

The Impact of Business Intelligence on Organizational Acuity, the Mediating Role of Business Environment Analytical Capabilities

Khaled Abdel kader Alomari

Faculty of Business, Jadara University, Irbid, Jordan

e-mail: omari@jadara.edu.jo

Abstract

The study aimed at recognizing the impact of business intelligence in organizational acuity mediated by business environment analytical capabilities in the units of admission and registration and higher studies in Jordanian private universities. The research adopted a quantitative approach to collect data. The sample included (231) employees working in admission and registration and higher studied units in private universities, they received a questionnaire established to measure the dimensions of the study. SmartPLS4 software and critical path tests analyzed the data. The results showed statistically significant impact of business intelligence on organizational acuity scoring (80.3%), and an impact of business environment analytical capabilities on organizational acuity scoring (34.7%). The study recommends admission and registration and higher studies units to increase attention towards using business intelligence applications, and care for business environment analytical capabilities to increase the effectiveness of organizational acuity.

Keywords: *Business Intelligence, Organizational Acuity, Business Environment Analytical Capabilities, Units of Admission and registration and higher studied, Private Universities, Jordan.*

1. Introduction

Today rapid technological development, information technology and digitalization prompted researchers to focus on these developments, because it helps in confronting challenges and keep pace with the competitive environment and rapid transformations. Business intelligence has a very important role because it provides users with a suitable environment and timely information. Scholars believe that business intelligence is a new resource that business organizations depend on and learn from its systems. It is also considered a source for job opportunities, to find organizations' market share, and enhance organization reputation according to sustainability principles [1]. In [2] authors said that organizational acuity is considered one of the most important modern trends to encounter rapid changes, because failure to work efficiently can lead to poor performance, crises and organizational turmoil that can lead to organization exit from the competitive market. Thus, the importance of the current study stems from its topic that is studying the impact of business intelligence in organizational acuity mediated by business environment analytical capabilities in admission, registration and higher studies units because of the important

work they hold and what is expected from them. The study variables are very important and have a wide effect on admission and registration units.

2. Study Problem

The highly competitive business environment in recent years has led to an increased interest in business intelligence applications within organizations, due to its tangible impact on improving performance and facilitating business environment analytical capabilities. Organizational acuity has also emerged as one of the most important concepts that enable organizations to quickly adapt to environmental and technological changes. Although numerous studies have examined the relationship between artificial intelligence and organizational acuity [3] and others have discussed the impact of organizational acuity on strategic adaptation [4] [5], research into the direct impact of business intelligence on organizational acuity remains limited, particularly with regard to the role of business environment analytical capabilities as a mediating variable in this relationship. units of admission and registration and higher studied in private universities also, face multiple challenges in adopting business intelligence technologies to support organizational acuity, most notably weak digital infrastructure, a lack of specialized talent, the ability to accurately perceive status hierarchies and resistance to organizational change [5] [6]. In addition, the work of these units is monitored by the ministry of higher education and accreditation commission. Therefore, organizational acuity is one of the most important administrative behaviors that must be achieved.

Business intelligence provides the discovery of complex patterns and helping managers of these units obtain business environment analytical capabilities. One of the most important of the processes how to Design and Implementation predicting college admission [8], and Analysis of Classification Algorithms for Students College Enrollment [9]. In addition, "E-Admission System, [10]. Furthermore, intelligent systems can learn and adapt to internal and external changes, enhancing innovation and flexibility in the workplace [11].

There is still a limited understanding of the mediating role of business environment analytical capabilities in this context, despite the fact that business environment analytical capabilities is one of the most prominent areas affected by business intelligence and, in turn, affects organizational acuity. Hence, this study seeks to fill this gap by exploring the impact of business intelligence on organizational acuity, focusing on the mediating role of business environment analytical capabilities.

3. Study Terminology

3.1 Business Intelligence

Scholars define business intelligence as a set of analyzing, collecting, and storing applications, the ability to use computers to perform tasks requiring intelligence, and to help management make decisions at the right place and time [1]. Business intelligence aims to monitor the processes and procedures to correct any performance mistakes in order to make a better decision because it uses accurate and timely information. Business intelligence also aims to increase the ability of the organization to delve into new business applications for its role in classifying, organizing and processing information to serve the success of these practices. Business intelligence also aims to spread knowledge and information in the organization units and departments, to improve organization internal functions such as planning and control, and to contribute to innovation and creativity in the organization [12]. Business intelligence's importance stems from the organization's

efforts to raise their competitive capabilities and find ways to accomplish their work that requires quick and correct procedures. Business intelligence importance manifests in knowledge transformation into valuable intelligence that contributes to formulating strategies, organizing the organization's resources, providing data in a clear and easy way, and reducing organizations dependence on individuals. Business intelligence helps in finding appropriate solutions to various problems [13].

3.2 Organizational Acuity

Organizational acuity is one of the administrative domains that flourished and spread in our days because of its importance, features and benefits for organizations. In [14] authors said that organizational acuity has become a prerequisite in many administrative fields, including finance, service, and education [15]. Many researchers addressed organizational acuity, its concepts and definitions. Therefore, it is necessary to address the concepts and definitions that are related to organizational acuity.

Organizational acuity concept refers to the organization's ability to learn from the activities such as investing in existing competencies, exploring new opportunities, selection, production, efficiency, implementation, and from exploratory activities related to research, diversity, risk, experimentation, flexibility, and innovation. Organizational acuity as [16] defined it as "the integrated model and contemporary approach in the field of strategic management, which seeks to seize current available opportunities, and to know and identify the competitive threats encountering the organization.

3.3 Analytical Business Capabilities Environment

It is a set of tools, methods and processes that organizations use to analyze data, extracting insights and interpretations that help in making informed strategic and business decisions. [17]. Simulation is a technique used to model and replicate different processes, systems, or scenarios to understand how they will behave under certain circumstances and provide a virtual environment that enables testing the effects of different decisions and predicting possible outcomes without having to implement them in reality [18]. Quantitative Analytical Modeling: is a technique that uses mathematical and statistical methods to analyze data and understand patterns and relationships in the business environment in order to reach valuable insights that help in making strategic decisions [19].

3.4 Business intelligence, organizational acuity, and the Analytical Capabilities of the Business Environment

Previous studies addressed one or more of the current study variables. Business intelligence systems emerged with the existence of rapid technological development as an important tool to enable organizations to understand their operational and competitive environment more deeply. These systems form the backbone of the informed decision-making process by providing accurate analyses and strategic insights [20].

In [21] authors aimed to identify the orientation of business organizations towards applying business intelligence systems in the Algerian economic institution, the level of organizational acuity in it, and to determine the relationship between the dimensions of business intelligence systems and achieving organizational excellence in the National Institution for Home Appliances "SONARIC" ferdjioua. Results revealed an existence of a statistically significant relationship between business intelligence systems and achieving

organizational acuity, the correlation degree scored 55.6%. The study recommended organizations to establish flexible, modern organizational structures to respond to the occurring changes in the organization's internal and external environment to achieve organizational agility and enhance the effectiveness of applying business intelligence systems to achieve organizational acuity.

Organizational acuity plays an important role in defining complex problems and solving them through thorough and deep understanding of these problems then to offer best results. Examining the role of creative abilities in supporting the organizational acuity among university teaching staff, results revealed that their assimilation ability, thinking and adaptation influenced the organizational acuity.

In [22] authors aimed at recognizing the role of business intelligence in achieving institutional distinction in higher studies institutions in Egypt. Results revealed statistically significant differences between the two groups participating in the study (private universities and colleges) in utilizing business intelligence, differences are attributed to the difference between software tools and the varying capabilities, capacities and infrastructure that each one possesses.

In [17] authors examined how business analytics contribute to organizational performance and business value by acquiring business analytics capabilities and improving their performance. A conceptual model was developed in India. The results indicated that business analytics capabilities have a significant impact on the organization's business process performance and business decisions, which in turn significantly impacts organizational performance.

To sum up, the researchers established a set of hypotheses to examine the correlation between the study variables:

H1: There is a statistically significant impact of business intelligence on organizational acuity.

H1.1: There is a statistically significant impact of quality of service on organizational acuity.

H1.2: There is a statistically significant impact of the quality of information on organizational acuity.

H1.3: There is a statistical significance impact of system quality on organizational acuity.

H2: There is a statistically significant impact of business intelligence on the analytical capabilities of the business environment

H3: There is a statistically significant impact of analytical capabilities of the business environment on organizational acuity.

H4: There is a statistically significant impact of business intelligence on organizational acuity mediated by analytical capabilities of the business environment.

4. Methodology

The study aimed to emphasize the business intelligence on organizational acuity and the moderating role of analytical business capabilities environment. The researcher adopted a quantitative approach to collect data through a questionnaire developed for the study purpose and administered on admission and registration and higher studies units. The data collected is analyzed using Smart PLS-4.

4.1 Population and Sampling

The study population included all employees in admission and registration and higher studies units working in private universities in Jordan. The sample was selected from universities that integrate the work of the admissions and registration unit and higher studies unit together Table 1. A comprehensive survey of the study population for the academic year 2024/2025 received the questionnaire file in an electronic form and retrieved back (231) analysis valid questionnaires [23]. Table 1 illustrates the distribution of employees in the selected universities.

Table 1: Number of participants in each university

University Name	Staff
Jadara Private University	19
Irbid National University	12
Jerash University	14
Philadelphia University	18
Ajloun	6
Philadelphia	18
Al Zaytoonah	21
Isra	16
Petra	21
Amman Arab	18
Zarqa	28
Applied Science Private	17
AL Ahliyya Amman	23
Total	231

5. Data Tests

To analyze the collected data SmartPLS4 used to compute percentages, repetitions, standard deviations, means reliability and validity tests, and critical path analysis. As Table 2 illustrates Cronbach's and the composite reliability coefficient (CR) of the study variables score is ($\alpha > 0.70$), therefore the validity and reliability of the questionnaire are assured, and this result indicates the suitability of the questionnaire. Accordingly, the questionnaire has an appropriate level of reliability; that is, internal consistency is high.

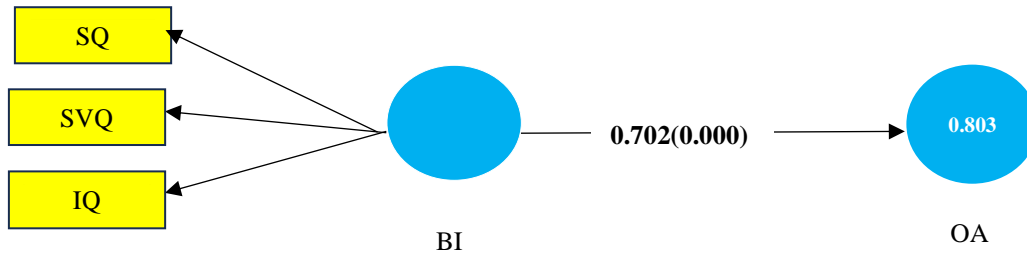
Table 2: Cronbach Alpha, Composite Reliability

Variable	Cronbach's α	CR
Simulation (SN)	0.814	0.903
Analytical Quantitative Modeling (AQM)	0.837	0.904
Business Environment Analytical Capabilities (BEAC)	0.881	0.905
Service Quality (SVQ)	0.833	0.851
Information Quality (IQ)	0.771	0.738
System Quality (SQ)	0.839	0.817
Organizational Acuity (OA)	0.870	0.883

To test the first hypothesis "there is a statistically significant of BI on OA", critical path analyses of BI on OA are computed, Table 3 and Figure 1 illustrate the results. Business intelligence influenced decision-making to a high degree it scored (80.3%), B value score was ($B = 0.702$) and a significance of ($sig. = 0.00$) [24], and this result is considered Good, and therefore the assumption of the effect of BI on OA is accepted.

Table 3: BI effect on OA

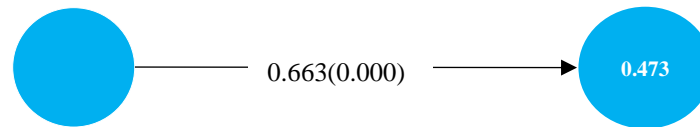
Variables	<i>B</i>	S. D	T	<i>P</i>	R^2
BI > OA	0.702	0.041	17.262	0.000	0.803

Figure 1: R^2 and P values of BI effect on OA

Further inspection is required to gain an overall insight into the correlation between BI and OA; therefore, the researcher examined the sub-hypotheses. The first sub-hypothesis of “there is a statistically significant of SVQ on OA” results analyses yielded (47.3%) of the variance in OA was influenced by SVQ, B value score was ($B = 0.663$) and a significance of ($\text{Sign.} = 0.00$), results are observed in Table 4 and Figure 2, this result is considered good [24], and therefore the assumption of SVQ influence OA is accepted.

Table 4: SVQ effect on OA

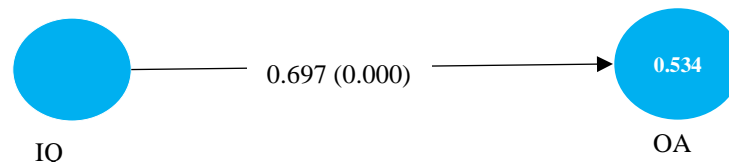
Variables	<i>B</i>	S. D	T	<i>P</i>	R^2
SVQ > OA	0.663	0.088	7.025	0.000	0.473

Figure 2: R^2 and P values of SVQ effect on OA

The second sub-hypothesis of “there is a statistical significance of IQ on OA analyses results are illustrated in Table 5, and Figure 3. (53.4%) of the variance in OA was attributed to IQ, B value score was ($B = 0.697$) and a significance of ($\text{Sign.} = 0.00$), this result is considered as in [24] stated good, and therefore the assumption of IQ influence on OA is accepted.

Table 5. IQ path analysis in OA

Variables	<i>B</i>	S. D	T	<i>P</i>	R^2
IQ > OA	0.697	0.078	9.053	0.000	0.534

Figure 3. R^2 and P values of IQ effect on OA

The third sub-hypothesis of “there is a statistically significant of SQ on the OA” analyses results are illustrated in Table 6 and Figure 4. (55.7%) of the variance in OA was attributed

by BI, B value score was ($B = 0.714$) and a significance of ($\text{Sign.} = 0.00$), this result is considered as in [24] stated a good result, and therefore the assumption of SQ influence on OA is accepted.

Table 6: SQ path analysis in OA

Variables	<i>B</i>	S. D	T	<i>P</i>	R^2
SQ > OA	0.714	0.066	10.689	0.000	0.557

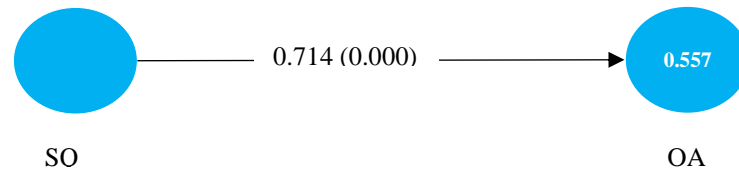


Figure 4. R^2 and P values of SQ effect on OA

The second main hypothesis of “there is a statistical significance of BI on BEAC” analyses results are illustrated in Table 7 and Figure 5. As observed (61.8%) of the variance in BEAC was attributed to BI. B value score was ($B = 0.658$) and a significance of ($\text{Sign} 0.000$), this result is considered as [24] stated a good result, and therefore the assumption of BI influence on BEAC is accepted.

Table 7: BI path analysis on BEAC

Variables	<i>B</i>	S. D	T	<i>P</i>	R^2
BI > BEAC	0.658	0.057	7.417	0.000	0.618

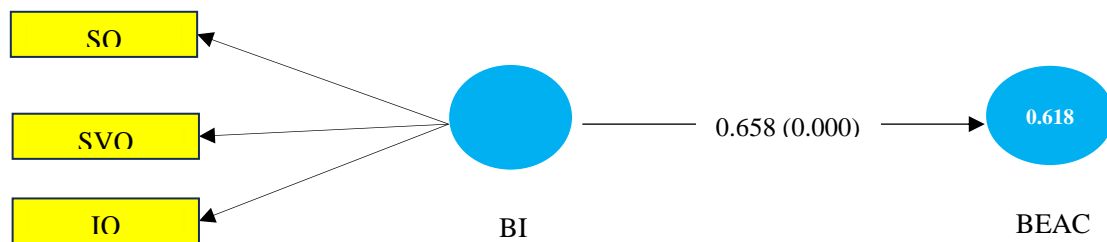


Figure 5: R^2 and P values of BI effect on BEAC

The third main hypothesis of “there is a statistically significance of BEAC on OA” analyses results are seen in Table 8 and Figure 6. (34.7%) of the variance in OA is attributed to BEAC. B value score was ($B = 0.497$) and a significance of ($\text{Sign.} = 0.001$), this result is considered as [24] stated a good result, and therefore the assumption of BI influence on BEAC is accepted.

Table 8: BEAC path analysis on OA

Variables	<i>B</i>	S. D	T	<i>P</i>	R^2
BEAC > OA	0.497	0.147	3.359	0.001	0.347

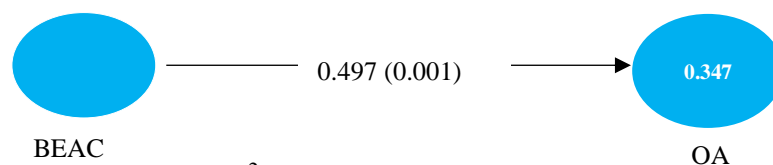


Figure 6: R^2 and P values of BEAC effect on OA

The fourth main hypothesis of “there is a statistical significance of BI on OA, mediated by BEAC” analyses results are illustrated in Table 9, and Figure 7. (80.3%) of the variance in OA is attributed to BI and BEAC, where stated it is a good result. The results also illustrate that business intelligence positively and statistically affects administrative organizational acuity, as it shows a level of significance ($sig.= 0.00$), which is less than 0.05, and that business intelligence positively and statistically affects organizational acuity, as it shows a level of significance ($sig.= 0.000$), which is less than 0.05, and that Business Environment Analytical Capabilities as an intermediate variable effect organizational acuity, as it shows a level of significance ($sig.= 0.001$) which is greater than 0.05; that is, the presence of Business intelligence has eliminated the impact of Business Environment Analytical Capabilities in organizational acuity, and through the interactive effect between the study variables, it is clear that there is effect of Business intelligence in organizational acuity mediated by Business Environment Analytical Capabilities; and with a level of significance ($sig.= 0.002$), which is less than 0.05, and thus conclude that there is effect of impact of Business intelligence in organizational acuity mediated by business environment analytical capabilities.

Table 9: BI path analysis on OA mediated by BEAC

Variables	B	Mean	S. D	T	P
OA < BI	0.740	0.732	0.081	9.105	0.000
BEAC < BI	0.391	0.382	0.161	2.433	0.000
OA < BEAC	0.201	0.212	0.103	1.944	0.001
Interactive Effect					
OA <BEAC <BI	0.079	0.085	0.059	1.334	0.002

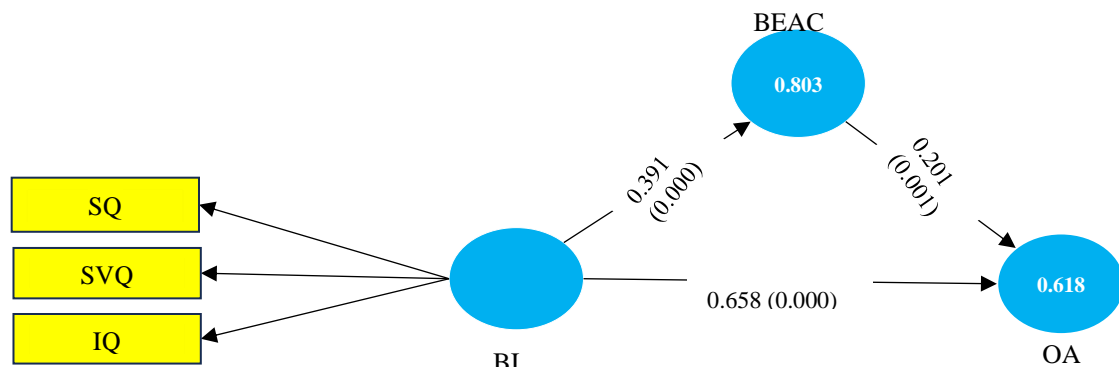


Figure 7: R^2 and P values of BI effect on OA mediated by BEAC

6. Discussion and Conclusion

The main results of the study yielded:

1. There is an impact of BI in the organizational acuity; it scored (80.3%).
 - a. There is an impact of SVQ in the organizational acuity; it scored (47.3%).
 - b. There is an impact of IQ in organizational acuity; it scored (53.4%).
 - c. There is an impact of SQ in the organizational acuity; it scored (55.7%).
2. There is an impact of BI in the Business Environment Analytical Capabilities; it scored (61.8%).

3. There is an impact of Business Environment Analytical Capabilities in the organizational acuity; it scored (34.7%).
4. There is an impact of BI in the organizational acuity mediated by Business Environment Analytical Capabilities; it scored (70.4%).

7. Recommendations

The researcher recommends Admission, registration and higher studies units in Jordanian Universities to encourage staff to rely on Business intelligence applications and analytical capabilities of the business environment to increase the effectiveness of organizational acuity.

ACKNOWLEDGEMENTS

This research paper is supported by Jadara University.

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