

Research Assessment #1

Assessment #2 Annotated Bibliography

Mohit Nair

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Data Analytics with a concentration in Prescriptive Analytics

MLA Citation:

Sayal, Anu. "Data Analytics: An Overview." IGI Global Scientific Publishing, 2023, www.igi-global.com/chapter/data-analytics/312646. Accessed 07 Sept. 2025.

This source delves into the sector of Data Analytics and, at its core, what it really is. It provides an overview of data itself and then further explores the process by which analytics is performed. This process involves the implementation of several technologies, methodologies, the Internet of Things (IoT), and other techniques that aid researchers in understanding big data and complex pieces of information. The source also explains some challenges researchers may face in the field, which are discussed, and solutions are provided for the said challenges afterwards. The author wraps up by comprehensively summarizing the major concepts and important facts explained in the source.

The source is credible because it was published rather recently, in 2023, and therefore is still very up to date. The source is part of a global scientific publishing company, IGI Global. Moreover, the author of the source comes from a research background at Jain University in India. Contributors to the author's work also come from esteemed universities and major data companies and roles. The purpose of the source is to provide a comprehensive view of the world of Data Analytics and introduce readers to the field to provide knowledge for future research.

For my research, this source can be used as part of understanding the core of Data Analytics. The source is relevant as it not only provides an understandable overview of Data Analytics, but it is part of a bigger resource that specifically explains certain aspects of the field, providing extra material that will aid me in my understanding of the career field.

Duan, Lian, and Li Da Xu. "Data Analytics in Industry 4.0: A Survey." Information Systems Frontiers, 24 Aug. 2021, link.springer.com/article/10.1007/s10796-021-10190-0#change-history, <https://doi.org/10.1007/s10796-021-10190-0>. Accessed 10 Sept. 2025.

This source connects Data Analytics with what is known as the fourth industrial revolution, or Industry 4.0. Industry 4.0 is the integration of physical and digital technologies in

manufacturing and other industries. The intersection of analytics and Industry 4.0 is explained through the sectors in which Data Analytics is applied, the systems integrating physical and digital tech, and the methods that are used to analyze information. It concludes with discussions and a literature review on the subject matter.

The source is credible because of a few things. One, it was published in 2021, yet updated this year, making it very up-to-date. The source is found on several online scientific journals and academic databases, including the National Institute of Health (NIH), Research Papers in Economics (RePEc), Springer, and ResearchGate. The authors, Lian Duan and Li Da Xu are part of the Information Technology/Systems departments at Hofstra University in New York and Old Dominion University in Virginia. The purpose of the article is to explain the overall concept of Data Analytics in the modern Industrial Revolution.

For my research, this source can be used as a diving point into the specific fields in which Data Analytics is applied. It allows me to understand how Data Analytics can be used, what challenges are faced, and how we can overcome such challenges in Industry 4.0.

Challa, Narayana. "DATA ANALYTICS and ITS IMPACT on FUTURE." *Corrosion and Protection*, vol. 51, no. 1, 2023, p. 1, www.researchgate.net/publication/371665415_DATA_ANALYTICS_AND_ITS_IMPACT_ON_FUTURE. Accessed 10 Sept. 2025.

This article briefly talks about what data analytics is before breaking down the processes used and its impact on certain industries and aspects of business, which makes up the bulk of the article. The article shows the impact of data analytics on technologies, industries, and more. The article also touches on the benefits of applied data analytics in certain fields. Overall, the article is a deepened understanding of the implications and impacts of data analytics on the world.

The source is credible because of a few things. One, it was published in 2023, making it very recent. Two, the source is found on academic database ResearchGate, showing its reputability. Three, the author is associated with the Jawaharlal Nehru Technological University in Hyderabad, India. Finally, the purpose of the article is to truly show the scale of data analytics in business and technology.

This source is relevant to my research because it gives specific information and statistics on the impact of data analytics on certain areas. This way, I am better able to understand what is going on in the data analytics world and I am able to tailor my research and products to the current situation.

Pohl, Matthias, et al. "The Performance Benefit of Data Analytics Applications." *Procedia Computer Science*, vol. 201, 1 Jan. 2022, pp. 679–683, www.sciencedirect.com/science/article/pii/S1877050922005038, <https://doi.org/10.1016/j.procs.2022.03.090>. Accessed 11 Sept. 2025.

This article analyzes the benefit of data analytics on business performance. It takes into account several factors to present the many types of analysis performed to determine the true effectiveness of data analytics. It uses several models and examples to create a cohesive conclusion on the effectiveness of data analytics. This conclusion is determined to be that data analytics is effective only using certain models for certain scenarios; the right model just depends on the situation.

The source is credible because it was published in 2022, rather recently. Moreover, the article was found on ScienceDirect, a database known for publishing reputable academic literature. The three authors are faculty in the Computer Science department at Otto von Guericke University in Magdeburg, Germany, emphasizing their knowledge on the matter. Finally, the purpose of the article is to present evidence on how effective data analytics is for businesses.

This source is relevant to my research as it statistically proves the benefits of data analytics on business. Also, the source presents some models that can be a starting point for further research. It also explains the processes used to determine the conclusion reached, such that these processes can be used in my own analysis with my original product or further research.

Aminizadeh, Sarina, et al. "The Applications of Machine Learning Techniques in Medical Data Processing Based on Distributed Computing and the Internet of Things." Computer Methods and Programs in Biomedicine, vol. 241, 9 Aug. 2023, pp. 107745–107745, www.sciencedirect.com/science/article/abs/pii/S016926072300411X, <https://doi.org/10.1016/j.cmpb.2023.107745>. Accessed 12 Sept. 2025.

This source applies data analytics to the medical field and healthcare. With growing technologies, it's more important than ever that healthcare professionals understand the benefit of certain technologies and which ones to use to efficiently complete every day tasks. The paper describes the current state of medical data analytics before diving into methodologies that may be used to employ such technologies.

This source is credible because of its recency, as it was published in 2023. Moreover, the authors are all part of several universities in Iran, specializing in both medical sciences and computer science and technology. The source was published on ScienceDirect, a reputable academic journal database. Finally, the purpose of the article is to present the applications of data analytics in healthcare and medicine.

This article is relevant to my research because it presents a view on data analytics from a medical perspective. Data Analytics spans a variety of fields, and this article provides yet another field of interest I can base my work off of, that field being healthcare.

Okechukwu, Adebunmi, et al. "BUSINESS INTELLIGENCE in the ERA of BIG DATA: A REVIEW of ANALYTICAL TOOLS and COMPETITIVE ADVANTAGE."

Computer Science & IT Research Journal, vol. 5, no. 2, 18 Feb. 2024, pp. 415–431, www.researchgate.net/publication/378208076_BUSINESS_INTELLIGENCE_IN_THE_ERA_OF_BIG_DATA_A_REVIEW_OF_ANALYTICAL_TOOLS_AND_COMPETITIVE_ADVANTAGE, <https://doi.org/10.51594/csitrj.v5i2.791>. Accessed 12 Sept. 2025.

This source dives more specifically into the tools used in data analytics. It focuses on tools that help professionals in Business Intelligence and Big Data. It first talks about both fields and their integrations, and then moves on to discuss the tools commonly used. It also highlights the benefits and challenges of implementing certain tools and methods in one's work.

This article was published last year, 2024, making it very recent. The authors are faculty at universities, employees in technological businesses, and independent researchers worldwide. The source was published on ResearchGate, a reputable academic database. Finally, the purpose of this article is to analyze the tools used in Data Analytics at the height of Big Data.

This article is relevant as it provides a list of tools that may be applied in my research. It allows me to explore these tools and broaden my knowledge on how to effectively analyze data, which can prove beneficial for my research and my projects. Furthermore, it gives me an understanding of how to navigate challenges with these tools so I know how to use the tools to the fullest.

Mehrbakhsh Nilashi, et al. "Critical Data Challenges in Measuring the Performance of Sustainable Development Goals: Solutions and the Role of Big-Data Analytics." *Harvard Data Science Review*, vol. 5, no. 3, 8 June 2023, hdsr.mitpress.mit.edu/pub/9n4uzkg3/release/2, <https://doi.org/10.1162/99608f92.545db2cf>. Accessed 12 Sept. 2025.

This article talks about the challenges faced in data analytics, specifically when dealing with the United Nations' Sustainable Development Goals. It provides an overview of the goals and then explains the specific challenges faced when analyzing the data and progress of the goals. The article then goes on to propose a methodology using big data analytics, which the authors say will optimize the processes used to gain a better understanding of the SDGs.

The article was published in 2023 on the Harvard Data Science Review (HDSR). The authors are part of the technology departments at several universities worldwide. Finally, the article's purpose is to propose solutions to the rising challenges of keeping up with data regarding the SDGs.

This article is relevant as it presents challenges faced, which allow me to understand what problems are faced in data analytics. It also presents solutions, which I can learn to apply to my own work in the future. It provides a starting point for research in political and social analysis and helps me understand how effective certain countries' policies are in regards to the goals.

Bari, MD Hasanujamman, and Anjuman Ara. "The Impact of Machine Learning on Prescriptive Analytics for Optimized Business Decision-Making." SSRN Electronic Journal, 1 Jan. 2025, papers.ssrn.com/sol3/papers.cfm?abstract_id=5050060, <https://doi.org/10.2139/ssrn.5050060>. Accessed 12 Sept. 2025.

This article explains how Machine Learning can affect Prescriptive Analytics. It first explains the rise of Business Intelligence, Machine Learning, and Prescriptive Analytics over the years. It then makes comparisons and connections between Machine Learning and Prescriptive Analytics. This leads to the presentation of methods, as well as common challenges and solutions in various aspects of business for data analytics.

The article was published this year on the Social Sciences Research Network (SSRN). Its authors come from the Beaumont College of Business at Lamar University. Finally, the purpose of this source is to identify and explain Machine Learning's effects and scale on Prescriptive Analytics.

This source is relevant because it allows me to understand how I can implement AI/ML to my benefit. It allows me to analyze data with updated technologies in an efficient, ethical way. This allows me to break barriers in knowledge with the new technologies at my disposal.

Mustafa, et al. "Real-Time Data Analytics in Retail: A Review of USA and Global Practices." GSC Advanced Research and Reviews, vol. 18, no. 3, 9 Mar. 2024, pp. 059–065, gsconlinepress.com/journals/gscarr/content/real-time-data-analytics-retail-review-usa-and-global-practices, <https://doi.org/10.30574/gscarr.2024.18.3.0089>. Accessed 12 Sept. 2025.

This article dives into the implementation of data analytics in retail businesses worldwide. It emphasizes the growing importance of accurate data with new technologies so companies can make smart choices that benefit their consumers. It first focuses on USA retailers, before moving on to global practices. It then presents some general remarks about trends, innovations, challenges, and recommendations for analysts in this field.

The article was published last year on the GSC Online Press, an international, peer-reviewed academic journal database. Authors are independent researchers and employees at marketing companies worldwide. The article's purpose is to present the trends in data analytics in retail worldwide and provide extra information on the matter.

This source is relevant as it presents a third field of interest for my research - retail. I can further understand the use of data when it comes to product distribution in stores, marketing items and services, and the overall policies for several stores. This allows me to apply the strategies used to other fields and ideas.

Aziz, Farooq. "Data Analytics Impacts in the Field of Accounting." World Journal of Advanced Research and Reviews, vol. 18, no. 2, 28 May 2023, pp. 946–951, wjarr.com/content/data-analytics-impacts-field-accounting, <https://doi.org/10.30574/wjarr.2023.18.2.0863>. Accessed 12 Sept. 2025.

This article delves into the field of accounting, and the use of Data Analytics in this growing field. It highlights the shift from manual to automated accounting, signifying that audits and accounting papers have increased in quality with the rise of new technologies. It then talks about methods used to analyze this effect before categorizing the results into 4 sets of information - Velocity, Value, Veracity, and Volume.

This article was published in 2023 on the World Journal of Advanced Research and Reviews (WJARR). The author is affiliated with the C.T Bauer College of Business at the University of Houston. Finally, the purpose of this article is to evaluate the effectiveness of accounting with the implementation of advanced data analytics and technologies.

This source is relevant to my research as it connects finance and technology to present findings regarding data analytics. This realization unlocks the world of fintech for exploration and allows me to understand the true effect of new technologies of financial processes, for businesses and consumers. Overall, it will help me understand the decision making that is made for financial consumers to create effective financial solutions.