.” As articulated by Schoemaker in an interview, van der Heijden's signature contribution was “why not let the people who control the budgets be presented with the scenarios that they themselves made?” (Rowland & Spaniol, 2021, p. 7). After all, the ultimate purpose of developing scenarios is not merely to produce scenarios, it “is to generate new options that you would not have thought of otherwise” (Wack, 1982, p. 12, as cited in Chermack & Coons, 2015, p. 191; see also, Wack, 1985a, p. 147). After all, a core justification for managers’ engagement in a scenario planning process to develop options (O'Brien & Meadows, 2013; Rowland & Spaniol, 2017). The implication being that scenarios developed by AI for managers may be especially limited in the one capacity that justifies participating in scenario planning in the first place, namely, to identify strategic options and leverage freshly perceived opportunities in the organization's transactional environment.

Author Name	Year	Remarks
O'Brien & Meadows	2013	After all, a core justification for managers’ engagement in a scenario planning process to develop options
Rowland & Spaniol,	2017	After all, a core justification for managers’ engagement in a scenario planning process to develop options
Wack	1985a	After all, the ultimate purpose of developing scenarios is not merely to produce scenarios, it “is to generate new options that you would not have thought of otherwise
Chermack & Coons	2015	After all, the ultimate purpose of developing scenarios is not merely to produce scenarios, it “is to generate new options that you would not have thought of otherwise
Wack	1982	After all, the ultimate purpose of developing scenarios is not merely to produce scenarios, it “is to generate new options that you would not have thought of otherwise
Rowland & Spanio	2021	As articulated by Schoemaker in an interview, van

		der Heijden's signature contribution was “why not let the people who control the budgets be presented with the scenarios that they themselves made?”
Kleine	2003	predecessor, had focused on writing compelling scenarios that promised to change the “microcosm” of the cognitive maps inside the heads of clients and make them, a

AI-GENERATED SCENARIOS

One potentially tempting option for members of the futures and foresight practice community is to have scenarios generated completely by AI. This would effectively outsource scenario development to an artificially intelligent third party thus freeing the facilitator (or consultant) to focus their energies on other avenues of value-generation for the client. The authors explore this proposition based on insights from a thought-provoking piece on the problem of quality control in scenario planning. After all, as Ramirez et al. (2021) frame the matter, in their playful article, “Seven Sure-fire Ways to Do Scenario Planning Badly: A Guide to Poor Practice,” “The practice of scenario planning has no barriers to entry.” To this, the authors add, the barriers to generating scenarios are so low that now artificially intelligent tools could join the roguish, largely unchecked cottage industry of scenarists. And why not? Currently, according to Ramirez et al. (2021), “scenario planners have neither to pass a bar exam ... nor do they have to be certified by a professional body, ... that quality control is non-existent, [and that] the result of too-few competent scenario planners is the ease with which scenario planning can produce results that are simply not useful if not harmful and waste valuable time and money.”

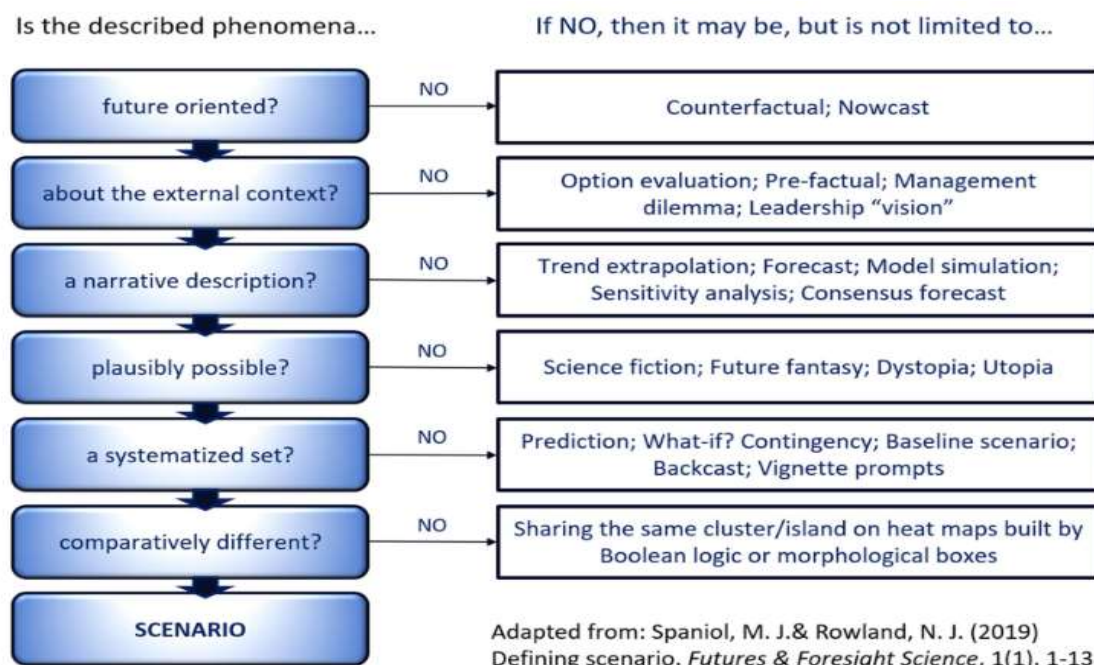


Figure 1- Scenario identification diagnostic tool

Thus, there is nothing to really stop the use of AI-generated scenarios in practice. Additional clarification is needed at this juncture. First, in the Prelude of this present practice piece, the authors query ChatGPT to “Write three scenarios for the future of transport” and the results are, admittedly, not particularly impressive. Interestingly, the cold prompt to simply write scenarios resulted in, for the most part, differentiated scenarios of approximately 30 words each. Note that the authors did not explicitly ask for related but differentiated and not overlapping scenarios. Second, there is a lot of “tacit knowledge” used during human interactions, especially among experts and those familiar with academic jargon in a field of scholarly research. ³ That individuals bring with them this catalog of entirely unstated tacit knowledge when entering queries into a chat prompt in a way that is similar a human interaction should not be a surprise. ChatGPT is, after all, a chatbot. It follows that humans would chat, so to say, with it, adopting a casual, non-explicit, or even semi-conversational tone when interacting with AI-support chat features. The authors, thus, suggest an approach to query that unambiguously states the otherwise unstated aspects of a question or command. For example, after further experimentation with ChatGPT, the authors were able to more explicitly request what it was that they, in fact, desired from a set of scenarios. The follow-up query, this time explicitly formulated in the intuitive-logics approach, structured by two uncertainties as they interact in a 2×2 matrix formation, generated a set of four, intentionally differentiated scenarios that could fittingly populate such a matrix. From there, ChatGPT could create labels for the quadrants, potential newspaper headlines, representative metaphors, etc., thus, adding the “color” or “texture” of scenario development.

RESEARCH METHODOLOGY

(i) Answer #1: Assess Against Operant Definition of Scenario- The scenario has become a fundamental component of futures and foresight science. Over time, however, the methods of scenario generation and their application have taken myriad forms, which, according to an observation by Martelli's (2001), are due to the fact that there are at least as many practical approaches to scenario planning as there are facilitators of the processes. This development has resulted in an apparent state of “chaos” in the scholarly literature over the definition of what a scenario is, leading Khakee (1991, p. 52) to conclude that “few techniques in futures studies have given rise to so much confusion as scenarios.” In response, Spaniol and Rowland (2019, p. 1) employed concept analysis to create an operant definition for scenario which found that scenarios “have a temporal property rooted in the future and reference external forces in that context; scenarios should be possible and plausible while taking the proper form of a story or narrative description; and that scenarios exist in sets that are systematically prepared to coexist as meaningful alternatives to one another.” Depicted as a flowchart (see Figure 1), the criteria can be used in a stepwise evaluative procedure to assess if a phenomena is, in fact, a scenario (at least in-line with the scholarly tradition on scenarios per the “intuitive logics” tradition stemming from the pioneering work at Shell [Bradfield et al., 2005]). Returning again to the scenarios developed on the future of transport by the AI chatbot listed in the Prelude of this paper, we leverage the opportunity to take the second scenario to produce a straw man example for demonstrative purposes: “In the distant future, teleportation becomes a reality. People are able to instantly transport themselves to any location they desire, making traditional forms of transportation obsolete.” Assessing this scenario, the first step would be to verify if the text is oriented in the future. It is as it is explicit in the scenario and also required by the prompt the authors sent to the bot. The second step is then to determine if its locus in the operating environment puts the scenario outside the control of the user, which is also the case.

(ii) Answer #2: Assess Against “Good” Practice- The authors would be remiss not to acknowledge that there are many standards of “good” practice. Some are commonsense and steeped in experience, meanwhile, others are published and empirically tested. Whether or not a practice is deemed to be appropriate, at a given historical moment in time, is also contingent upon what the user aims to achieve and, to some extent, on a series of aesthetic matters associated with the personal or professional preferences of the user, too. Hence, while there is no such thing as a definitive, forever-lasting “best practice,” the authors still find considerable purchase in utilizing so-called good practice, in this case, for the purposes of assessing scenarios. In the end, different best practices or combinations of best practices will inevitably be preferred by some scholars and practitioners over others, which is both predictable and unsurprising. The authors, in this section, explore, by way of demonstration, how to apply notions of good practice to guide “query work” with artificially intelligent tools. 5 In reflection upon this task, the authors explore Lang and Ramirez (2021) “Getting the Most From Publicly Available Scenarios: Five Ways to Avoid Costly Mistakes,” which identifies five ways to incorporate others’ scenarios into an organization's strategic planning.6 The reason this particular set of best practices were isolated for exploration has to do with the reality that AI-generated scenarios are, in effect, someone else's or something else's scenarios, and there is a notable scholarly conversation in futures and foresight science about creating scenarios for others and using the scenarios of others (see also O'Brien & Meadows, 2013; Rowland & Spaniol, 2017). That AI might create scenarios for others and that readers might use scenarios generated by AI appeared like a worthwhile first test case in this context.

CONCLUSION

With exceptions and some limitations, artificially intelligent tools can now generate scenarios on seemingly any topic en masse. For managers interested in promoting “future consciousness” or “futures literacy” or increasing the time spent in the future of their team or organizations, they now have access to cheap raw material from which scenarios can be generated again and again. 10 However, without proper consideration, they may end up doing damage, as Crawford and Wright (2022) found when researching the quality standards of the abundant scenarios developed alongside the corona virus pandemic. In the end, if AI generated scenarios can support the development of qualified strategic options in the context of complex and competitive operating environments, then those scenarists living off the craft of scenario writing may want to give the

bot a go and prepare with their own AI-generated scenarios. Done well, we believe that it will be possible to raise the bar in hybrid co-generation. The authors close by challenging the reader to think about the implications of the following output on the topic of inquiry to which this “reflections on practice” article is based. The authors, wondering if the AI chatbot could be instructive on how to frame this very article that you are reading now entered into the prompt: “Write an abstract for an academic article about using scenarios generated by AI for strategic planning by managers.” The authors received, and, in closing, share this provocative, thought-provoking, and, yet, at the very same time, concerning response.

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