Research Assessment #3

Assessment #4 Annotated Bibliography

Mohit Nair

October 16, 2025

Data Analytics with a concentration in Prescriptive Analytics

MLA Citation:

Victor, and Dessislava A Pachamanova. "From Meaningful Data Science to Impactful Decisions: The Importance of Being Causally Prescriptive." Data Science Journal, vol. 22, no. 1, 25 Apr. 2023, datascience.codata.org/articles/10.5334/dsj-2023-008. Accessed 17 Oct. 2025.

The article, "From Meaningful Data Science to Impactful Decisions: The Importance of Being Causally Prescriptive," by Victor S. Y. Lo and Dessislava A. Pachamanova, goes into detail about why a causal (cause-and-effect) methodology of Prescriptive Analytics is necessary. These methodologies offer the chance for a more accurate conclusion on what actions need to be taken to achieve an overarching goal. With this, Lo and Pachamanova present a 7-question framework that helps to understand and evaluate the best actions to take. Answering these questions, they explain, will allow analysts to determine the goal, outcomes that will help reach that goal, possible actions, the relationship between the actions and the outcomes, any constraints that need to be considered, and finally, the best solution to achieve the goal, with all factors considered. This framework is very complex - steps can be revisited multiple times, and more layers may need to be considered depending on the situation. Lo and Pachamanova go on to present certain examples that apply this framework and explain how the framework is applied, before concluding their findings.

"From Meaningful Data Science to Impactful Decisions: The Importance of Being Causally Prescriptive" was published in 2023 under the International Science Council Committee of Data. Lo is the Senior Vice President of Data Science and Artificial Intelligence, Workplace Investing at Fidelity Investments, and Pachamanova is a Professor and Zwerling Family Endowed Term Chair at Babson College in Wellesley, MA, signifying their connection to the field and their relevant experience. The purpose of this article is to emphasize the importance of causality and the specific framework, which will effectivize the decision-making process of Prescriptive Data Analytics.

This article is extremely relevant to my research. While it talks about Data Analytics in general, it provides a specific, coherent 7-step framework that can be applied to my projects and

research. When I am creating my Original Work or looking into applying my knowledge outside of ISM, I can refer to this framework to get a cohesive idea of what I should really focus on next - what actions I should perform and how I should go about solving the problem at hand.

"Impacts of Artificial Intelligence Applications on Prescriptive Analytics: Content Analysis Based on Systematic Literature Review." Issues in Information Systems, 2025, https://doi.org/10.48009/2_iis_123. Accessed 17 Oct. 2025.

The article, "Impacts of Artificial Intelligence Applications on Prescriptive Analytics: Content Analysis Based on Systematic Literature Review," by Assion Lawson-Body et al., highlights the significant models of AI applications that affect, yet positively impact, the decision-making processes of prescriptive analytics. Lawson-Body et al. begin by emphasizing the underuse of AI in analytics, even when several use cases have proven the use of such models to be very impactful. They then move on to presenting a systematic literature review that analyzes the Dynamic Capabilities Theory (which explains that an organization is able to adapt its capabilities and actions to fit change), Prescriptive Analytics, and the impact of AI on Prescriptive Analytics. In the last section of the literature review, explaining the impacts, Lawson-Body et al. introduce three types of AI models, which structure the rest of the article - Reinforcement Learning, Computer Vision, and Fuzzy Logic. Each of these models are presented, and it is explained how they each affect analytics. Reinforcement Learning allows agents to work with each other and the environment, employing human decision-making processes to learn and ultimately provide the best solutions for organizations. Computer Vision allows for a visual analysis of objects, making systems of objects significantly clearer and the analysis of these objects in several different scenarios more effective overall. Fuzzy Logic clears up analysis in uncertain scenarios, allowing for less ambiguity when dealing with complex situations or systems. After explaining these models, the authors explain their method of research, their findings, which ultimately prove their three hypotheses (one for each model), and their concluding remarks.

"Impacts of Artificial Intelligence Applications on Prescriptive Analytics: Content Analysis Based on Systematic Literature Review" was published in 2025 in the academic journal, "Issues in Information Systems" as part of the International Association for Computer Information Systems (IACIS). The authors are affiliated with the University of North Dakota, Eastern Illinois University, and Kuwait University, emphasizing their academic knowledge of the field. Finally, the purpose of this article is to emphasize the need for AI applications in Prescriptive Analytics and provide examples of the most effective applications and how they can be applied.

This article is extremely relevant to my research as it integrates the growing field of AI with my topic. Although many fear the growth of AI, the article emphasizes the idea that AI should be used to our advantage, and we should use it to help us complete intricate tasks. The

article presents 3 models that I can use in my applications in the future, as well as my research interests - Reinforcement Learning, Computer Vision, and Fuzzy Logic. It introduces these models sufficiently for me to expand my knowledge and apply them to projects in ISM and beyond.

ANNOTATED ARTICLES:

Article I ("From Meaningful Data Science to Impactful Decisions…") - https://kami.app/V5A-5Bz-nmM-QgM

Article II ("Impacts of Artificial Intelligence Applications on Prescriptive Analytics…") - https://kami.app/cRY-jDk-Cgs-24A