

Using business analytics tools to boost Saudi business performance

Rahma Lahyani
Aljuharah Alhammad
Sarah Alyahya

Operations and Project Management Department, College of Business,
Alfaisal University, Riyadh, Kingdom of Saudi Arabia

Keywords

business analytics tools, business performance, Saudi Arabian businesses

Abstract

This research studies the adoption of business analytics tools to improve business performance and operational efficiency in Saudi Arabia. The sample size considered includes 50 companies of different sizes and operating in different business sectors (consulting, manufacturing, food and beverages, retail, etc). The regression analysis confirms the positive correlation between the use of business analytics tools and enhancing business performance in the Saudi market. This finding supports the pervasive spread of business analytics in the business sector.

Introduction

In the age of digitalization, data has become a significant asset of modern businesses. Today, the use of traditional methods to analyze data is insufficient and ineffective (Niu et al., 2021). Traditional methods have failed to achieve competitive advantage for businesses. According to Uriona Maldonado et al., 2020, 89% of worldwide businesses believe they would experience losses if they do not use business analytics (BA) tools to make better decisions by improving their business processes. As a result, there is a rising demand for a new generation of technology, such as data analytics, and visualization tools, to aid businesses with enormous data administration, analysis, and decision-making (Chen & Lin, 2021).

There are a myriad of modern business analytic tools such as data mining, artificial intelligence (AI), machine learning (ML) and business intelligence (BI) that are beneficial for business performance and operations (Chae et al., 2014). A herald of research articles has been published on the use of BA and its significance. Prior studies have mainly focused on supply chain (Adaileh et al., 2022) and health sector (Alharthi, 2018) of the Kingdom of Saudi Arabia (KSA) while studying the impact of BA on business performance. However, in this study an inclusive approach has been taken in terms of industrial sector.

Advances in BA are rampant and studies on its benefits are in its early stages. This study attempts to broaden the theoretical concept of BA adoption and its benefits in the business sector of the Kingdom of Saudi Arabia (KSA) in terms of data visualization, business performance improvement, operational efficiency, and decision making via predictive analysis. There is a myriad of scholarly articles on impact of BA on the health sector in KSA. However, this study doesn't target a single sector, but data has been collected from different industrial sectors to explore the status of BA adoption and its perceived benefits in KSA. Moreover, an attempt has been made to find out the challenges companies are facing in adoption of BA using content analysis deductive approach. This study uses both qualitative and quantitative methods to unearth the impact of BA on business performance, and it provides evidence of the successful implementation of BA in businesses leading numerous operational and performance benefits.

Literature review

Operational efficiency, cost-reduction, and business performance are some of the critical needs of businesses in contemporary times. It is necessary for organizations to unrelentingly execute newer methods and processes that allow efficiency and promote innovativeness (Asare et al., 2020). By carefully monitoring costs, organizations can also ensure that they survive even in hostile markets, as they can maintain profitability without necessarily transferring the burden to the consumers (Khder et al., 2021).

Indeed, business analytic tools promise commendable business performance because, other than enhancing operations, they can also help detect abnormal business trends and allow effective redresses and improvements where weaknesses are identified (Rustagi & Goel, 2022). Chen et al., 2022 demonstrated a significant relation between the adoption of the business analytic tool and business performance. (Henry, 2021) showed that in the 20th century, businesses that upheld predictive analytics remarkably attained proficiency. Therefore, this research project considers hypothesis (H1) stated as “The adoption of BA (AdBA) has a significant impact on Business Performance (BP) and operational efficiency”. The hypothesis is tested in the Saudi market in different business sectors.

Research methodology

The methodology has been divided into two parts, qualitative and quantitative. In the quantitative context, a semi-structured self-administered questionnaire has been used to collect data from 50 companies operating in different business sectors, as shown in Figure 1. A self-administered five-point likert scale has been used to measure two variables, the adoption of business analytics (AdBA) and the business performance (BP). In addition, a coded question regarding the challenges faced by companies while adopting BA is also added to the survey. A convenient sampling technique was adopted in this study to determine the status of adoption of BA in KSA.

The AdBA is measured on a 5-point likert scale comprising two items determining if the company has adopted BA. The reliability of the construct is 0.68. However, the other variable BP is also a five-point likert scale based on 4 items. The cronbach’s alpha of BP is 0.92. The BP items used in the questionnaire are the use of BA has “increased efficiency and productivity”, “Improved decision making”, “Enhanced data visualization and reporting”, “Better understanding of customer behavior and preferences” and “Increased revenue and profitability”. These items have been used as a comprehensive approach to measure the overall improvement in business performance resulting from cost reduction, operational efficiency and predicting customer behavior, leading to improved business performance.

Quantitative analysis

The data analysis was conducted using SPSS, using a linear regression model to test the hypothesis. The descriptive statistics were calculated to get an overview of the data. Figure 1 and table 1 summarize the characteristics of the tested sample. Moreover, the data analysis shows that 9 companies out of 50 are not using any smart business analytical tool. A Pearson correlation has been used to determine if there is a significant relationship between AdBA and BP. Moreover, the ANOVA test is conducted to determine if there is a significant difference between the BP of the company’s using BA and the ones that are not using BA. The values confirm that the companies with BA have a higher level of business performance than the ones who have not adopted BA.

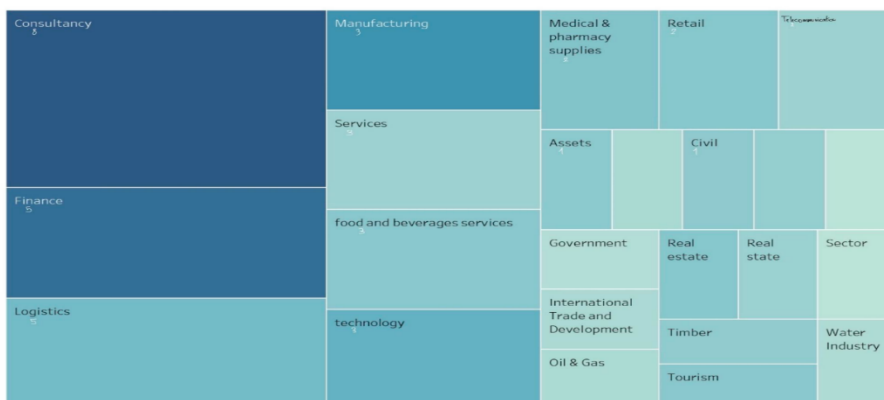


Figure 1. Companies Sectors where dark blue cells represent large companies and light green cells represent SMEs

| Industry Sector | Number | # of employees | Number |
|-----------------|--------|----------------|--------|
| Logistics | 5 | Less than 500 | 4 |
| Consultancy | 8 | Less than 1000 | 7 |

| | | | |
|---------------------|----|-----------------|----|
| Food | 3 | Less than 10000 | 8 |
| Banking and Finance | 5 | Less than 20000 | 12 |
| Retail | 2 | More than 20000 | 19 |
| Technology | 6 | | |
| Real Estate | 2 | | |
| Manufacturing | 7 | | |
| Others | 12 | | |

Table 1. Descriptive statistics

Moreover, companies were asked to select the challenges they faced during the implementation of business analytics. The challenges were “*lack of budget/resources*”, “*lack of skilled employees*”, “*difficulty integrating analytics tools with the existing system*” and “*others*”. The results show that 25% of firms faced difficulty due to lack of skilled labor, 23.5% firms faced issue of funds deficiency and 23.5% firms faced difficulty during the integration of analytical tools with the existing system.

Qualitative analysis

A deductive content analysis approach has been used to answer the second research question stating, “Successful implementation of business analytics in your company”. A semi structured questionnaire with open-ended questions were used to collect data. Analysis is done using thematic approach. Analysis revealed that several factors are required for a successful implementation of BA and there is a number of successful implementations across businesses.

The respondents’ responses revealed that AI is a significant BA tool as it plays a vital role in prediction analysis in manufacturing, supply chain, quality control, marketing campaigns, and other sectors while ensuring customer satisfaction and operational efficiency. Predictive analysis helps business to make informed decisions as it identifies problems before they occur.

Findings

The linear regression has been applied as shown in Table 2. The dependent variable BP was regressed by the independent variable AdBA. The regression results show that AdBA significantly impact on BP, $F(1, 48) = 6.065$, $P < 0.05$. It indicates that the variables under study have significant relation. Moreover, the R square equaling 0.441, depicts that the AdBA brings 44.1% variance in the BP.

The Pearson correlation shows a significant positive correlation between adoption of BA and BP where the value of beta is 0.335 and p value is 0.017. This shows that the adoption of BA improves business performance. Moreover, the ANOVA shows that there is a significant difference between the business performance levels of the companies that are not using BA with 0.017 significance level. Overall, the statistical results confirm the significant relation between the AdBA and BP which validates H1.

| Hypothesis | Paths | Beta value | t | P-value | Results |
|------------|--------------|------------|-------|--------------|-----------|
| H1 | AbBA → BP | .335 | 2.463 | 0.017 < 0.05 | Supported |
| R | 0.441 | | | | |
| F (1,48) | 6.065 | | | | |

Table 2. Hypothesis testing

Furthermore, the direct relationship between AdBA and BF shows that the companies must adopt BA. Moreover, the data shows that in the sample of 50, 41 companies are already using BA to some extent. It shows the pervasive spread of BA in the business sector. The status of BA in the KSA is high and majority of the companies are using BA.

Limitation and future endeavors

The study provides an impetus to the companies to adopt BA to improve their performance. It proposes practical implications in the form of highlighting the issues companies facing during deployment of BA. While this study adopted convenient sampling, future studies can be done while adopting a specific sector with the specific level of employees. Moreover, this study used a single predictor of BP, and a comprehensive approach was taken in the name of BA. Future studies can be done using a different business analytical tool separately. Future studies can be performed while adding a moderating and mediation variable like business processing system to further signify the relation and enrich the literature.

Conclusion

The use of business analytics tools has expedited the process of improving corporate operations and performance. Despite the fact that business analytics has been utilized for many years, there is still a number of unresolved problems and barriers that must be addressed in order to increase company performance and efficiency for both individuals and businesses. Moreover, further studies must conduct in-depth analysis of the challenges companies are facing while adopting BA.

References

- Adaileh, M. J., Alrwashdeh, M., & Abu, H. Z. (2022). *Uncertain Supply Chain Management The antecedents of supply chain performance : Business analytics , business process orientation , and information systems support*. 10, 399–408.
- Alharthi, H. (2018). Healthcare predictive analytics: An overview with a focus on Saudi Arabia. *Journal of Infection and Public Health*, 11(6), 749–756.
- Asare, A. O., Addo, P. C., Sarpong, E. O., & Kotei, D. (2020). COVID-19: optimizing business performance through agile business intelligence and data analytics. *Open Journal of Business and Management*, 8(5), 2071–2080.
- Chae, B. K., Olson, D., & Sheu, C. (2014). The impact of supply chain analytics on operational performance: A resource-based view. *International Journal of Production Research*, 52(16), 4695–4710.
- Chen, Y., & Lin, Z. (2021). Business intelligence capabilities and firm performance: A study in China. *International Journal of Information Management*, 57, 102232.
- Khder, M. A., Abu-Alsondos, I. A., & Bahar, A. Y. (2021). The Impact of Implementing Data Mining in Business Intelligence. *International Journal of Entrepreneurship*, 25, 1–7.
- Niu, Y., Ying, L., Yang, J., Bao, M., & Sivaparthipan, C. B. (2021). Organizational business intelligence and decision making using big data analytics. *Information Processing & Management*, 58(6), 102725.
- Rustagi, M., & Goel, N. (2022). Predictive Analytics: A study of its Advantages and Applications. *IARS'International Research Journal*, 12(01), 60–63.
- Uriona Maldonado, M., Leusin, M. E., Bernardes, T. C. de A., & Vaz, C. R. (2020). Similarities and differences between business process management and lean management. *Business Process Management Journal*, 26(7), 1807–1831.