

## Leveraging business intelligence and analytics for strategic success in the hospitality industry: Insights from hotels

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### ABSTRACT

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This research strives to offer valuable insights into business intelligence and analytics utilization. Besides, its expansion encompasses essential success factors for business intelligence and strategic management in the hospitality industry. The study's sample comprises 387 hotel managers from the Jordanian hospitality industry. Data collected to support the research goal was examined using multiple regression analysis through SPSS, with the assistance of PROCESS Macro v3.5. The results of this study reveal that business intelligence and analytics can serve as a bridge to connect crucial success factors for business intelligence and strategic management. These findings have implications for existing literature and stakeholders. Hotels that have integrated business intelligence and analytics acknowledge the advantages of enhancing their strategic management capabilities and decision-making processes.

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### 1. Introduction

With the recent development of artificial intelligence and various analytical capabilities, the business world is becoming more intelligent. Through intelligence technologies, companies support their IT infrastructure to create a competitive advantage (Awamleh & Bustami, 2022). Also, technological advancement left no choice for businesses but to adopt smart decision-making to advance their competitive edge (Kalyani, 2019). Business intelligence and analytics, thereafter business intelligence and analytics (BIA) is coming to accelerate the way for companies to deal with data efficiently and to use it up to its potential such as capturing patterns and mining trends (Raisinghani, 2003). In addition, BIA supports strategic management to make rational and data-led decisions (Parnell & Brady, 2019).

The hospitality-centric theory of strategic management drives utilising strategic planning, analysis, and implementation capabilities to leverage organisational performance (Fatoki, 2021), directing sustainability performance, recruitment, training, and compensation strategies toward the preset goals (Rossidis et al., 2021). Strategic management's dimensions compare strategy formulation, implementation, evaluation and control, leadership, and considering external factors (Alkhodary, 2023). Strategic management depends on the process of analysing the available data. This is where business intelligence and data analytics fit the puzzle. The core of BIA is to make sure the strategic management has the utmost potential within the available data from the internal and external environments.

In the hospitality industry, BIA is vital in supporting strategic management. Through leveraging user-generated content from social media platforms, hospitality firms gain valuable insights into customer experiences and satisfaction levels (Mousavian et al., 2023). Additionally, the use of data analytics models can provide predictive capabilities for decision-making aiding in

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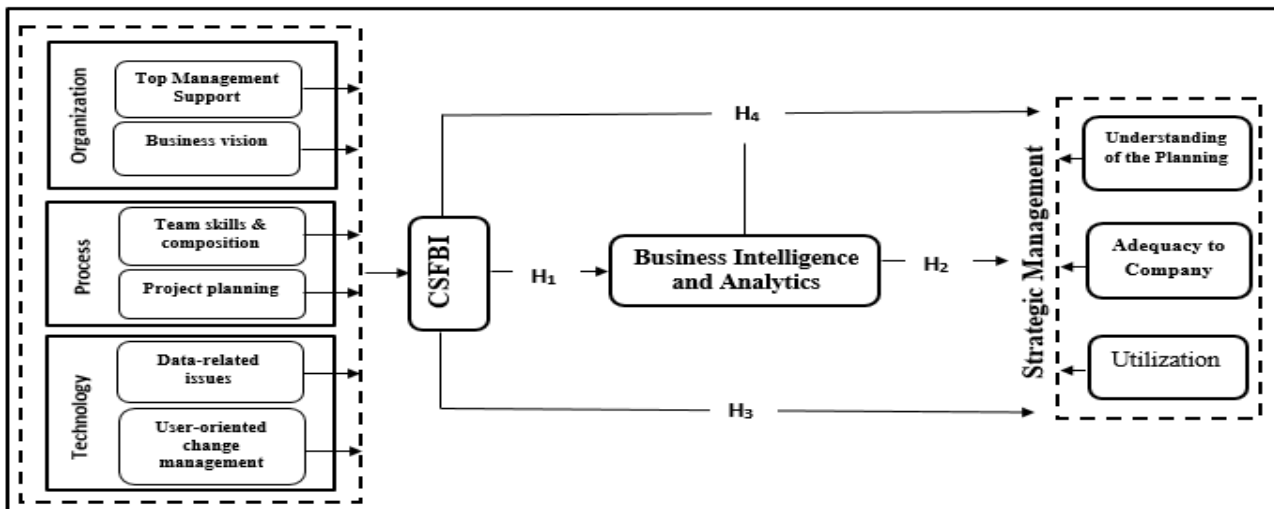
planning (Ramos, 2022). Analyzing scores data and implementing business analytics can significantly impact sales, profits, savings, and market positioning, giving companies a competitive edge (Rosliani & Rahayu, 2022).

Hospitality firms need to make sure that they are making the best out of the available data around them and optimise the outcome to serve different organisational levels based on their needs. Thus, it is necessary to use intelligent information systems that are capable of transforming raw data into information that supports decision-making (Johannesson & Palona, 2010). Integrating the intelligent system starts with the critical success factor for business intelligence and extends toward strategic management. Specifically, critical success factors for business intelligence, thereafter Critical Success Factors for Business Intelligence (CSFBIs), are the factors that ensure the successful application of the business intelligence system (Chenoweth et al., 2006; Johnson, 2004; Xu & Hwang, 2005). They are critical because they also hold the fate of the input and output data of the business intelligence system.

The ultimate purpose of this study is to propose a framework that puts the intelligent system in a form that can provide hospitality firms with a platform to support smart decision-making namely, linking BIA, CSFBI and SM in five-star hotels in Jordan. The selection of the setting, that is Jordan, came due to its political stability and the established IT infrastructure. The hospitality sector in Jordan is well established and the technological infrastructure is sound. Five stars hotels in Jordan have been studied and proven to be valuable for such data-oriented and intelligent systems settings (Enad Al-Qaralleh & Atan, 2022; Jaradat et al., 2022; Jawabreh et al., 2022; Kenny & Dutt, 2022; Krupina et al., 2023; Masa'Deh et al., 2021; Rossidis et al., 2021).

## 2. Hypothesis Scenery

The proposed model formulates the hypothetical role of business intelligence and analytics and its extension usage to integrate the critical success factors from one end and strategic management on the other end. This model is built on previous studies and aims to add to the current literature by expanding the understanding of business intelligence and analytics and its role in holding intelligent systems together. Also, how this reflects on business performance and competitiveness.



**Fig. 1.** Research model illustrate that business intelligence and analytics and its extension to include important success factors for business intelligence and strategic management.

## 3. Hypothesis Development and Theoretical Linkages

### 3.1 CSFSBI and BIA

The critical success factors for business intelligence (CSFBI), as the name declares are factors that determine the fate of the success of business intelligence in organisations. The previous literature is not in agreement about what are these factors, some studies looked into “top management support, market dynamics, data quality of source systems, and BIA technology utilisation” (Adamala & Cidrin, 2011). On the other hand, the empirical studies considered user engagement, system data quality, and committed top management (Awamleh & Bustami, 2022; Hawking & Sellitto, 2010; Olbrich & Poppelbuß, 2012; Yeoh & Koronios, 2010). Taking into consideration the viewpoint of the critical success factors for business intelligence that has three dimensions, namely: organisational, process and technology, it draws on the underlying links with BIA. Specifically, the technological considerations are related to data, user interface and change management. BIA is equipped to handle different data sources collection and analysis. Also, business intelligence and analytics is a suitable medium for evaluating data from the business environment in order to accommodate business environment changes as well as handling the transition and assessing the situation after the change is done (Williams et al., 2022).

The corporate settings are encumbered with data that needs attention and an efficient decision-making process to stay ahead of the competition. Therefore, BIA is necessary to leverage the use of the data to assist with change management and solve banking problems by ensuring decision-making based on the analysed data (Bany Mohammad et al., 2022). Hence, the following possibilities are proposed:

**H<sub>1</sub>:** *CSFBI has a positive association with BIA.*

#### *BIA and Strategic Management*

Business intelligence and analytics seem to have a complementary effect on strategic management as the quantitative and predictive ability of the BIA can be of good use for strategic management (Cohen, 2013). Furthermore, Business intelligence with its analytical links with strategic intelligence (Awamleh & Bustami, 2022). Hence, establish the needed support for the decision-making processes and in turn strategic planning and management (Pellissier & Kruger, 2013). Another study linked business intelligence and strategic management (Alnoukari & Hanano, 2017).

Considering the underlying functionality of business intelligence and data analytics (BIA) that are collecting, analyzing, and presenting data to help businesses rationalize decision-making (Saleh et al., 2022). Possible connections between BIA and strategic management can be spotted. Identifying trends and patterns from data collected from the business environment can help businesses form a better understanding of the customers, competitors, and the market. Consequently, this information can be helpful for strategic managers who can develop strategies that will help hospitality firms grow and succeed based on these data. BIA's ability to use Measuring performance key performance indicators (KPIs) to evaluate the performance of hospitality firms (Krupina et al., 2023). This provides an important insight that strategic management appreciates and depends on to make the necessary improvements to the business process, and strategies and track the changes over time (Fuertes et al., 2020). The primary aim of BIA is to manipulate data and prepare it in a form that can support rational decision-making that strategic managers rely heavily on. This helps establish the second hypothesis as follows:

**H<sub>2</sub>:** *BIA has a positive association with strategic management.*

#### *CSFBI and Strategic Management*

The critical success factor for business intelligence dimensions, namely, top management support and business vision focusing on the strategic side of business such as visioning and foresight (Maccoby, 2001). Strategic intelligence in nature is an intelligent system, the way it is implemented is similar to other intelligent systems i.e. BIA. Consequently, it might be affected by the CSFBI such as top management support etc. (Gottschalk, 2009). Top management support embedded in the CSFBI helps keep the BIA system in check and light with the organizational goals and vision and according to the management recommendation such rational decision-making process. The consideration to make a successful business intelligence system helps increase the efficiency of the system which in turn helps the strategic managers to identify and eliminate inefficiencies which leads to cut costs and improved productivity. Addressing CSFBI enables organizations to raise the chances of the successful implementation of the BIA projects in a way that supports the functions of strategic management. The third hypothesis will be as follows:

**H<sub>3</sub>:** *CSFBI has a positive association with strategic management.*

#### *The mediating effect of the BIA on the relationship between CSFBI and strategic management*

Business intelligence is proven to support decision-making using strategic intelligence (Awamleh & Bustami, 2022). Strategic management systems depend on the information from the BIA system to support the decision-making process (Pellissier & Kruger, 2013). CSFBI set the foundations for the successful implementation of a business intelligence system (Yeoh et al., 2007). Therefore, ensures the alignment of the functionalities between strategic management systems and BIA (Maccoby, 2001). Several studies have looked into the connection between CSFBI, BIA and strategic management and proved that BIA boosts strategic decision-making (Awamleh & Bustami, 2022; Bany Mohammad et al., 2022). However, the business intelligence and analytics role in the relationship between CSFBI and SI needs more insights from various sectors. Thus, the fourth hypothesis will be as follows:

**H<sub>4</sub>:** *BIA has a mediating effect on the relationship between CSFBI and strategic management.*

## **4. Methodology**

### *4.1 Design*

The study design is based on a descriptive-analytical method that is about to answer the study's key question, what is the role of business intelligence and analytics, CSFBI and strategic management? Therefore, this study utilised linear regression analysis to quantify the relationships between CSFBI, BIA and Strategic management while (PROCESS Micro v3.5) is used

to measure the distance between the direct and indirect relationships between CSFBI, BIA and strategic management. This is to verify the complementary relationship and the extent of its contribution to the enrichment of the literature (Sekaran & Bougie, 2016). To examine the understanding and appropriateness of the study questions on the intended community, a pilot study of 22 managers from five-star hotels in Jordan has been done.

#### 4.2 Study Participants

The study sample represents 18 five-star hotels in Jordan where 387 valid questionnaires from management employees were acquired successfully. The acceptance of the study was proven due to the demonstrated good understanding of the study questions. The questionnaires were randomly distributed to the targeted sample, allowing the results to be more generalizable to the research population. The study sample targeted the managerial level due to their expertise and knowledge of the study aspects and also added to the credibility of the data collection technique. Within the managerial level, the acquired number of responses is acceptable in the related studies. Table 1 shows the sample with the related details.

**Table 1**

The sample of the study.

Hotels	Position	Frequency	Percentage %
W	"Manager"	22	6
Kempinski	"Manager"	21	5
Le Royal	"Manager"	23	6
Rotana	"Manager"	22	6
Fairmont	"Manager"	20	5
Landmark	"Manager"	19	5
Hilton	"Manager"	20	5
Grand Hyatt	"Manager"	18	5
Bristol	"Manager"	19	5
Marriott	"Manager"	21	5
The St. Regis	"Manager"	22	6
The House Boutique Suites	"Manager"	22	6
Mövenpick	"Manager"	25	6
InterContinental	"Manager"	21	5
Four Seasons	"Manager"	24	6
Sheraton	"Manager"	24	6
The Ritz-Carlton	"Manager"	22	6
Opal	"Manager"	22	6
<b>Total</b>		<b>387</b>	<b>100</b>

#### 4.3 Measures

The data collection instrument was developed based on the following empirical studies (Awamleh & Bustami, 2022; Eryadi & Hidayanto, 2020; Paulino, 2022; Rustamadji & Omar, 2019; Yeoh & Popovič, 2016). A pilot experimental study has been done, as a quality measure to confirm the validity and credibility of the data collection instrument and ensure its suitability to collect data from the research population. The CSFBI scale is built on a 7-point Likert scale with "1" strongly disagree to "7" strongly agrees based on six dimensions, particularly: "Top Management Support, User-oriented change management, Team skills & composition, Project planning, Data-related issues, and Business vision" (Eryadi & Hidayanto, 2020; Yeoh & Popovič, 2016). The development of the BIA scale is based on (Awamleh & Bustami, 2022; Paulino, 2022). The questions are based on five 5-point Likert questions from "1" strongly disagree to "5" strongly agree. As for strategic management, the scale consists of three dimensions: Understanding of the Planning, Adequacy of the Company, and Utilization. The questions can be answered with five 5-point Likert questions 1 to 5 from strongly agree to strongly disagree (Rustamadji & Omar, 2019). The decision to adopt this measure came due to its validity and reliability as it is used effectively in numerous studies and different sectors.

#### 4.4 Procedure

The study design entails a cross-sectional study in terms of the data collection design. This study method is quantitative as the data collection tools were hand-distributed questionnaires to the sample size. It is suitable considering the sample's seniority and size. The data analysis procedures that aim to answer the study questions have been done using the SPSS program. Ethical considerations have been put in place during the study to ensure the trustworthiness of the study results such as ensuring there were no conflicts of interest in the use of the data, the data confidentiality, and strict use of the data for research purposes only.

#### 4.5 Statistical Analysis

The total number of valid and suitable for analysis questionnaires was 387. A set of data analysis techniques and procedures were applied. Specifically, summary statistics and internal validity of bivariate correlations. Then, reliability, normality,

multicollinearity and descriptive statistics to measure the accuracy of the data collection tool. Afterwards, the SPSS 25 program performs other statistical measurements. Specifically, linear regression analysis to test the relationship between the dependent variable (CSFBI) and independent variable (strategic management). Hence, to verify the complementary relationship and the extent of its contribution to the enrichment of the literature. Finally, PROCESS Micro v3.5 software was employed to measure direct and indirect effects to achieve the study target. Therefore, test the mediating effect of the mediating variable (BIA). These tests are used by previous studies, also the expert judgement voted on their suitability to answer the research questions and validate the hypotheses.

## 5. Results

### 5.1 Summary Statistics & Internal Validity of Bivariate Correlations

The Pearson correlation test confirmed good internal stability for all items at a significant level of 0.01. In addition, all numbers in the table were among  $20 < \text{Pearson correlation} < 90$ , which confirmed the independence of the data by demonstrating that there was no weakness in the relationship between all items and that there was no multicollinearity in the data for all items. (Hair et al., 2014; Sekaran & Bougie, 2016).

**Table 2**  
The internal validity through Pearson Correlation test

Variable	CSFBI							SM		IV	DV	M
Item	TMS	UO	TPS	PP	DQ	CV	UP	AC	U	CSFBI	SM	BIA
TMS	1.0											
UO	0.83**	1.0										
TPS	0.74**	0.76**	1.0									
PP	0.67**	0.66**	0.81**	1.0								
DQ	0.59**	0.60**	0.69**	0.73**	1.0							
CV	0.65**	0.66**	0.88**	0.84**	0.83**	1.0						
SMUP	0.60**	0.59**	0.70**	0.69**	0.71**	0.75**	1.0					
SMAC	0.59**	0.56**	0.70**	0.65**	0.58**	0.68**	0.76**	1.0				
SMU	0.56**	0.51**	0.61**	0.58**	0.53**	0.61**	0.58**	0.76**	1.0			
CSFBI	0.84**	0.85**	0.89**	0.89**	0.85**	0.93**	0.77**	0.71**	0.64**	1.0		
SM	0.65**	0.62**	0.75**	0.71**	0.68**	0.76**	0.87**	0.88**	0.87**	0.79**	1.0	
BIA	0.54**	0.56**	0.61**	0.56**	0.53**	0.57**	0.61**	0.68**	0.59**	0.64**	0.70**	1.0

\*\*\* Correlation is significant at the 0.01 level (2-tailed); \* Correlation is significant at the 0.05 level (2-tailed), N= 387.

CSFBI= critical success factors for business intelligence: TMS=Top Management Support, UO= User-oriented change management, TSC= Team skills & composition, PP= Project planning, DRI= Data-related issues, BV= Business vision; BIA= Business Intelligence and Analytics; SM= Strategic Management: UP= Understanding of the Planning, AC= Adequacy to Company, U= Utilization.”

### 5.2 Tests of Reliability, Normality, Multicollinearity, Descriptive statistics

Cronbach Alpha proved general credibility of  $\alpha = 97\%$  for all items and a score of no less than  $\alpha = 70\%$  for the minimum item, which confirmed the overall credibility of the study questions (Hair et al., 2014). A Cronbach's alpha score of 0.97 indicates excellent internal consistency among the items on a scale. However, further studies should look into the items for redundancy and consider refining the scale to ensure it captures a broader and more representative range of the construct you're measuring and when applying the framework to other samples or settings. The Skewness - Kurtosis test shows that all data are between  $\pm 2.58$ , which indicates that all data are normally distributed (Sekaran & Bougie, 2016). Furthermore, the VIF & Tolerance test specifies that there is no multicollinearity since all numbers are  $VIF < 5$ . The descriptive analysis reveals that the mean was between 5.4 & 4.8 for a 7-point Likert scale, which was between high and medium for the CSFBI items. In contrast, the 5-point Likert scale was between 3.7 & 3.5, which was between the high and medium levels for the SM items while the BIA was 4.0, which is a high level.

**Table 3**  
Tests of Reliability, Normality, Multicollinearity, and Descriptive Statistics.

Variable	CSFBI							SM		IV	DV	M	$\Sigma$
Item	TMS	UOCM	TSC	PP	DRI	BV	UP	AC	U	CSFBI	SM	BIA	Total
N. of item	2	2	4	3	2	2	4	3	4	15	11	9	35
Alpha ( $\alpha$ )	.87	.88	.91	.80	.88	.79	.93	.77	.87	.97	.93	.93	.97
Skewness	-1.2	-1.2	-1.0	-.7	-.9	-.9	-.9	-.6	-.7	-1.0	-.7	-1.2	Er= .12
Kurtosis	1.8	1.8	.8	.3	.4	.5	1.0	.7	.6	1.3	1.0	3.0	Er= .25
VIF	2.0	3.7	2.7	2.8	3.2	2.7	2.8	1.3	2.5	3.5	3.3	3.7	VIF < 5
Tolerance	.4	.4	.3	.4	.3	.4	.4	.8	.4	.3	.4	.2	T < 1.00
Mean	5.4	5.3	5.0	4.8	5.0	5.0	3.7	3.7	3.5	5.0	3.6	4.0	HL&ML
SD	1.2	1.2	1.3	1.2	1.4	1.4	.8	.8	.8	1.1	.7	.7	HL&ML

Alpha ( $\alpha$ )  $\geq 70$ ; Skewness & Kurtosis =  $\pm 2.58$ ; VIF =  $< 5$ ; Mean & SD = High level (HL) & Medium level (ML)

CSFBI= critical success factors for business intelligence: TMS=Top Management Support, UO= User-oriented change management, TSC= Team skills & composition, PP= Project planning, DRI= Data-related issues, BV= Business vision; BIA= Business Intelligence and Analytics; SM= Strategic Management: UP= Understanding of the Planning, AC= Adequacy to Company, U= Utilization.”

5.3 Linear Regression Analysis

The results shown in Table 2 and Table 3 indicate that linear regression is suitable for examining the direct effect of research hypotheses. Hence, Linear regression analysis results clarified that all models are statistically significant at 0.01 level. Moreover, the Durban-Watson test illustrates that all values of the models are within the acceptable level ( $2.5 \leq D.W \leq 1.5$ ). Consequently, confirmed that the research model is auto-correlation-free. Furthermore, the value of the R square for CSFBI is “0.4” from BIA, BIA is “0.5” from SM, and CSFBI is “0.6” from SM. As for the  $\beta$  values, it indicates that the increase of CSFBI by one score is explained by the BIA increase of 0.63 scores, the BIA  $\beta$  value indicates that one score increase is explained by the SM increase of 0.70 scores, while the  $\beta$  value for CSFBI indicates that one point increase is explained by the SM increase of 0.79 scores (Kumari & Yadav, 2018).

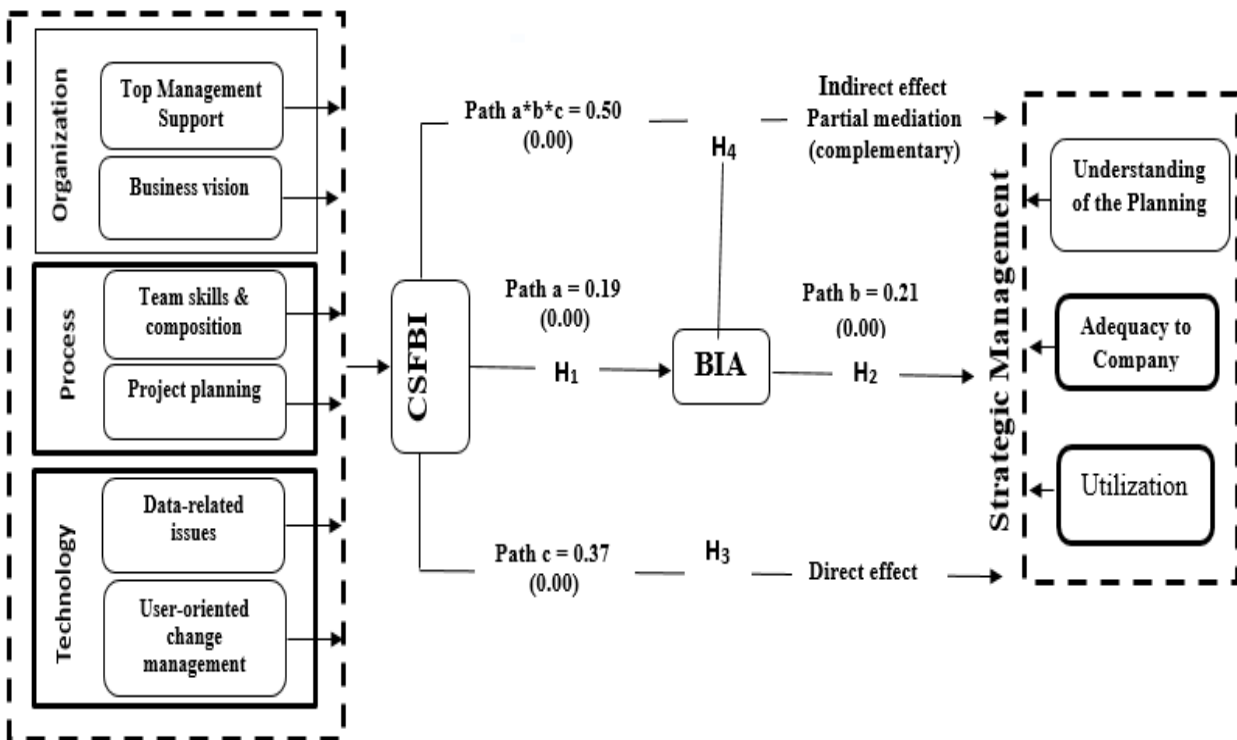
**Table 4**  
Linear regression analysis

Model	variables	R Square	D.W	' $\beta$ '	'F'	'T'	'Sig.'	'Decision'
Model1	CSFBI → BIA	0.4	2.1	0.63	264.00	16.25	0.00**	Accepted
Model2	BIA → SM	0.5	1.9	0.70	737.33	19.32	0.00**	Accepted
Model3	CSFBI → SM	0.6	2.0	0.79	643.59	25.37	0.00**	Accepted

'Regression is significant at  $p \leq 0.01$ ; \* Regression is significant at  $p \leq 0.05$ . CSFBI critical success factors for business intelligence; BIA= Business Intelligence & Analytics; SM= Strategic management'.

5.4 The Direct & Indirect Effect

Through the PROCESS Micro v3.5 test, it was shown that the direct and indirect distances for the values of LLCI and ULCI were not equal to zero, which indicates that all relationships are statistically significant for all values (Hayes, 2015). Interestingly, the total indirect effect equals 50% and the direct effect equals 37%, which indicates that the effect value is 13% more than the direct value, and the BIA proved successful in improving the total effect as a partial mediation (complementary) between CSFBI and SM. Collectively, the detection of an extra mediator (BIA) improves the value of the relationship and illustrates innovative contributions that would enhance further studies with new knowledge, decrease risks, and increase the likelihood of progress and success.



**Fig. 2.** The structure model illustrates ‘the direct and indirect effects’ that “business intelligence and analytics is a partial (complementary) mediation between CSFBI and strategic management”

**NB.**

Indicates direct effect (path c)

Indicates indirect effects (path a\*b\*c)

**Table 5**

Direct &amp; Indirect effect summary of BIA between CSFBI &amp; SM

<b>The total effect of CSFBI on SM: CSFBI &amp; BIA &amp; SM</b>				
Effect	SE	LLCI	ULCI	p
0.5	0.02	0.46	0.54	0.00
<b>The direct effect of CSFBI on SM: CSFBI → SM</b>				
Effect	SE	LLCI	ULCI	p
0.37	0.02	0.32	0.41	0.00
<b>The direct effect of CSFBI on SM: CSFBI → SM</b>				
Effect	BootSE	BootLLCI	BootULCI	p
0.13	0.02	0.09	0.18	0.00
<b>'Partially standardized indirect effect(s) of CSFBI on SM':</b>				
Effect	SE	LLCI	ULCI	p
0.19	0.03	0.13	0.25	0.00
<b>'Completely standardized indirect effect(s) of CSFBI on SM':</b>				
Effect	SE	LLCI	ULCI	p
0.21	0.04	0.14	0.29	0.00

\*\*\*Level of confidence for all confidence intervals in output:95.0 CSFBI critical success factors for business intelligence; BIA= Business Intelligence and Analytics; SM= Strategic Management'.

## 6. Discussion

Joining intelligence technologies with IT capabilities enables the business to acquire competitive advantages (Awamleh & Bustami, 2022). In addition, organizations are required to exercise competent and intelligent decision-making to stay ahead of their competitors (Kalyani, 2019). Rational decision-making is based on data; therefore, data needs to be ready for such support. The use of the BIA is all about enabling companies to prepare data to be worth using for the decision-making process. This study addresses the role of the BIA along with CSFBI, strategic management and the interrelationships in boosting the strategic management capabilities of hospitality establishments. There were some attempts to study the integration of CSFBI, BIA, and SM (Awamleh & Bustami, 2022; Bany Mohammad et al., 2022). However, more studies are needed to fully understand the interrelationships of the intelligent system. In other words, how does BIA enhance the connection between CSFBI and SM? Thus, the current study offered a tested model that measured the integration between intelligent systems. Namely, BIA, CSFBI and SM in five-star hotels in Jordan.

It can be concluded, based on this study's findings, CSFBI leads to the successful implementation of BIA and this is in agreement with other studies stated (Pellissier & Kruger, 2013; P. H. M. Pham & Gammoh, 2015; Yeoh, 2011). In addition, the positive effect that CSFBI has on strategic management has been proven by this study's results. This might be due to the common foundation of both concepts (Cohen, 2013; Maccoby, 2001). Namely, the top management support and business vision which matches strategic management objectives. This study's results highlight the significant effect that BIA has on strategic management which matches other studies' results (Alnoukari & Hanano, 2017; F. T. Awamleh & Bustami, 2022; Cohen, 2013). BIA as a mediator factor, proved to improve the association of CSFBI and strategic management and this is in line with the findings of another study done in the same country (Awawdeh et al., 2022). However, The BIA's contribution to the relationship success at a level of 50% needs further studies to explain it.

Previous literature has pointed out the importance of strategic management for hospitality establishments (Ioannidis et al., 2021; Lacerda et al., 2021; Pacheco Pumaleque et al., 2021). However, there is still a lack of explanation of what makes strategic management better in helping hospitality industry players get ahead of the competition and overcome external threats. This study, therefore concluded that the use of BIA which is backed by CSFBI makes strategic management effective for hospitality establishments.

## 7. Implications

This study lays the ground for further studies to expand the current model as well as its application to different sectors and markets. Taking the current model and customising it for developed economies could lead to unlocking new perspectives and cultural characteristics. The current study presents a robust, quantitative and tested model that successfully explains the underlying relationships between the study concepts. Consequently, bridges the missing chain in the literature and stimulates further research. Finally, this study verified BIA served as leverage to the relationship between CSFBI and SM which encompasses a better understanding of the integration of intelligent systems to support businesses.

On the other hand, the practical applications concluded that CSFBI and BIA improve strategic management by increasing the integration of intelligent systems. Hence, managers can depend on this result to use BIA to optimize data to assist strategic decision-making. Also, managers have evidence that the integration of intelligent systems supports strategic decision-making, therefore they can invest in the integration of the intelligent systems. Managers with a better understanding of the intelligent system are more able to adapt to changes in the business environment.

## 8. Limitations

Several considerations relate to the generalisation of the current study's findings such as the study sample, measure, context, setting and the sector. Nonetheless, the findings are significant contributions to the body of knowledge. These contributions entail evidence of the support role of BIA in enhancing the association between CSFBI and strategic management. Additionally, this study contributed to the current knowledge by presenting a tested model that measures the connections between CSFBI, BIA, and SM in Jordan. Other considerations for further studies that aim to study the same concepts, need to make the suitability measures as the current study has been done in emerging markets such as Jordan. Further research that looks into adopting the research measure should consider the internal validity when applying it to other samples and contexts.

## 9. Future Research

The current study's results stimulate further researchers to explore BIA in a wide range of circumstances, whether it's new target markets, sectors, or cultural settings which will develop our understanding of intelligent systems integration holistically. This study's model is developed, supported by previous research and tested which is highly usable for different purposes such as cross-cultural, cross-sector studies and along with other concepts.

## 10. Conclusion

This study is centred on the usage of BIA with the companies' CSFBI and strategic management in five-star hotels in Jordan. The study's data was gathered from 387 managers and analysed using SPSS and PROCESS Micro v3.5. The data analysis phases comprised multi-regression analysis, descriptive statistics and the direct and indirect effects. The current study findings concluded that the study model had a noteworthy interrelated impact. BIA demonstrated the link between 'CSFBI' and 'SM'. Consequently, the findings were found to be an added contribution to the intelligent system's current literature. Moreover, inspires future research with the integrated model that quantifies the relationships of the intelligent systems in organizations. Companies might benefit from this study's results by integrating the business intelligence and analytics applications with other intelligence systems which will amplify the overall performance.

## References

- Adamala, S., & Cidrin, L. (2011). *Key success factors in business intelligence*.
- Alkhodary, D. (2023). Integrating Sustainability into Strategic Management: a Path Towards Long-Term Business Success. *International Journal of Professional Business Review*, 8(4), e01627. <https://doi.org/10.26668/businessreview/2023.v8i4.1627>
- Alnoukari, M., & Hanano, A. (2017). Integration of business intelligence with corporate strategic management. *Journal of Intelligence Studies in Business*, 7(2), 5–16. <https://doi.org/10.37380/jisib.v7i2.235>
- Awamleh, F., & Bustami, A. (2022). Examine the Mediating Role of the Information Technology Capabilities on the Relationship Between Artificial Intelligence and Competitive Advantage During the COVID-19 Pandemic. *SAGE Open*, 12(3), 1–14. <https://doi.org/10.1177/21582440221119478>
- Awamleh, F. T., & Bustami, A. N. (2022). Investigate the Mediating Role of Business Intelligence on the Relationship Between Critical Success Factors for Business Intelligence and Strategic Intelligence. *Journal of Intelligence Studies in Business*, 12(2), 66–79.
- Awawdeh, H., Abulaila, H., Alshanty, A., & Alzoubi, A. (2022). Digital entrepreneurship and its impact on digital supply chains: The mediating role of business intelligence applications. *International Journal of Data and Network Science*, 6(1), 233–242. <https://doi.org/10.5267/J.IJDNS.2021.9.005>
- Bany Mohammad, A., Al-Okaily, M., Al-Majali, M., & Masa'deh, R. (2022). Business Intelligence and Analytics (BIA) Usage in the Banking Industry Sector: An Application of the TOE Framework. *Journal of Open Innovation: Technology, Market, and Complexity*, 8(4), 189. <https://doi.org/10.3390/joitmc8040189>
- Chenoweth, T., Corral, K., & Demirkan, H. (2006). Seven key interventions for data warehouse success. *Communications of the ACM*, 49(1), 114–119. <https://doi.org/10.1145/1107458.1107464>
- Cohen, C. (2013). *Business intelligence: the effectiveness of strategic intelligence and its impact on the performance of organizations*. John Wiley & Sons.
- Enad Al-Qaralleh, R., & Atan, T. (2022). Impact of knowledge-based HRM, business analytics and agility on innovative performance: linear and FsQCA findings from the hotel industry. *Kybernetes*, 51(1), 423–441.
- Eryadi, R. A., & Hidayanto, A. N. (2020). Critical Success Factors for Business Intelligence Implementation in an Enterprise Resource Planning System Environment Using DEMATEL: A Case Study at a Cement Manufacture Company in Indonesia. *Journal of Information Technology Management*, 12(1). <https://doi.org/10.22059/jitm.2020.296055.2460>
- Fatoki, O. (2021). Sustainable leadership and sustainable performance of hospitality firms in South Africa. *Entrepreneurship and Sustainability Issues*, 8(4), 610–621.
- Fuertes, G., Alfaro, M., Vargas, M., Gutierrez, S., Ternero, R., & Sabattin, J. (2020). Conceptual Framework for the Strategic Management: A Literature Review - Descriptive. In *Journal of Engineering (United Kingdom)* (Vol. 2020, p. 21). Hindawi Limited. <https://doi.org/10.1155/2020/6253013>



- Gottschalk, P. (2009). Implementing Intelligence Strategy. In *Policing Organized Crime* (pp. 69–88). Routledge.
- Hair, J. F., Sarstedt, M., Hopkins, L., & Kuppelwieser, V. G. (2014). Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research. *European Business Review*, 26(2), 106–121.
- Hawking, P., & Sellitto, C. (2010). *Business Intelligence (BI) Critical Success Factors* (Vol. 4). <http://aisel.aisnet.org/acis2010/4>
- Hayes, A. F. (2015). An Index and Test of Linear Moderated Mediation. *Multivariate Behavioral Research*, 50(1), 1–22. <https://doi.org/10.1080/00273171.2014.962683>
- Ioannidis, A., Chalvatzis, K. J., Leonidou, L. C., & Feng, Z. (2021). Applying the reduce, reuse, and recycle principle in the hospitality sector: Its antecedents and performance implications. *Business Strategy and the Environment*, 30(7), 3394–3410.
- Jaradat, Z., Al-Dmour, A., Alshurafat, H., Al-Hazaima, H., & Al Shbail, M. O. (2022). Factors influencing business intelligence adoption: evidence from Jordan. *Journal of Decision Systems*, 1–21. <https://doi.org/10.1080/12460125.2022.2094531>
- Jawabreh, O., Shniekat, N., Saleh, M. M. A., & Ali, B. J. (2022). The strategic deployment of information systems attributes and financial performance in the hospitality industry. *Information Sciences Letters*, 11(5), 110504.
- Johannesson, J., & Palona, I. (2010). Environmental turbulence and the success of a firm's intelligence strategy: Development of research instruments. *International Journal of Management*, 27(3), 448–459.
- Johnson, L. K. (2004). Strategies for data warehousing: how can companies ensure that their data warehouse delivers as promised? *MIT Sloan Management Review*, 45(3), 9.
- Kalyani, S. C. (2019). Intelligent Systems in Businesses: A Paradigm Shift. *International Journal for Research in Engineering Application & Management (IJREAM)*, 05, 2454–9150. <https://doi.org/10.35291/2454-9150.2019.0308>
- Kenny, J., & Dutt, C. S. (2022). The long-term impacts of hotel's strategic responses to COVID-19: The case of Dubai. *Tourism and Hospitality Research*, 22(1), 71–85. <https://doi.org/10.1177/14673584211034525>
- Krupina, N., Moskalev, M., & Omarov, M. (2023). *Strategic management in the hotel and restaurant service*. INFRA-M Academic Publishing LLC. <https://doi.org/10.12737/1832108>
- Kumari, K., & Yadav, S. (2018). Linear regression analysis study. *Journal of the Practice of Cardiovascular Sciences*, 4(1), 33.
- Lacerda, L. L. L. de, Cunha, C. J. C. de A., & Biz, A. A. (2021). Leadership for Innovation in Hospitality and Tourism: Integrative Literature Review. *Revista Rosa Dos Ventos - Turismo e Hospitalidade*, 13(1), 22–49.
- Maccoby, M. (2001). The human side: Successful leaders employ strategic intelligence. *Research-Technology Management*, 44(3), 58–60.
- Masa'Deh, R., Obeidat, Z., Maqableh, M., & Shah, M. (2021). The impact of business intelligence systems on an organization's effectiveness: The role of metadata quality from a developing country's view. *International Journal of Hospitality & Tourism Administration*, 22(1), 64–84.
- Mousavian, S., Miah, S. J., & Zhong, Y. (2023). A design concept of big data analytics model for managers in hospitality industries. *Personal and Ubiquitous Computing*, 27(4), 1509–1519. <https://doi.org/10.1007/S00779-023-01714-3>
- Olbrich, S., & Poppelbuß, J. (2012). Critical contextual success factors for business intelligence: A Delphi study on their relevance, variability, and controllability. In *2012 45th Hawaii International Conference on System Sciences*, 4148–4157. <https://ieeexplore.ieee.org/abstract/document/6149401/>
- Olszak, C. M., & Ziemba, E. (2012). Critical success factors for implementing business intelligence systems in small and medium enterprises on the example of upper Silesia, Poland. *Interdisciplinary Journal of Information, Knowledge, and Management*, 7, 27. <http://sh.st/st/ecfda009ae7a1b8b07d7bf39d312062d/http://www.ijikm.org/Volume7/IJIKMv7p129-150Olszak634.pdf>
- Pacheco Pumaleque, A. A., Cuba Carbajal, N., Ñañez Silva, M. V., & Pacheco Pumaleque, L. B. (2021). Strategic management model to promote competitiveness in tourism companies in Cañete. *3C Empresa. Investigación y Pensamiento Crítico*, 17–31.
- Parnell, J., & Brady, M. (2019). Capabilities, strategies and firm performance in the United Kingdom. *Journal of Strategy and Management*, 12(1), 153–172.
- Paulino, E. P. (2022). Amplifying organizational performance from business intelligence: Business analytics implementation in the retail industry. *Journal of Entrepreneurship, Management and Innovation*, 18(2), 69–104. <https://doi.org/10.7341/20221823>
- Pellissier, R., & Kruger, J.-P. (2013). Critical success factors for business intelligence in the South African financial services sector. *South African Journal of Information Management*, 15(1), 1–12. <https://doi.org/10.4102/sajim.v15i1.545>
- Pham, P. H. M., & Gammoh, B. S. (2015). Characteristics of social-media marketing strategy and customer-based brand equity outcomes: a conceptual model. *Internet Marketing and Advertising*, 9(4), 321–337. <https://doi.org/10.1007/978-3-319-26647-3>
- Raisinghani, M. (2003). *Business Intelligence in the Digital Economy: Opportunities, Limitations and Risks: Opportunities, Limitations and Risks*. IGI Global.
- Ramos, C. M. Q. (2022). Business Intelligence Approach and Sentiment Analysis as a Management Strategy Applied to Study Customer Satisfaction in the Hospitality Sector. *Smart Innovation, Systems and Technologies*, 284, 537–547. [https://doi.org/10.1007/978-981-16-9701-2\\_44](https://doi.org/10.1007/978-981-16-9701-2_44)

- Rao, G. K., & Kumar, R. (2011). Framework to integrate business intelligence and knowledge management in banking industry. *Rao, G. K., & Kumar, R. (2011). Framework to Integrate Business Intelligence and Knowledge Management in Banking Industry. ArXiv Preprint ArXiv:1109.0614.*
- Rosliani, E., & Rahayu, D. (2022). Strategic Planning Of Hospitality Information Systems Using The Ward And Peppard Approach Case Study At Buleud Villa, Garut District. *RISTEC: Research in Information Systems and Technology*, 3(2), 130–155.
- Rossidis, I., Belias, D., & Vasiliadis, L. (2021). Strategic Hotel Management in the “Hostile” International Environment. *Springer Proceedings in Business and Economics*, 325–336. [https://doi.org/10.1007/978-3-030-72469-6\\_21](https://doi.org/10.1007/978-3-030-72469-6_21)
- Rustamadji, R., & Omar, C. (2019). The effect of strategic management and organizational commitment on employees’ work achievement. *Management Science Letters*, 9(3), 399–412.
- Saleh, I., Marei, Y., Ayoush, M., & Afifa, M. M. A. (2022). Big Data analytics and financial reporting quality: qualitative evidence from Canada. *Journal of Financial Reporting and Accounting, ahead-of-print.*
- Sekaran, U., & Bougie, R. (2016). *Research methods for business : a skill-building approach.*
- Williams, R. A., Sheikh, N. J., Duman, G. M., & Kongar, E. (2022). Critical Success Factors of Business Intelligence Systems Implementation. *IEEE Engineering Management Review*, 50(4), 88–97. <https://doi.org/10.1109/EMR.2022.3197096>
- Xu, H., & Hwang, M. (2005). A Survey of Data Warehousing Success Issues. *Business Intelligence Journal*, 10(4), 7–13. [https://digitalcommons.butler.edu/cob\\_papers/88](https://digitalcommons.butler.edu/cob_papers/88)
- Yeoh, W. (2011). Business intelligence systems implementation: Testing a critical success factors framework in multiple cases. *International Journal of Business Information Systems*, 8(2), 192–209. <https://doi.org/10.1504/IJBIS.2011.041791>
- Yeoh, W., Gao, J., & Koronios, A. (2007). Towards a Critical Success Factor Framework for Implementing Business Intelligence Systems: A Delphi Study in Engineering Asset Management Organizations. In *Research and Practical Issues of Enterprise Information Systems II* (Vol. 255). Springer.
- Yeoh, W., & Koronios, A. (2010). Critical success factors for business intelligence systems. *Journal of Computer Information Systems*, 50(3), 23–32. <https://www.tandfonline.com/doi/pdf/10.1080/08874417.2010.11645404>
- Yeoh, W., & Popovič, A. (2016). Extending the understanding of critical success factors for implementing business intelligence systems. *Journal of the Association for Information Science and Technology*, 67(1), 134–147. <https://doi.org/10.1002/asi.23366>.



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