



Analysis the Relationship Between Strategic Information System Effectiveness and Entrepreneurial Orientation For Some Telecom Firms

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Abstract: Information System plays a strategic role in building a entrepreneurial orientation , particularly in the communications sector which is based on information. As the strategic information system effectiveness assessment is an important issue for the organizations as information system have become critical for their survival. Thus, This study aimed to analysis the relationship between strategic information system (SIS) effectiveness and entrepreneurial orientation (EO) For Some Telecom Firms. To achieve the study goals ,data were collected by constructing a questionnaire. The study society consisted of (31) representing from the firm departments in the firms of Asiacell, Zain and Kalimattelecom and The data were analyzed using SPSS 16. The study results showed that the effectiveness of strategic information system a role in building and supporting entrepreneurial orientation For Firm. Thus a positive relationship is between them.

Key words: SIS Effectiveness, Competing Values Model, Entrepreneurial Orientation

Introduction

Played information systems in today's organizations with is the increased pressure to leverage technology assets has dramatically increased the importance of strategic information systems (Bechor et al., 2010). Today, more organizations insist that technology and SIS decisions linked with a clear understanding of business and organization strategy (Pollack, 2010). Hence, Strategic Information System becomes one of the most important resources in support the key organizational activities during providing the required information in decision making process. Therefore, the effective strategic information system has a significant contribution to organization at its levels and special is top management (AlHendawi & Baharudin, 2013), from during providing managers with a broad range of information to the firm That be a entrepreneurial nature. (Trivellas & Santouridis, 2013) for pursuing new ventures provides a useful framework for researching entrepreneurial activity (Avlonitis & Salavou, 2007).

Based on review, little is known about the benefits and support which provide of effective SIS for firm to achieve entrepreneurial orientation. Therefore, the current study seeks to Analysis The Relationship between strategic information system effectiveness and entrepreneurial orientation. as well as it explores the theoretical basis of the relationships between study factors towards the development of a study model. This model is developed based on the competing values model to evaluating SIS effectiveness and dimensions of entrepreneurial orientation

1. Strategic Information System

Provides are the different kinds of information systems for the organization management is well recognized benefits (Diez & McIntosh, 2009). This is what drives us to say advances in information provision have led organizations to attempt to develop IS strategies which interrelate with their business strategies and which together support firm mission. The three

types of information systems, which are financial systems, operational systems and strategy systems, which use to general use in the many of organizations, may well become the strategic systems for a particular organization. Therefore, in the 80's and 90's, there has been a growing realization of the need to make SIS of strategic importance to an organization. SIS are systems that support or shape a strategy Orientation to an business unit's or its competitive strategy (Callon, 1996) (Neumann, 1994). Hence, SIS are touted throughout the academic literature as an the way to achieve the greatest benefits when the organization adopts Information Systems (Bajjal, 1998). An SIS is characterized by its ability to give the firm strategic advantage for organization. (Hemmatfar et al, 2010). Nevertheless, the strategic information system contributes to provide of the organization with many of the major organizational activities such as automation of tasks and Entrepreneurial Orientation decision making process. Therefore, SIS a significant contribution to organization effectiveness from during SIS effectiveness (AlHendawi & Baharudim, 2013). In from during literature review of IS we found many definitions for SIS as: information system that enable is the firms to support or change firms strategic for confront to environmental changes and aid it in achieving a entrepreneurial orientation. (Hemmatfar *et al.*, 2010) (Trivellas & Santouridis, 2013). Any other words a strategic information systems enable of the organization for opportunities acquisition to integrate with their entrepreneurial orientation. (Issa-Salwe *et al.*, 2010). Therefore, Key features of the Strategic Information Systems are the following:

1. Enable firms to Decision support from during integrate Information Systems with an organization's strategies.
2. The optimization from during the link between firm resources with their objectives.
3. The firm provides the data processing tools to enable them to the better use of the information to help of the acquisition of marketing opportunities.
4. The rapid response to users from its needs to information (Bhatia, 2007).

According to the current research suggests that the system as a strategic information system, which enables the organization to achieve entrepreneurial through strategic information provided by the system.

Regarding effectiveness of strategic information system, it could be said that the effectiveness is the degree to which objectives are achieved. As The definition of effectiveness in SIS has, itself, been a topic of research and discussion. However Researchers are in agreement that SIS effectiveness focuses on the organizational effects produced by an strategic information system. Any other word The accomplishment of objectives through the information provided across SIS (Cyrus, 1991).

The following paragraphs show the importance of the effectiveness of SIS: (Cyrus, 1991) (Nayak, 2012)

- SIS will reduce the cost of operations.
- SIS will reduce or increase the growth rate in employment.
- SIS will reduce clerical work.
- SIS will improve reporting by providing more accurate and more timely reports, with less effort.
- SIS will improve or reduce productivity.
- SIS will improve decision-making, by providing more timely and more accurate information, by stimulating more interaction among decision-makers, and by providing better projections of the effects of decisions.
- SIS will alter the attitudes, activities and interactions of administrators.

In the context of Measuring the effectiveness of SIS as a type of IS is an issue that has generated debate and research among academics. But Through review of the literature of the effectiveness of IS was reached to CVM (The Competing Values Model, see in figure 1.) of the most commonly used models to measure the effectiveness of information systems (Trivellas & Santouridis, 2013) (Trivellas et al., 2006) (Cooper, 1994), so it will be in this study adopted a model CVM as a tool to measure the effectiveness of strategic information system. In addition, CVM serves as a map, an organizing mechanism, a sense-making device, a source of new ideas, learning system, and a effectiveness measurement. It has been applied by researchers and practitioners to many aspects of organizations Including measuring the effectiveness of strategic information systems. In other

words, the Model helps IT manager in improving the performance and value creation (Cameron et al., 2006). CVM emphasizes on a four axes, flexibility and change to control and order and the conflict between the internal focus and external focus. Hence, the intersection of these two dimensions is formed of four models: open system, human relations, internal process and rational (Trivellas & Santouridis, 2013). As well as, academics and IS expert, A multidimensional scaling technique was applied to derive the MIS experts perceptions mapping and to confirm the clustering of IS attributes on the following four quadrants proposed by CVM: (Trivellas & Santouridis, 2013) (Mathew, 2008) (Sanderson, 2006) (Berrio, 2003)

- Open system model: is linked with creativity, entrepreneurship, adaptability and external orientations. These processes bring innovation and creativity. People are not controlled but inspired.
- Human relations model: is characterized by flexibility, morale, teamwork and participation values. People are seen not as isolated individuals, but as cooperating members of a common social system with a common stake in what happens
- Internal process model: based on hierarchy, emphasis on measurement, documentation, information management and internal orientations. These processes bring stability and control.
- Rational goal model: is focused on organizational planning, directing, goal setting, action is taken and external orientation.

<p>Human Relations Model</p> <p>Ends: Cohesion Morale</p> <p>Means: Training Dev. of human resources</p>	<p><i>F</i> <i>l</i> <i>e</i> <i>x</i> <i>i</i> <i>b</i> <i>i</i> <i>l</i></p>	<p>Open Systems Model</p> <p>Ends: Growth, resources acquisition, External support</p> <p>Means: Adaptability Readiness</p>	
<p><i>Internal Focus</i></p> <p>Ends: Stability Control</p> <p>Means: Information management Communication</p> <p>Internal Process Model</p>	<p><i>i</i> <i>t</i> <i>y</i></p>	<p><i>C</i> <i>o</i> <i>n</i> <i>t</i> <i>r</i> <i>o</i> <i>l</i></p>	<p><i>External Focus</i></p> <p>Ends: Productivity Efficiency</p> <p>Means: Planning Goal-setting</p> <p>Rational Goal Model</p>

2. Entrepreneurial Orientation

Entrepreneurial Orientation (EO) one important concepts in the field of entrepreneurship, to being an efficient tool for the acquisition of the progress of entrepreneurial actions and decision making across organizational contexts (Piirala, 2012). EO is a significant contributor to a firm success (Mahmood & Hanafi, 2013). The concept of entrepreneurial orientation was developed by Miller (1983), for the first time to the academic literature, even though he did not use the term entrepreneurial orientation in his initial writing (Kusumawardhani, 2013). EO is also Represents a capability that enables the company to achieve a sustainable competitive advantage as well as superior performance (Mahmood & Hanafi, 2013, 83), in addition its role in achieving innovation within that organization or venturing or renewal strategy or their key ideas to firm (Güth & Ginsberg, 1990) (Roux & Coupepy, 2007). Many of firms have focused on entrepreneurial as a

result of the challenges of faced both by the entrepreneurs or managers in the environment which is characterized by complex and dynamic. (Yordanova, 2011)

Indeed, the firm ability to achieve additional wealth and increase Mortgaged its ability and the ability of superior skills individuals on the sensing and seize entrepreneurial opportunities (David, 1998). entrepreneurial scholars are concerned to answers to questions about entrepreneurship such as: (1) why, when, and how opportunities for the creation of goods and services come into existence. (2) why, when, and how some people and not others discover and exploit these opportunities. and (3) why, when, and how different modes of action are used to exploit entrepreneurial opportunities (Ireland et al., 2003). With greater attention being paid to entrepreneurial orientation, It can be said that there are views many on the entrepreneurial orientation, but in spite of its multiplicity, are shares of among them in many of the features or aspects as follows: (Wiklund & Shepherd, 2003) (Covin & Lumpkin, 2011) (BCom, 2012)

1. Thought, inclination and concerns of the firm about entrepreneurship.
2. entrepreneurial aspects in the field of decisions, methods and practices of the firm.
3. The new value in the firm.

The popular view among scholars is that the entrepreneurial orientation can measure the degree of entrepreneurship in organisation (Scheepers et al., 2007) (Bcom, 2012). Thus, Entrepreneurial orientation enables firms to take proactive and aggressive initiatives to gain the competitive scene in favor of their advantage (Avlonitis & Salavou, 2007) (Li *et al.*, 2009). To measure Entrepreneurial Orientation, The dimensions measuring entrepreneurial orientation used in this study concur with those found in the literature and Which can be summarized and explained in detail in below: (Bruining & Wright, 2002) (Dess & Lumpkin, 2005) (Avlonitis & Salavou, 2007) (Roux & Couppey, 2007) (Li et al., 2009) (BCom, 2012) (B.Eng, 2012) (Soininen *et al.*, 2012) (Nobrega, 2013) (Kusumawardhani, 2013) (Villaverde et al., 2013)

- Autonomy: Refers to employees empowerment to make decisions in their own work, and the performance of their tasks, as well as unconventional ways use in solving problems and therefore achieve the vision of the firm through the completion.
- Innovativeness: A willingness to introduce newness and novelty through experimentation and creative processes aimed at developing new products, services and processes.
- Risk-Taking: Decisions and strategic actions without certain knowledge of probable outcomes, and the willingness to substantial resource commitments in the process of venturing forward.
- Proactiveness: A forward-looking perspective characteristic that has the foresight to seize opportunities in anticipation of future demand.
- Competitive Aggressiveness: An intensity effort to outperform industry rivals. It is characterised by offensive posture or an aggressive response aimed at improving position or overcoming a threat from a competitor's actions.

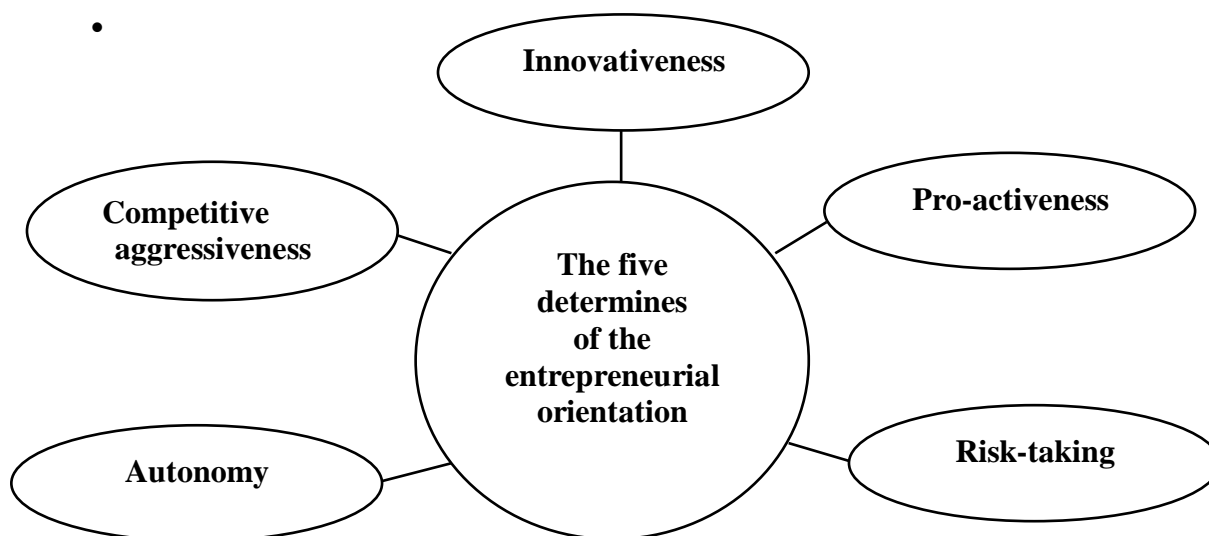


Figure 2. The five variables of the entrepreneurial orientation (B.Eng, 2012)

3. Methodology

3.1. Questionnaire Design

The field research was based on a structured questionnaire. It was built by adapting existing scales in the managerial literature measuring information systems effectiveness and Entrepreneurial Orientation. Questionnaire Based on a comprehensive survey of the literature and interpretations utilized in this research, both researches developed a set of Questionnaire to be used in the survey. strategic information system effectiveness and entrepreneurial orientation, consistent with previous researches, were calculated according to five points of Likert scales, with anchors of 1= strongly disagree and 5= strongly agree. The survey, therefore, is composed of 9 parts including the previously mentioned variables (see appendix A). Therefore, adopted the results of several previous studies in this field IS. On the basis of a survey of those studies, the most consistent elements and commonly used have been selected in these studies. Study have been adopted, regarding the strategic information system effectiveness, four elements what came in (Trivellas & Santouridis, 2013, 171), (Mathew, 2008), (Sanderson, 2006), (Berrio, 2003). While study have been adopted, regarding entrepreneurial orientation, five elements what came in (Bruining & Wright, 2002) (Dess and Lumpkin, 2005) (Roux & Couppey, 2007) (Li et al., 2008) (BCom, 2012) (Kusumawardhani, 2013) (Villaverde et al., 2013).

3.2. Data Collection

quantitative approach including the primary data collection and processed analytically. Moreover, it is used to find patterns and trends through numerically encoding data and the researcher is forming statistical results (Lean et al., 2009). Collected Data aimed at studying effectiveness of strategic information system and its relation with Entrepreneurial Orientation through direct surveys via mail to the decision makers in Iraq organisations under study. The number of these organisations is (3) in Ninawa Governorate. The names of organisations, Asiacell, Zain and Kalimattelecom in sector of the communications, which witnesses a large development. Questionnaire have been distributed for those working in decisions make in each organisation. Thus, the total number of questionnaires distributed was 33 Questionnaires. The number of approved questionnaires was (31), representing (93.9%) of the total number of questionnaires distributed.

3.3. Study Framework

The model has been suggested by the researcher to study the effect of SIS effectiveness on Entrepreneurial Orientation and was SIS effectiveness on the six sub-dimensions of Entrepreneurial Orientation the autonomy, innovativeness, risk-taking, proactiveness and competitive aggressiveness (see figure 3). According to the researcher experience, the impact of SIS effectiveness on entrepreneurial orientation and subdimensions has not been examined as yet and this paper aims to investigate this relationship. To test these effects, ten hypotheses have been formulated:

- H1: SIS effectiveness significantly related to Entrepreneurial Orientation.
- H2: SIS effectiveness significantly related to innovativeness.
- H3: SIS effectiveness significantly related to risk-taking.
- H4: SIS effectiveness significantly related to proactiveness.
- H5: SIS effectiveness significantly related to competitive aggressiveness.
- H6: SIS effectiveness significantly related to autonomy.
- H7: Open system significantly related to Entrepreneurial Orientation.
- H8: Human relations significantly related to Entrepreneurial Orientation..
- H9: Internal process significantly related to Entrepreneurial Orientation.
- H10: Rational goal significantly related to Entrepreneurial Orientation.

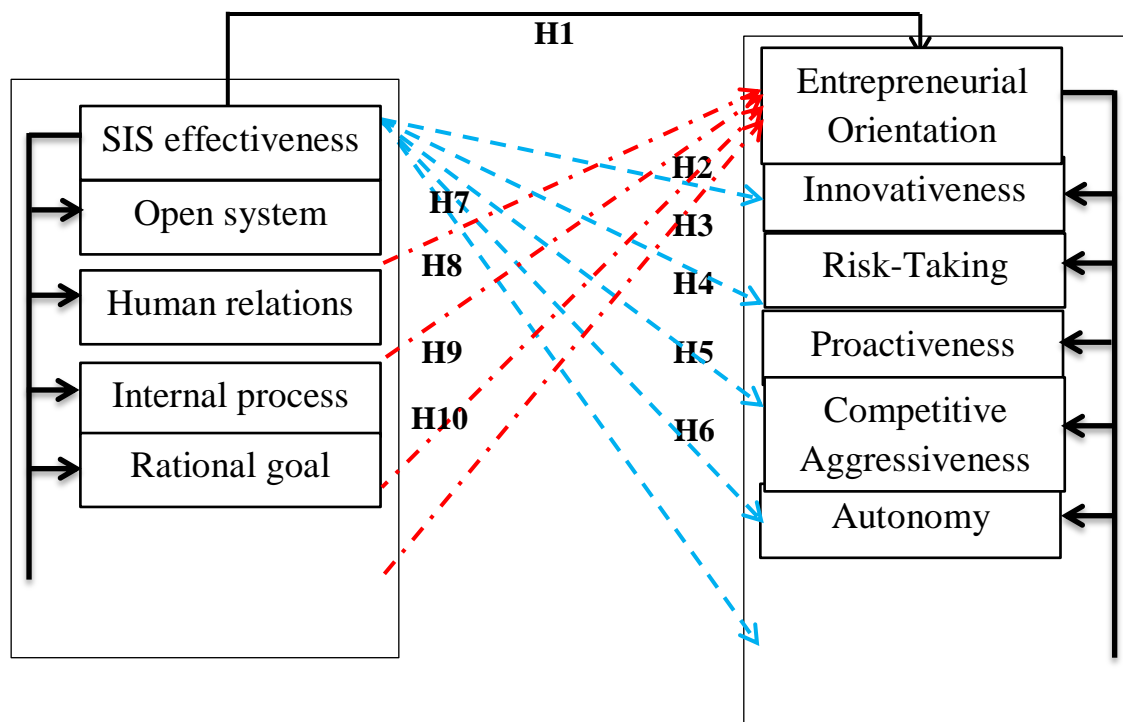


Figure 3. Proposed Study Framework

3.4. Reliability

Reliability was measured by using Cronbach alphas and was minimum standard of recommended of 0.60 (Baker *et al.*, 2002) (Li *et al.*, 2009). Variable of strategic information system effectiveness has got on the reliability of 0.89, while variable of Entrepreneurial Orientation has got on the reliability of 0.90.

4. Finding & Discussion

The first section of the questionnaire focused on demographic information of the respondents who participated in the study. The respondents were asked to indicate their Gender, Age and Education Level. The findings were analysed and reported as below:

Table 1. Demographic Information of Respondents

Item	N	%
Gender:		
Male	25	80.65
Female	6	19.35
Age (Years):		
Less than 30	3	9.68
31 to 40	8	25.81
41 to 50	19	61.29
51 above	1	3.22
Education Level:		
High school or Lower	1	3.22
Diploma	2	6.45
First degree	20	64.52
Master degree	8	25.81

Table 1. shows that most of the respondents were male with 80.65%, while the other of the respondents was female the percentage of 19.35%. Further, that majority of the respondents were in the age of 41-50 years old with 61.29 percent, respondents that have age between 31-40 years old is 25.81 percent, followed by less than 30 years old with 9.68 percent, and 51 years old and above with 3.22 percent from the total respondents. While exhibits the findings about the

Education Level. It was found that shows 64.52 percent of respondents have Education Level for First degree. Then, 25.81 percent of respondents for Master degree. Next, the Education Level for Diploma is 6.45 percent followed by 3.22 percent High school or Lower. This is evidence on the maturity of the study sample.

Further, Based on descriptive analysis, mean and standard deviation were calculated as stated in Table 2. Respondents have a positive opinion towards SIS effectiveness, Open system, Human relations, Internal process and Rational goal show more than average, at 3 and above. Also, dependent variables, show more than average, at 3 and above (looking table 2). Further, the standard deviation for all variables showed 1 and less than 1, indicated that there was less variation among respondents opinion to each variable.

Table 2. Descriptive Analysis

Item	Mean	S.D.
Open system	3.62	0.88
Human relations	3	0.96
Internal process	3	0.96
Rational goal	3.43	0.99
Innovativeness	3.94	1
Risk-taking	3.99	0.93
Proactiveness	3.61	1.01
Competitive aggressiveness	3.53	1.05
Autonomy	3.07	0.97

Further, Pearson correlation analysis was conducted to examine all the bivariate relationships among the variables as in Table 3. Statistical evidence show that significant correlations exist between SIS effectiveness with entrepreneurial orientation and subdimensions; also show that significant correlations exist between SIS effectiveness and subdimensions with entrepreneurial orientation. This can be concluded that independent variable (SIS Effectiveness), has a high positive correlation with dependent variable (Entrepreneurial Orientation). Thus, the Information supplied through a strategic information system of a strategic nature supports entrepreneurial orientation to firm and achieve are competitive orientation.

Table 3. Correlation Analysis

SIS effectiveness				The value of the correlation coefficient
R	Level	Variables	Indicators	
1	Overall	Entrepreneurial Orientation	X18-X37	(0.752)**
2	Partial	Innovativeness	X18-X21	(0.559)**
		Risk-taking	X22-X25	(0.439)*
		Proactiveness	X26-X29	(0.713)**
		Competitive aggressiveness	X30-X33	(0.468)**
		Autonomy	X34-X37	(0.623)**
Entrepreneurial Orientation				The value of the correlation coefficient
SIS effectiveness	Level	Variables	Indicators	
3	Partial	Open system	X1-X4	(0.406)*
		Human relations	X5-X8	(0.581)**
		Internal process	X9-X12	(0.591)**
		Rational goal	X13-X17	(0.759)**

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

Reveal of the data table 4. the availability of correlation and positive significant between the independent variable (SIS effectiveness) and dependent variable (Entrepreneurial Orientation), so if they studied in the framework of any of the levels. At the macro level, the overall are variable indicators sis effectiveness in relation to their correlation with variable indicators of dependent, The value of the correlation coefficient (0.752**) at the level of significance 0.01. The

values were at the micro level, at the same levels of significant and the level of significance 0.05 to (0.559**) are innovativeness, (0.430*) risk-taking, (0.713**) proactiveness, (0.468**) competitive aggressiveness and (0.623**) autonomy. which helps arrangement these dimensions according to the strength of correlation as the following: proactiveness, autonomy, innovativeness, competitive aggressiveness and risk-taking.

Further, the availability of correlation and positive significant between subdimensions of the independent variable and dependent variable (Entrepreneurial Orientation) (see table 3). Accordingly these dimensions can be arranged depending on the strength of correlation to Rational goal, Internal process, Human relations and Open system.

Further, regression analysis was conducted between variables. Table 4. shows a significant relationship between the independent variable and the dependent variable.

Table 4. Regression Analysis

Independent variable dependent variable		SIS effectiveness						
Variables	Indicators	R Square	DF	F		Beta	T	
				Calculated	Distribution		Calculated	Distribution
Entrepreneurial Orientation	X18-X37	0.556	1 29	37.752	7.563	0.752	6.144	2.756
Innovativeness	X18-X21	0.312	1 29	13.159	7.563	0.559	3.628	2.756
Risk-taking	X22-X25	0.192	1 29	6.912	4.171	0.439	2.629	2.045
Proactiveness	X26-X29	0.508	1 29	29.915	7.563	0.713	5.469	2.756
Competitive aggressiveness	X30-X33	0.219	1 29	8.112	7.563	0.468	2.848	2.756
Autonomy	X34-X37	0.388	1 29	18.413	7.563	0.623	4.291	2.756
dependent variable Independent variable		Entrepreneurial Orientation						
Open system	X1-X4	0.165	1 29	5.734	4.171	0.406	2.395	2.045
Human relations	X5-X8	0.338	1 29	14.803	7.563	0.581	3.847	2.756
Internal process	X9-X12	0.350	1 29	15.585	7.563	0.591	3.948	2.756
Rational goal	X13-X17	0.576	1 29	39.332	7.563	0.759	6.271	2.756

The values of Regression Analysis reveal that the SIS effectiveness dimension is significantly and positively effect with Entrepreneurial Orientation, This evidence the values of each of (F, Beta and T: see table. 4). shows that the SIS effectiveness of the most effect in subdimensions is Proactiveness, Autonomy and Innovativeness, (see table. 4). Further, The values of regression analysis reveal that subdimensions of the SIS effectiveness is significantly and positively effect with Entrepreneurial Orientation, Evidenced by the values of each of (F, Beta and T: see table. 4). After evaluating the results, it can be concluded that the relationships between independent variables (SIS Effectiveness) and dependent variables (Entrepreneurial Orientation) was positive (see figure. 4). Finally, overall findings are summarized as below:

Table 5. Findings summarized of the Study Hypotheses

H1	SIS effectiveness significantly related to Entrepreneurial Orientation	Accept
H2	SIS effectiveness significantly related to innovativeness	Accept
H3	SIS effectiveness significantly related to risk-taking	Accept
H4	SIS effectiveness significantly related to proactiveness	Accept
H5	SIS effectiveness significantly related to competitive aggressiveness	Accept
H6	SIS effectiveness significantly related to autonomy	Accept
H7	Open system significantly related to Entrepreneurial Orientation.	Accept
H8	Human relations significantly related to Entrepreneurial Orientation.	Accept
H9	Internal process significantly related to Entrepreneurial Orientation.	Accept
H10	Rational goal significantly related to Entrepreneurial Orientation.	Accept

As outlined in table 5., the main model estimations revealed hypotheses were significant. Hence, all hypothesis were supported and accept.

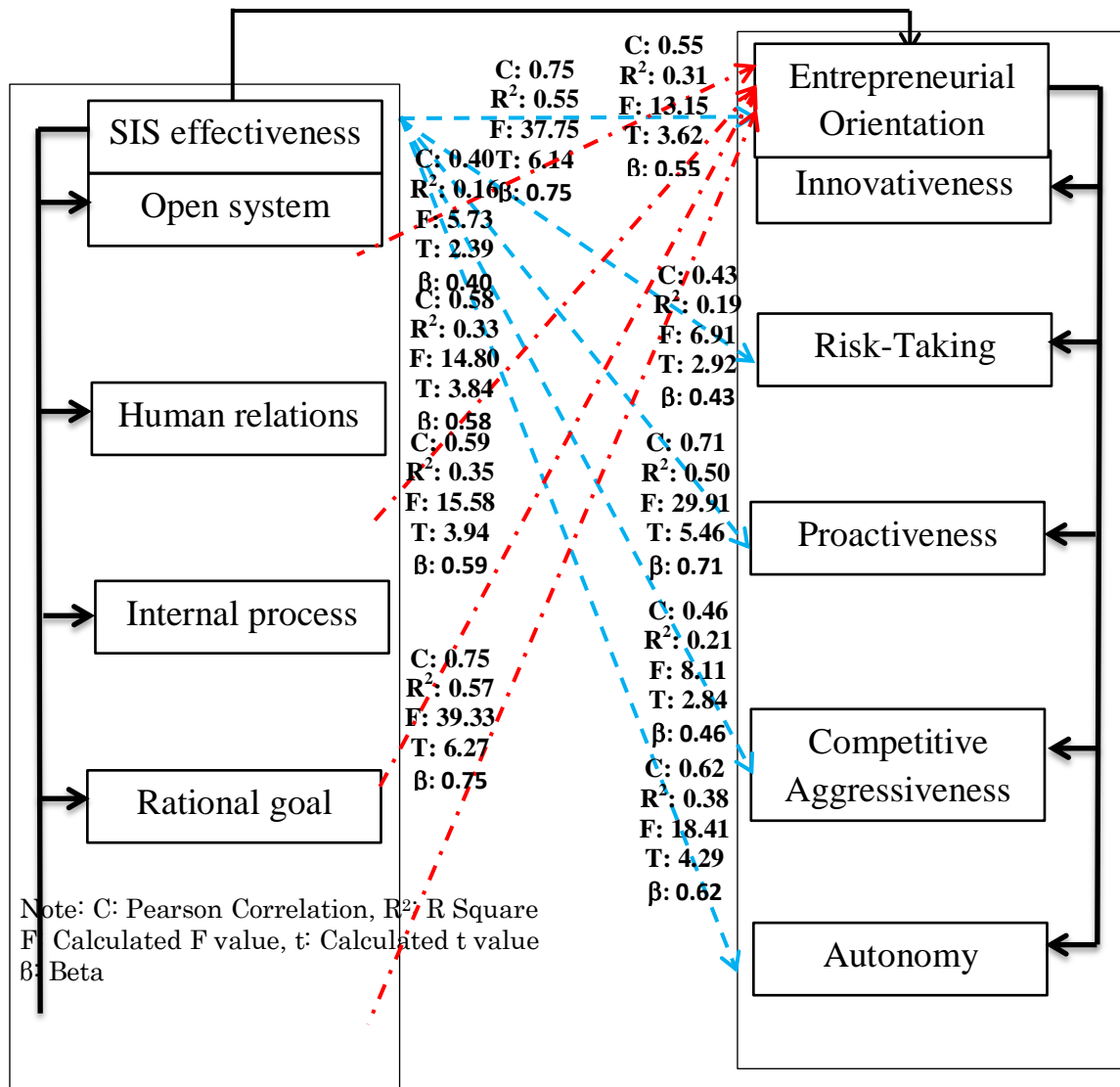


Figure. 4: Results from Testing the Study Model

5. Conclusion

The current study aims to advance our knowledge in the field of information systems and entrepreneurial orientation by revealing the relationship between study dimensions, across examining the relationship between SIS effectiveness and Subdimensions with entrepreneurial orientation and subdimensions for sample of telecom the firms in Mosul City. The main contribution from firms study to identification on the cause and effect relation by testing of hypothesis. Hence, all hypotheses of the proposed relationships in the study model were confirmed, thus, the findings of the present study are consistent with the proposed theoretical foundation and despite that, the should be on firms looked at more carefully to hypotheses H3, H5 and H7. As the results showed that entrepreneurial orientation enables firms to achieve competitive orientation and competitive advantage Sustainability through competitive information provided by the strategic information system. It was suggested the following recommendations for firms: IT department of the firms should now work towards integrating the system with others systems to order be the information more consistent with the decisions makers, as well as, is suggested to give training to the managers of the firm about effectiveness of SIS and its use in the decisions making process. Lastly this study an interesting can formulate new research questions for future research, or conducting them in new firms and new sectors.

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Appendix A. Questionnaires

Dear Sir/Madam:

I am writing an essay on "**Analysis The Relationship Between Strategic Information System Effectiveness and Entrepreneurial Orientation For Firms**". I should be most grateful if you could spare a few minutes of your precious time to answer the following questions. I would like to assure you that your responses will be treated in strict confidentiality.

Regard

Demographic Information:

Gender: Male Female

Age (Years): Less than 30 to 40 to 50 above

Education Level: High school or Lower diploma first degree

Master degree

The scale	Strongly disagree	Disagree	Unsure	Agree	Strongly agree
Weight	1	2	3	4	5

R	Questions	1	2	3	4	5
Strategic Information System Effectiveness						
<i>Open system</i>						
1	Provides strategic information system in my firm information to the create of new products.	1	2	3	4	5
2	Provides strategic information system in my firm information to Characterized of entrepreneurship.	1	2	3	4	5
3	Provides strategic information system in my firm information to Characterized of adaptability.	1	2	3	4	5
4	Provides strategic information system in my firm information from external environment.	1	2	3	4	5
<i>Human relations</i>						
5	Provides strategic information system in my firm information for decision-makers.	1	2	3	4	5
6	Provides strategic information system in my firm information required for team work.	1	2	3	4	5
7	Provides strategic information system in my firm information required for members of the planning process.	1	2	3	4	5
8	Information provided by strategic information system being	1	2	3	4	5

	transferred between individuals.					
<i>Internal process</i>						
9	Provides strategic information system in firms information on strategic control processes.	1	2	3	4	5
10	Strategic information system provides information about the workflow.	1	2	3	4	5
11	Provides strategic information system for the management of information materials Management.	1	2	3	4	5
12	Strategic information system provides information on the Investment Management.	1	2	3	4	5
<i>Rational goal</i>						
13	Provides strategic information system in my firm information required for goals setting.	1	2	3	4	5
14	Provides strategic information system in my firm the information required to customer relationships management.	1	2	3	4	5
15	Provides strategic information system in my firm the information required to supplier relationships management.	1	2	3	4	5
16	Strategic information system provides information that enables firms to forecasting.	1	2	3	4	5
17	Provides strategic information system in my firm the information required to conduct sensitivity analysis and simulations.	1	2	3	4	5
Entrepreneurial Orientation						
<i>Innovativeness</i>						
18	The top managers in my firm are favor a strong emphasis on R&D, technological leadership, and innovations.	1	2	3	4	5
19	My firm seek to maximise value from opportunities without constraint to existing models, structures or resources.	1	2	3	4	5
20	My firm places a strong emphasis on continuous improvement in products/service delivery/processes.	1	2	3	4	5
21	My firm there is a strong relationship between the number of new ideas generated and the number of new ideas successfully implemented.	1	2	3	4	5
<i>Risk-taking</i>						
22	My firm usually has a strong proclivity for high risk projects (with chances of very high returns).	1	2	3	4	5
23	Owing to the nature of the environment, bold, wide-ranging acts are necessary to achieve the firm's objectives.	1	2	3	4	5
24	My firm are often encouraged to take calculated risks concerning new ideas.	1	2	3	4	5
25	The term "risk-taker" is considered a positive attribute for employees in my firm.	1	2	3	4	5
<i>Proactiveness</i>						
26	We are very often the first business to introduce new products.	1	2	3	4	5
27	My firm usually initiates actions which competitors then respond to In dealing with competitors.	1	2	3	4	5
28	Changes in products have usually been radical as compared with main competitors.	1	2	3	4	5
29	The top managers of my firm have a strong tendency to be ahead of others in introducing novel ideas or products.	1	2	3	4	5
<i>Competitive aggressiveness</i>						
30	My firm usually adopts a very competitive "undo-the-competitors" posture.	1	2	3	4	5
31	My firm is very aggressive and intensely competitive.	1	2	3	4	5
32	My firm effectively assumes an aggressive posture to combat industry trends that may threaten our survival or competitive position.	1	2	3	4	5

33	My firm knows when it is in danger of acting overly aggressively (this could lead to erosion of our firm reputation or to retaliation by competitors).	1	2	3	4	5
<i>Autonomy</i>						
34	My firm enough autonomy in my job without continual supervision to do my work.	1	2	3	4	5
35	My firm has the independent action of an individual or a team in bringing forth an idea or a vision and carrying it through to completion.	1	2	3	4	5
36	My firm has the ability and will to be self-directed in the pursuit of opportunities.	1	2	3	4	5
37	My firm seldom have to follow the same work methods or steps while performing my major tasks from day to day.	1	2	3	4	5