Facilitating Decision Making Process with Business Intelligence Systems and Data

Kiran Kumar[1], Al Badawi Tuqa[1], Ahmed Al Mujaini[1] and Vikas Rao Naidu[1#]

[1]Middle East College, Muscat, Oman
[#]Advisor

ABSTRACT

Modern corporate intelligence solutions now need the use of data warehousing. Large volumes of data from numerous sources can be combined, transformed, and stored by companies in this way, making the data accessible for study and reporting. The purpose of this study is to examine how data warehousing aids in organizational decision-making. The study will examine data warehousing's architecture, design, implementation, and maintenance, as well as its technical and commercial elements. The study will also examine how data warehousing affects decision-making, including how it can boost decision-making speed and accuracy, deliver timely and accurate information, and improve data quality. A mixed-method approach will be used for the research, which will include a survey of business professionals and case studies of companies that have effectively utilized data warehousing. The results of this study are anticipated to help establish a framework for data warehousing that can be used by companies in many industries. The framework will include recommendations for data integration, quality control, and governance in order to successfully execute data warehousing. As a result, this study is important because it aims to fill a present gap in the literature by discussing the function of data warehousing in corporate intelligence and decision-making procedures. The study will offer insightful information regarding the advantages and disadvantages of data warehousing and how it affects the decision-making process. In the end, our research will help firms create business intelligence systems that are more effective, resulting in better decision-making procedures, higher operational efficiency, and competitiveness.

Introduction

Over the past three decades, there has been a tremendous increase in contributions to business intelligence (BI) research. As one of the business application sectors with the fastest growth. Through an examination of recent findings and emerging trends in practice, this study seeks to define the function of business intelligence in the near future. Big data, location intelligence, software as a service, and mobile business intelligence are the current prevalent trends in business intelligence technologies and systems.

Years of Research On Business Intelligence

The article "35 Years of Research on Business Intelligence Process: A Synthesis of a Fragmented Literature" is a summary of the body of knowledge on the business intelligence (BI) process. In order to pinpoint the key ideas, approaches, and gaps in this field of study, the authors carried out a systematic evaluation of 136 publications that were written between 1984 and 2019. The article provides an overview of the numerous definitions of the BI process, as well as the various steps and elements that go into putting it into practice. The writers also touch on the significance of communication, leadership, and company culture for the accomplishment of BI efforts. Overall, the study points out several holes in the literature, such as the need for greater research on how BI affects organizational performance and the need to examine how emerging technologies, such artificial intelligence and machine learning, fit into BI

procedures. The authors urge additional multidisciplinary and cross-functional study on the BI process in order to better comprehend its intricacies and create more successful implementation techniques as a final recommendation.

Network Learning, Business Intelligence Capability, And Inventiveness' Effects On Startups' Performance

An overview of the link between digital technologies, innovation, and knowledge management can be found in the article "The Impact of Digital Technologies on Innovation and Knowledge Management: A Literature Review."(N.Caseiro,A.Coelho, 2019). To examine how digital technologies like big data, artificial intelligence, and social media are altering how firms create and manage information, the writers evaluated a number of papers and publications. The analysis's findings indicate that digital technologies are significantly influencing innovation and knowledge management. In addition to allowing quicker and more effective decision-making, these technologies also make it easier to create and share information within businesses. The writers do point out that there are certain difficulties in adopting digital technology. In order to properly utilize these technologies, organizations must manage concerns relating to data protection and security as well as the requirement to acquire new skills and competences. Overall, the paper emphasizes the significance of comprehending how digital technologies relate to innovation and knowledge management (N.Caseiro,A.Coelho, 2019), as well as the necessity for companies to evolve in order to be competitive in the digital age.

The Effects of Using Business Intelligence Systems on an Excellence Management

The study "The Effects of Using Business Intelligence Systems on an Excellence Management and Decision-Making Process by Start-Up Companies: A Case Study" looks at how business intelligence (BI) systems affect start-up enterprises' management and decision-making procedures. Data for the study is gathered through interviews with start-up management and staff using a case study methodology (Otmane Azeroual.Horst Theel, 2018), According to the study's findings, start-up businesses' procedures for excellence management and decision-making are favorably impacted by the adoption of BI tools. Start-ups may increase their efficiency and efficacy in data collecting and analysis by using BI tools, which in turn helps them make better decisions. The report also reveals that BI systems support staff cooperation and communication, which is important for start-ups that depend on teamwork. The research emphasizes the value of BI systems for start-up businesses in general, particularly those that operate in dynamic and complicated contexts. The study's conclusions can assist new businesses in making well-informed judgments on the use of BI systems and in realizing the advantages of these systems in their management and decision-making procedures.

The Emerging Trends & Impact of Business Intelligence in Organizations

This study looked at the organizational traits, effectiveness, domains of application, and functions of analytics and business intelligence (BI&A). A survey gathered information from 145 Indian businesses in various industries, etc. The organizations were divided into six categories using clustering based on the similarity of the maturity of six factors. One from each cluster and six organizations had in-depth interviews (Lakdawala, M.L., 2020). The findings revealed patterns among clusters with various levels of BI&A maturity, with trends related to prominent data utilization, IT budget spending on BI&A, and annual investments in BI&A primarily observed in clusters with greater maturity levels. All organizations appeared to employ BI&A most frequently in the sales department. More BI&A use cases were seen as the collections were arranged in higher order. Over 50% of the organizations found that BI&A is

effective in higher maturity clusters for better data access, decision-making, efficient internal processes, lower operational costs, and better customer service. The study also offered a path for advancing to more mature BI&A skill levels. Managers can follow this roadmap to learn how to move forward and what areas to concentrate on to build their capabilities. Future studies could examine each industry sector independently when determining the maturity of the six characteristics indicated to find any unique industry-level standards. Another significant finding from the study was that organizations with higher BI&A capabilities had more use cases across functions than clusters with lower maturity levels. Therefore, companies should concentrate on these six elements to fully utilize BI&A (Lakdawala, M.L., 2020). The survey also discovered that sales were the area where BI&A was employed the most frequently across all clusters. This points to a significant opportunity that businesses may seize by using analytics and data insights to understand customer behavior and preferences better and thus be able to service them. The managers were then given a roadmap for advancing to more mature BI&A skill levels. Finally, the article's conclusion suggested further study should focus on examining each industry sector in-depth concerning the maturity of the six characteristics highlighted for more precise industry standards, if any. Overall, this research offers insightful information on the efficacy of business intelligence and analytics across various industries (Lakdawala, M.L., 2020).

What Business Intelligence Role Is and Why it Matters?

The article examines the advantages of business intelligence (BI) for organizations, offers suggestions on choosing a BI solution, and promotes active adoption inside the company. Businesses may gather relevant data inputs and deliver outputs that can be used to take action by having a functional data pipeline in place (Mike, 2020). A business's priorities when choosing a BI solution must first be understood. It is essential to consider the connections to data sources, query ability between data sources, data visualizations and dashboards, report production, level of analysis, and accessibility. For BI solutions to be effective, businesses must ensure they can cater to their unique needs. Second, training staff members on how to use BI tools after one has been selected is crucial. Finally, to maximize their investment, businesses should have an advocate who can help promote adoption and offer support for users. As a result, more users of analysis tools will be able to work together to acquire information for well-informed decisions. Third, business intelligence may have a significant influence on a company's decision-making by providing data to address both present and past issues. It can provide teams with access to key indicators and help them organize their goals. With the aid of self-service solutions, stakeholders will have immediate access to their data and be able to independently review it. Fourth, there are a few challenges to take into account while installing a BI solution. To acquire and maximize useful inputs, organizations need a sophisticated data pipeline. Additionally, businesses should make sure they have adequate funds for user support and training as employees become used to the system. Finally, firms can boost overall effectiveness by investing in BI technologies by giving staff more time to act on essential findings. Investing in one of high quality is crucial to ensure that a BI tool is effective and fits specific requirements. Companies can choose a BI tool and get the most out of it by considering the considerations above. In addition, businesses should consider reading up on topics like picking the best BI technology and how BI may help an organization (Mike, 2020). In conclusion, companies ought to utilize the advantages that BI may offer. Employees may have more time to take on essential activities and advance the company. To maximize their investment, businesses must choose a BI solution that specifically addresses their requirements and actively promote its use inside the company.

How The impact of Business Intelligence on the Quality of Decision Making?

Research has uncovered a strong link between the quality of BI management and successful outcomes. Organizations that incorporate substantial operations around business intelligence can unlock myriad advantages, including higher data and information accuracy, more comprehensive solutions across functions, and an overall increase in value through their use of BI programs. A path model was used to demonstrate these positive effects confirming that better-

managed tools mean greater returns for businesses embracing this technology within their models. Critical success factor (CSF) research, which emphasizes the significance of good BI project management, provides additional support for the findings. The study further advances research methods by showing that even when a hypothesis's direct path is insignificant, it is accepted when the path's overall significance is. Due to the study's small sample size and lack of validated measures for BI components, have some limitations; however, the measurement quality indicators strongly support the study's high reliability and validity. The essay also highlights how complete BI solutions can enhance data and information quality. Users can access only pertinent and up-to-date information more readily by using the proper tools, such as data visualization, dashboards, and self-service analytics. To ensure the effective implementation of BI applications, it is also recommended that appropriate project management be followed at every stage of the creation of BI solutions (Ossimitz, M.L., 2015). The piece also examines how BI solutions might help people make better decisions. This is achieved through making better-informed judgments supported by trustworthy information at the right moment. It also looks at several decision-making methods, including applying prescriptive, predictive, and descriptive analytics. These methods enable decisions to be made on a more complete examination of the data at hand. The post also lists a few difficulties that could come up when using BI solutions. This covers the potential for over-reliance on technology, which can increase risk, and the requirement for a solid IT infrastructure to sustain the system. It also emphasizes the importance of fostering a culture of adaptability and user adoption to execute the BI solution properly. Finally, it outlines potential lines of inquiry for future related research. These include researching the effects of BI management quality in greater detail and determining the most influential metrics for gauging a BI solution's effectiveness. The study also recommends investigating user adoption and behavior change (Ossimitz, M.L., 2015). Wieder, B., & Ossimitz, M. (2015). The impact of business intelligence on the quality of decision making – A mediation model.

References

Talaoui, Y. and Kohtamäki, M. (2020) '35 years of research on Business Intelligence Process: A synthesis of a fragmented literature', *Management Research Review*, 44(5), pp. 677–717. doi:10.1108/mrr-07-2020-0386.

Caseiro, N. and Coelho, A. (2019) *The influence of business intelligence capacity, network learning and innovativeness on startups performance*, *Journal of Innovation & Knowledge*. Available at: https://www.elsevier.es/en-revista-journal-innovation-knowledge-376-articulo-the-influence-business-intelligence-capacity-S2444569X18300374 (Accessed: 03 May 2023).

(No date) *ArXiv*. Available at: https://arxiv.org/ftp/arxiv/papers/1901/1901.10555.pdf (Accessed: 03 May 2023).

Wieder, B., & Ossimitz, M. (2015). The impact of business intelligence on the quality of decision making – A mediation model. *Procedia Computer Science*, *64*, 1163-1171. https://doi.org/10.1016/j.procs.2015.08.599

Divatia, A. S., Tikoria, J., & Lakdawala, S. (2020). Emerging trends and impact of business intelligence & analytics in organizations: Case studies from India. *Business Information Review*, *38*(1), 40 52. https://doi.org/10.1177/0266382120969265

The role of business intelligence: What it is and why it matters. (2020, February 20). *Chartio*. https://chartio.com/learn/business-intelligence/business-intelligence-guide/