

The moderating effect of entrepreneurial marketing in the relationship between business intelligence systems and competitive advantage in Jordanian commercial banks

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ABSTRACT

The paper investigates the Competitive Advantage in the Jordanian Commercial Banks (JCB) and its relationship with the Business Intelligence Systems (BIS) through the moderate influence of the Entrepreneurial Markets. Business Intelligence Systems (BIS), can extract a better knowledge for the performance and future gains for the organization. Therefore, it can pin point the impasse which in turn results in a suitable result for the problem in hand. As a result, the organization success will increase due to the efficiency of management performance. This study explores the Intelligent System (IS) relationship with Competitive Advantage (CA) through monitoring the moderating role of Entrepreneurial Marketing (EM). A survey is implemented for the data collection & analysis with 300 questionnaires, and (PLS) is used for the analyses. The results indicate that BIS was definitely related to Competitive Advantage, and EM moderated the connection between BIS and Competitive Advantage.

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1. Introduction

Recently, the BIS has become a popular demand trend for directors particularly in making decisions in a continuously changing environment (Isik et al., 2013), and the know-how of exploiting the emerging form chances of changing. The BIS has now days gone through magnificent growth circumstances with its increasing contribution such as business performance determination, warehouse data, multiple data source integration, forecasting & planning, along with the right decision making which, in turn, guides business operation to reach desired performance (Singh & Singh, 2013). BIS can assist organizations to generate information due to their increasing demand for urgent decision making, data analysis, reporting, and query tools through an endless flow of data to initiate sensible information. Most of the business intelligence (BI) literature has emerged from the business world and information technology (IT) industry drew academic attention to the BIS rapid growth. Nevertheless, the scientific research within the information is still at an early stage (Jagielska et al., 2003).

Due to an intense competition and quick change in a business world, organizations are faced with a huge challenge; therefore, information has become a decisive factor in a competitive environment. The main purpose of Business Intelligence Systems (BIS) is to help managers in their decision-making tactics. In order to do that, they need clear data & information. As a result, BI grant them intelligent & well-informed decisions concerning the organization's function ability, which leads to better and more efficient procedures, and create a powerful Competitive Advantage.

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2. Problem Statement

BIS reports consist of massive data sets, which leads to tons of data to be analyzed. However, BIS solved this problem by decreasing gigantic quantities of information into clear and short report which allows easy and fast sharing to such report: managers, executive members of the technical department, business partners, etc. Anyone can get access and check the report using their smart phone, which leads everyone to participate in the decision-making process (Foley & Manon, 2010; Singh & Singh, 2013). Extensive and thorough researches are required to show up the necessity and applicability of the above-mentioned study explaining the BIS effect emerging context on competitive advantage across multiple organizations and the metrics of diverse performance. There have been upsurge in the adoption of banking software (for e-system), in forms of enterprise resource planning, and knowledge-based systems (Hana, 2013; Shadi & Mazir, 2012; Euripidis & Fotini, 2012; Nedelcu, 2013; Manlio Del Giudice, & Rosaria Della, 2016), and yet, their impacts on competitive advantage in banking have not been empirically investigated. This, summarily, informs the need to investigate BIS (with Transactional systems as a data source, Intelligent system and knowledge-based systems as sub-variables) as sub-components of BIS. The need to test the moderating effect of Entrepreneurial Marketing in the influence of Business Intelligence Systems on competitive advantage is justified by the imports from past related studies.

In conclusion, based on the vivid explanations on issues and arguments that necessitate this study, it is deemed imperative to state that this research purposes to examine the impact of BIS (i.e., Transactional systems, Knowledge-Based System, Intelligent system) on the competitive advantage), with the consideration of the moderating effect of EM. Therefore, the specific question (s) to be solved through the findings of this study.

3. Research Questions

The research questions of this study are

- I. Does Transactional systems as a data source influence Competitive Advantage at Jordanian commercial banks?
- II. Does Knowledge-Based System influence Competitive Advantage at Jordanian commercial banks?
- III. Does Intelligent system influence Competitive Advantage at Jordanian commercial banks?
- IV. What is the moderating effect of Entrepreneurial Marketing on the relationship between Business Intelligence Systems and Competitive Advantage at Jordanian commercial banks?

4. Research Objectives

This study aimed objective to investigate Business Intelligence Systems Competitive Advantage by the monitoring the Entrepreneurial Marketing moderating role; achieving this main purpose, specific objectives can be accomplished by this study:

- I. The Transactional Systems influence as a data source on Jordanian Commercial Banks Competitive Advantages.
- II. The Knowledge – Based System influence through Competitive Advantage at Jordanian Commercial Banks.
- III. The Intelligent System influence through Competitive Advantage within Jordanian Commercial Banks.
- IV. The Entrepreneurial marketing moderating part explaining the Business Intelligent System and Competitive Advantage.

5. Theoretical framework and previous studies

5.1 *The Correlation between Business Intelligence Systems and Competitive Advantage*

One of the factors affecting organizational competitive advantage was the adoption of knowledge-based frameworks. Business Intelligence Systems (BIS) in organizations (Hana, 2013; Shadi & Mazir, 2012; Euripidis & Fotini, 2012; Nedelcu, 2013; Manlio Del Giudice, & Rosaria Della, 2016;) which in turn, resulted in covering all establishments adoption of Intelligent & enterprise resource planning (ERP) and implementation as BIS. The aim of this research is to give overview about the current discussed topic related to startup companies which is pertaining to the function of Business Intelligence (Azeroual & Theel, 2019). It is one of the appropriate tools to help a new company have a good and successful management. The function of BIS is to convert the growing amount of data into beneficial information from individual operative systems. Hence, this tool is useful in assisting the executives for analyzing the central database and to provide the basis for strategic decision. Ali et al. (2017) indicated how BIS and SMEs were mutually depending and learning from each other. These two, BIS and SMEs, also functioning in giving their contribution to the business environmental performance. This study opted a qualitative content analysis approach which studied 43 articles for data source. By reviewing literatures, the findings suggested to improve competency of SMEs and new innovation of BIS, which may affect each other. They also demonstrated the significance of business intelligence and its growing influence. Massa and Testa (2007) via case study of the electronic firm studied the impact of e-procurement implementation on organizational knowledge management. In brief, e-procurement is simply understood as a knowledge-based system used for assessing the progressive and to encourage the participative actors. Hence, it aids how this project gives impacts on the organizations and develops the traditional procurement prestation (Hana, 2013; Manlio Del Giudice & Rosaria Della, 2016; Lipitakis, 2012; Euripidis & Fotini, 2012). Most empirical researchers examined the impact of adopting BIS on firm performance (Euripidis & Fotini, 2012). This tool also functions in

assessing the e-business system progress and ERP, business and innovation prestation of any companies. The research mention that there are abundant of massive theoretical work on the ability and potential of ICT, hence many vital inventions that may increase the performance of firm can be possibly introduced. Henceforth, this study is empirically studying and comparing the impacts of using the information systems of ERP and e-business which are currently being extensively utilized around the globe. It examined the impact of business performance that has been facilitated by the innovation by the utilizing data from interviewing the selected key informants from 29 countries that are on position as decision maker of their represented companies. Hence, this research simplified that both of the tools are possessing a constructive impact on the innovation. In this case, ERP shows that it has a stronger and significant influence on this aspect compared to e-business. Nonetheless, most of the positive impacts on the business prestation is largely contributed by current aiding-process and automation minor part of it is supported by innovation. Nevertheless, Lipitakis (2012) used adaptive algorithm modeling in replacing strategy of managerial approach in assessing certain e-business on firm performance. Under certain vagueness situation; in solving variances of strategic management and e-business issues, the innovative adaptive algorithm modeling approaches are being opted E-business prestation measurement under certain organizational restrictions and environmental tenses were implemented in explaining the correlations between technology, innovation and firm performance. These are regarded as valuable applications of the proposed adaptive algorithmic modeling approach. It is a theoretical time-dependent model for the evaluation of firm e-business performance. Nonetheless, as accredited by Manlio Del Giudice, few studies are documented in assessing the impact of intelligent system and ERP on organizational performance and there is no record stated in financial administrations. This can be understood by minimum number of reviewed studies on BIS adoption towards organizational competitive advantage.

5.2 The Relationship between Entrepreneurial Marketing and Competitive Advantage

These studies conducted by Otika et al. (2019), Nora Sadiku - Dushi et al. (2019), Nico Makmur et al. (2017), Wahyudi (2017) investigated the Entrepreneurial Marketing in organizations attached to one of the factors that may give influence towards organizational competitive advantage. Other studies by Otika et al. (2019) also were conducted to study the effect of entrepreneurial marketing dimensions on competitive advantage of small and medium size. Findings found that proactiveness has no significant correlation with competitive benefit. Meanwhile, risk-taking has no significant relationship with competitive advantage. Innovativeness has statistical significance relationship with competitive advantage. Customer intensity has no statistical significance relationship with competitive advantage; resource leveraging has no statistically significant relationship with competitive advantage. Value creation has significant relationship with competitive advantage. In the same category, Sadiku-Dushi et al. (2019) studied the impact of EM dimensions on small and medium-sized enterprises (SMEs). Results revealed that respondents incline to be exceedingly focused and comprehend the significance of resource leveraging. While value creation is considered as a very vital entrepreneurial marketing dimension, respondents are given chance and respect to bear the risks; besides, they tend to inactive, innovative nor customer centric. Also, other research investigated the outcome of entrepreneurial marketing dimensions namely on competitive advantage in small Medan culinary souvenir industry in Indonesia. This multiple regression analysis indicates that entrepreneurial marketing has significant and positive effects on competitive advantage. Wahyudi (2017) analyzed the effect of entrepreneurial marketing on handling resources and to minimize the influence of managing resources on innovation performance. The findings of the study resulted on the approval of all the proposed hypotheses. The contribution on theoretical manner is the empirical evident of the effect of entrepreneurial marketing on managing resources and the effect of managing resources on innovation performance.

6. Research Framework

The conceptual research model is proposed in Fig. 1. This is done principally based on the gaps observed from existing literatures, the scope delineated for this study.

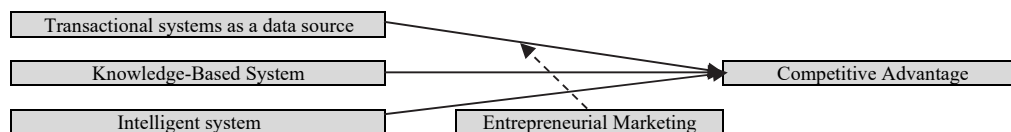


Fig. 1. Research Framework

7. Hypothesis

H₀₁: Transactional systems as a data source positively influence competitive advantage.

H₀₂: Knowledge-Based System positively influences competitive advantage.

H₀₃: Intelligent system positively influences competitive advantage.

H₀₄: Entrepreneurial Marketing moderates the outcome of Business Intelligence Systems on Competitive Advantage.

8. Research Methodology

For an effective research, it is imperative to select an appropriate research methodology.

An appropriate research design is important to determine the type of data needed, method of collecting the data, and type of sampling technique to apply. Therefore, research design is very crucial to actualize the research objectives (Bhatti & Sundram, 2012). The study applied a quantitative research design. Quantitative research design will enable the researcher to test the relationship between the research variables. It will also enable the researcher to unvaryingly determine if one concept or idea is better than the others. It can also respond to questions on the relationships that exist among measured variables with the aim of elucidating, envisaging, as well as controlling phenomena (Sekaran & Bougie, 2016). Thus, quantitative research design is an appropriate method for this study since it permits testing the relationship between variables with the use of statistical approaches. This is in line with the main objective of this study that focus. Thus, quantitative research design is an appropriate method for this study since it permits testing the relationship between variables with the use of statistical approaches. (Sekaran & Bougie, 2006).

This is in line with the main objective of this study that to examine the relationship between Business Intelligence Systems and Competitive advantage. This is an applied study on managers and assistant manager at Jordanian commercial banks, with the consideration of the moderating effect of Entrepreneurial Marketing. Therefore, the specific question quantitative research also permits to carry out analysis using large sample to generalize the results among a set of population.

8.1 Population and Sampling

A research by Sekaran (2003) was made to define population as the entire group of people, events, or things of interest that the researcher wishes to investigate. The population size of this study consists of (493) managers, assistant manager, and heads of sections in Jordanian commercial banks. The most basic element of a research study is unit of analysis (Zikmund et al., 2013). As stated by Sekaran and Bougie (2016), “the level of aggregation of the data collected during the subsequent data analysis stage” is known as a unit of analysis. Therefore, the unit of analysis is individual based, means that data was collected from managers, assistant manager, and heads of sections in Jordanian commercial banks is the unit of analysis of the study. There are two types of sampling methods which are non-probability and probability samplings. The researchers in this study opted probability sampling method which is inferred as simple random sampling technique. By that, each aspect pertaining to the selected population may be represented in the sample (Zikmund et al., 2013). As recommended by Krejcie and Morgan (1970), the appropriate sample size for a population size of 493 is 265. In order to lessen sample size error and putting into consideration the occurrence of non-response by some respondents, the sample size was increased by as suggested by Barlett et al. (2001). Therefore, the sample size of this study had become by $(265 + 40 = 305)$. Hence, 305 questionnaires were distributed to the sample, five of them were excluded because they were not filled completely or correctly so (300) questionnaires were valid.

8.2 Survey Instrument Design

The researcher conducted a suitable questionnaire of twenty-five items to collect the required data, the survey instrument is designed by adapting related items from past related studies or designed based on the conceptual explanation of the variables being investigated. The questionnaire has 3 categorized sections. Section 1 comprises 13 statements which is divided into 3 sections. Each of those statements relates of the study independent variable. Section two contains 8 statements relates of the study dependent variable, and Section three contains 6 statements relates of the study moderating variable. Adoption of Likert five- point scale (strongly agree, agree, neutral, disagree, and strongly disagree) was used in this questionnaire to invite responses of the respondents. The researcher used this scale because it offers the respondents the freedom and chance to choose, lower cost and fast way for collecting data. It is also a usual approach used in academic and social niche.

8.3 Data Analysis

The data gathered were analyzed by different statistical techniques. There were two phases of data analyses in this research. In the first phase, this research conducted pilot study that successfully participated by 30 respondents. The purpose of this pilot study is to analysis the reliability and content validity of the proposed instrument. This validity process is accessed by Statistical Package for Social Sciences (SPSS) software and expert review, correspondingly. As proposed by Pallant and Manual (2010), in determining the reliability of the instrument, the values of the Cronbach Alpha coefficient are practically can be used for this purpose.

The second phase of the data analysis is also partitioned into two sections. First, by using SPSS software, it deals with the normality, missing data and outliers as part of the data screening. Secondly, the treated and screened data is transferred to Smart Partial Least Square (PLS 2.0) software. This medium is where the computational actions like bootstrapping and PLS modeling are employed. PLS SEM technique is described as a second-generation structural equation. This relatively novel technique functions well with SEM that comprise series of cause and effect relationships and underlying variables. The PLS SEM approach is a helpful and flexible tool for statistical model building, along with prediction as well (Hair et al., 2013).

8.4 Instrument Reliability and Validity: Validity

A systematic assessment of the scale's ability is functioning in measuring what is supposed to be measured during content and face validity process. Hence, to obtain feedback pertaining to the appropriateness of layout, content, and adequacy of the items. A draft of the instrument of this study was circulated to some experts and specialists in universities in order to review

it. Referring to their notes, few numbers of questions were re-adjusted in order to give a simple idea and easily understandable phrase to the potential respondents and some items were eliminated. Finally, the researcher also improved the version of the instrument which was eventually and using pilot test.

8.4.1 Reliability

Cronbach's alpha coefficient is the most popular test of inter-item consistency reliability (Sekaran and Bougie, 2010). Thus, Cronbach's alpha test is utilized in this study to measure the internal constancy of the instrument. Cronbach's alpha is a reliability coefficient that specifies how appropriately the items in a set are positively connected to one another; 30 participants were elected amongst employees in the Jordanian commercial banks and they were regarded as the potential candidates to conduct the pilot test. Statistical analysis of this study was supported by SPSS (V.19.0) software. As illustrated in Table (2), the whole findings for alpha coefficient of the items of each variable alone and alpha's value of all instruments proposed that the items have moderately high internal constancy. Sekran (2006) asserted that whenever the value is higher than the guideline of 70, hence it signifies that the scale can be applied to the analysis with suitable reliability

8.4.2 Descriptive Analysis of the Latent Constructs

Computed mean and standard deviation are used in presenting the descriptive statistics of the latent constructs investigated by this study. The survey instrument is a 5-point Likert scale graded by 1 = strongly agree, 2 = Agree, 3 = Neutral, 4 = Disagree, 5 = Strongly disagree. The findings are presented in.

Table 1
Descriptive Statistics for Latent Variables

Dimensions	Level	Rank	S.D	Mean
Transactional systems	High	1	.54	4.44
Knowledge-Based System	Average	4	.56	3.50
Intelligent system	High	3	.53	4.15
Entrepreneurial Marketing	High	2	.59	4.25

Table 1 indicates the overall means of the endogenous and exogenous latent variables are within the 3.50 (average) and 4.44 (the highest). Remarkably, all the mean values indicate the value above 4.00 except for Knowledge-Based System (3.50). Hence, in considering the value of 5.0 as the highest, it shows that all the latent constructs are.

9. Assessing the measurement model

Assessing the measurement model is the first stage in PLS analysis, and it is used to ascertain the goodness of measures. Assessment of the measurement model entails an evaluation of the validity and reliability of the model's variables. Validity, in turn, comprises of two types: convergent and discriminate. Evaluating the reliability and validity of the model involves assessing the relationships between the LVs and their associated items, which is done by way of two key coefficients: composite reliability (CR) and average variance extracted (Hair et al., 2014).

The statistical software application Smart PLS 2.0 was used to compute the PLS path model and assess the strength of each factor affecting cost overrun through the developed model. The results of the Figure (2) in the PLS-SEM diagram there are 3 types of values, which are (1) the values directed to the long arrow lines denote the path coefficients; (2) the value inside the circle represent the coefficient of determination (3) values directed to the yellow box represent the item loadings. Interpreting R^2 values in PLS analysis is like the interpretations given in multiple regression analysis. Therefore, the values of R^2 imply the degree of variance in a certain construct which a model explained. (Chin, 1998).

In a reflective measurement, as suggested by Hair et al. (2013) researchers should utilize the factor loadings, composite reliability (CR) and average variance extracted (AVE) to assess convergence validity. Referring on this, the convergent validity was evaluated by the measurement model and accessed via composite reliability (CR), factor loadings and average variance extracted (AVE). Internal consistency of the constructs was measured using composite reliability (CR). as proposed by (Hoffmann & Birnbrich, 2012). The cut-off value for AVE, CR and Cronbach Alpha were 0.5, 0.7 and 0.6, respectively.

This study used a cut-off value for factor loadings at 0.70 as being significant. Accordingly, there were 5 eliminated loadings since their values were lower than 0.70. Out of 30 items used in measuring the 5 constructs of this research, only 25 items were remained and regarded as acceptable for further analysis and the rest were deleted (Hair et al., 2013). The CR coefficient is also used for assessing construct reliability and should be higher than 0.7 to establish construct reliability. Since Composite Reliability (CR) considers numerous outer loading of respective indicators, it shows the less-biased estimation of the reliability compared to the function of Cronbach alpha that put all items as uniformly reliable by not considering the actual contribution of each individual item loading (Hair et al., 2014).

Table 2 above indicates that convergent validity at indicator level since all the loading items are above the value of 0.70 (Hair, et al., 2011). Meanwhile, the convergent validity at construct level is shown by the AVE values for variables that have

the value above than 0.50 (Hair et al., 2014). In contrast, as how explained by Hair et al. (2014), whenever the constructs surpass the value of 0.70 of Cronbach's alpha, hence the data is showing the ample internal constancy; that is, the reliability of data.

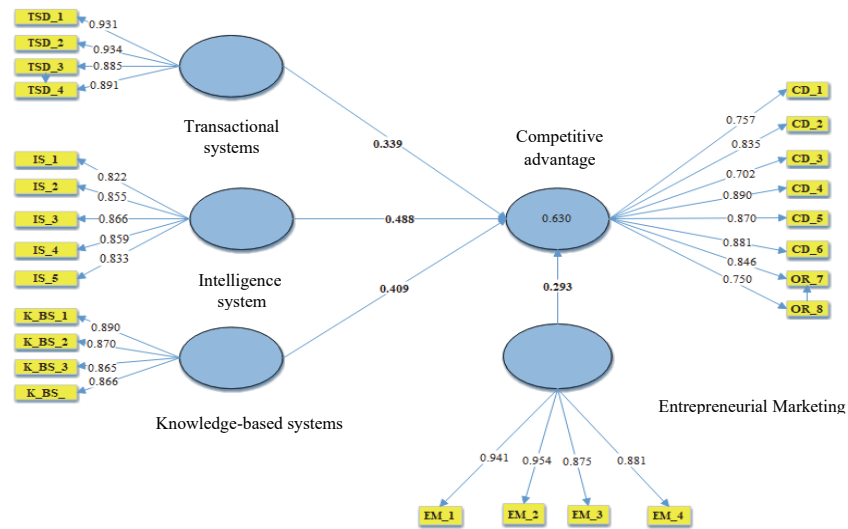


Fig. 2. Original Study Model

Table 2
Convergent Validity and Reliability Analysis.

Latent Constructs and Items	Loadings	Average Variance Extracted (AVE)	Composite Reliability	Coronach Alpha
Competitive Advantage		0.650	0.948	0.935
CD_1	0.757			
CD_2	0.835			
CD_3	0.702			
CD_4	0.890			
CD_5	0.870			
CD_6	0.881			
OR_7	0.846			
OR_8	0.750			
Transactional systems as a data source		0.795	0.956	0.917
TSD_1	0.931			
TSD_2	0.934			
TSD_3	0.885			
TSD_4	0.891			
Knowledge-Based System		0.781	0.973	0.891
K_BS 1	0.890			
K_BS 2	0.870			
K_BS 3	0.865			
K_BS 4	0.866			
Intelligent System		0.759	0.926	0.897
IS1	0.822			
IS12	0.850			
IS13	0.866			
IS14	0.859			
IS15	0.833			
Entrepreneurial Marketing		0.795	0.965	0.909
EM_1	0.941			
EM_2	0.954			
EM_3	0.875			
EM_4	0.881			

9.1 Discriminate Validity

Discriminate validity of the measures is the degree to which items differentiate among constructs or measure distinct concepts (Hair et al., 2011). The current study assessed the discriminate validity using analysis of the average variance (AVE) extracted based on the criteria that “a construct should share more variances with its measures than it shares with other constructs in the model” (Aibinu et al., 2011). This can be assessed by comparing AVE construct with on self and others. It is considered as valid separation of construct whenever the AVE that is shared in self is greater that the value of sharing with other constructs. As shown on table 3, the latent variable relationships are measured with Smart PLS software. The value of square

root of AVE in the diagonal matrix are relatively higher compared to the off-diagonal values in the model. By this, it proves that all the variables represent the discriminate validity and their constructs are well-established.

Table 3
Correlations among Constructs and Discriminant Validity

Construct	CD	TSD	K BS	IS	EM
Competitive Advantage	0.881				
Transactional systems	0.370	0.820			
Knowledge-Based System	0.345	0.530	0.91		
Intelligent System	0.461	0.328	0.424	0.82	
Entrepreneurial Marketing	0.319	0.380	0.380	0.081	0.838

The above-stated Table 3 portrays that the square root of average variance is higher amongst the inter-construct relationship in the particular which demonstrates the discriminate validity of data. All constructs have average variance above 0.5 and square root of average variance is above the correlation for each of the construct in the particular column.

10. Testing the Structural Model

The next step after discussed the measurement model, the analysis was to evaluate the inner model (structural model), i.e. by analyzing the inner model. To do this, the researcher depended on suggested mentioned (Chin, 2010; Hair et al., 2013; Hair et al., 2016), by considering the R^2 values, effect size (f^2), predictive relevance of the model. This step gives way to the researcher to examine the standardized path that are coefficients and bootstrapping for the purpose of evaluating the hypotheses of this study. The details are in the following subsections.

10.1 Coefficient of Determination (R^2)

The coefficient of determination (R-squared value) is one of the vital criterions and the most commonly-utilized measurement during evaluating the relationships in the PLS-SEM model (Hair et al., 2011). It calculates the amount of the variances of the endogenous latent construct as described by the criterion constructs stated as R^2 values (Chin, 1998).

Table 4

The R^2 Value of the endogenous Latent Variable

Latent Construct	Variance Explained (R^2)	Variance Explained (%)
Competitive Advantage	0.630	63%

The R^2 value of 0.630, explains 63% of the total variance in Business Intelligence Systems of this study. This proposes that the three dimensions, explain 63% variance of the exogenous variable, (i.e. Competitive Advantage). Besides, this study is referring to the predictive precision of the model by Chin (1998) and the value of 62.5 of endogenous latent construct is higher than moderate level cum regarded as substantial.

10.2 Hypotheses Testing for Direct Relationships

Running the PLS algorithm is the first step taken to test the hypotheses for direct relationship. By this step, it allows the researcher to create path coefficient in order to ascertain the correlation between these two constructs (endogenous and exogenous). Meanwhile the process of bootstrapping for generating t-value was purposely done to examine the importance of the relationship - see Fig. 3. Therefore, bootstrapping sample in PLS-SEM enable the estimated coefficient to be examined for their significance. In general, applying bootstrapping approach provides an estimate for the spread, shape and the bias of the sample distribution of a specific statistic (Henseler et al., 2009). The results of all bootstrapping samples in PLS-SEM provide standard error and t-value (t-test) for each path coefficient model to measure the significance of such path model relationship (Chin, 1998). There are quarter ways of suggestion no how to run the bootstrapping. For example, Chin (2010) and formerly, Hair et al. (2013) asserted that this process can be ran with 500 sub-samples. But on the following year, Hair et al. (2014) recommended 5000. Hence, this research commits to follow the latest recommendation of using 5000 – as abovementioned. Table 5 displays the outcome of the structural model of the direct relationship between the variables of this research (excluding the moderating effects which are later tested). These results were interpreted using the Path Coefficient and t-value (t statistics) and p-value.

Table 5

Result of Hypothesis Testing

Hypotheses	Hypothesized Relationships	Path Coefficient	T value	P value	comments
H1	Transactional systems as a data source → Competitive Advantage	0.339	3.408	0.000	*** Accepted
H2	Intelligent System → Competitive Advantage	0.448	6.003	0.003	*** Accepted
H3	Knowledge-Based System → Competitive Advantage	0.409	6.007	0.000	*** Accepted

Note: t-values > 1.65* ($p < 0.10$); t-values > 1.96** ($p < 0.05$); t-values > 2.58*** ($p < 0.01$)

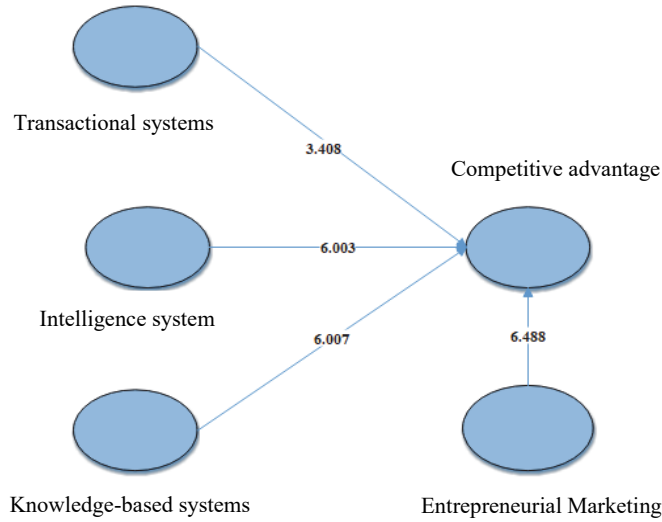


Fig. 3. Structural Model

10.3 Testing Moderating Effects

The main effect is primarily calculated by the influence of both exogenous and endogenous construct. This is understood as the present of connection is contingent upon the other construct, hence it shows that there is moderating effect from the construct. Meanwhile, it is measured as simple effect when there is effect of the exogenous construct towards endogenous construct (Hair et al., 2013). Whenever utilizing 1 tail or 2 tails, value of the T-statistic of interaction effect is 1.65 or 1.96 (correspondingly) and above, hence it indicates that the moderating effect does exists (Hair et al., 2016). It is seen from the Fig. 4 there is significant correlation using t-statistics and the outcome details are illustrated in Table 6.

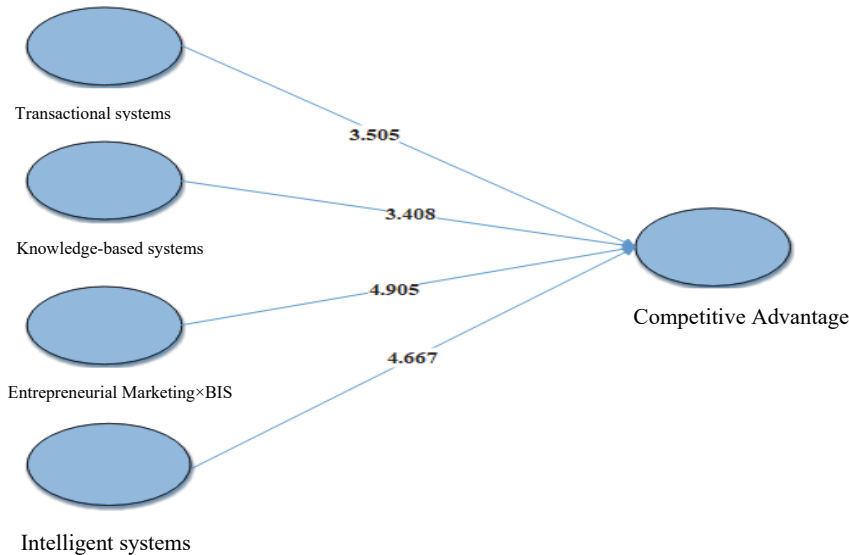


Fig. 4. Moderating Effects Test

Table 6
Results of Moderating Effect Test

Relationship	Moderating Effects	Path	T	P	Inference
4	Entrepreneurial Marketing × Business Intelligence Systems → Competitive Advantage	0.293	4.905	0.001	Accepted***

Note: t-values > 1.65* (p < 0.10); t-values > 1.96** (p < 0.05); t-values > 2.58*** (p < 0.01)

11. Results and Conclusion

As derived from the problem statement, this paper proposed 4 research questions. All of these questions are centering the issues of the influence of BIS on Competitive Advantage and the moderating effect of EM.

Consistent with the research questions and objectives of the study was a descriptive statistic was conducted. Result was reported in Table 1. The result revealed that the mean of Transactional systems is 4.44, Knowledge-Based System is 3.50, Intelligent system is 4.15, Entrepreneurial Marketing is 4.25 are perceived by The study sample as measuring up to their requirements as indicated by the response to the items in the questionnaire: Business Intelligence Systems (Transactional systems, Knowledge-Based System, Intelligent system and Competitive Advantage is positive but has major effect.

This implies that, there are relationship between Business Intelligence Systems measured by (Transactional systems, Knowledge-Based System, Intelligent system) and Competitive Advantage. This study investigated the relationship between Business Intelligence Systems and Competitive Advantage. It found that, similar to other studies (e.g. Hana, 2013; Euripidis & Fotini, 2012; Manlio Del Giudice, & Rosaria Della, 2016; Nedelcu, 2013; Shadi & Mazir, 2012; Azeroual & Theel, 2019; Ali et al., 2017; Nedelcu, 2013). Business Intelligence Systems has a positive effect on Competitive Advantage. Consistent with the final research question, the final objective of this study is to investigate the moderating role of Entrepreneurial Marketing in the influence of Business Intelligence Systems on Competitive Advantage. In order to achieve the final objective of the study, a descriptive statistic was conducted. The result revealed that the mean of (Entrepreneurial Marketing is 4.25). This has been perceived by the study sample as measuring up to their requirements as indicated by the response to the items in the questionnaire EM moderates the effect of BIS on Competitive Advantage.

This study discovered that EM moderates the influences of BIS on Competitive Advantage, (t-value = 0.293, $p < 0.000$). This suggests that the participation of BIS, the positive influences is further enhanced. Notably, many of the studies reviewed investigated BIS as an antecedent of Competitive Advantage, or interrelated constructs. Though with certain variations, these studies found BIS to be positively related with, and of positive influence to, Competitive Advantage.

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