



## ANALYSIS OF CLIENT DEPENDENCE (CD) AND VENDOR INNOVATION (VI) AND THE MODERATING ROLE OF THE CORPORATE CULTURE

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### ARTICLE INFO

#### Article history:

Received 08 October 2018  
Received in revised form 04  
December 2018  
Accepted 11 December 2018  
Available online  
12 December 2018

#### Keywords:

Client dependency;  
Corporate culture; SPSS;  
PLS.; Reliability of  
indicators of variables

### ABSTRACT

Present study was conducted to examine client dependency, vendor innovation (VI), and the moderating role of corporate culture. The study was quantitative in terms of nature, and applied in terms of purpose conducted in correlation design. The population was all employees, who were 95 people and clients of Varamin Telecommunications Department in a specified period with uncertain number. The employees filled out VI and corporate culture questionnaires, and the clients answered client dependence (CD) questionnaire. Given the number of population members and based on Morgan's table, 76 subjects are selected for the vendor and 384 for clients. The tool used in this study was three questionnaires: CD, VI, and corporate culture. Prior to data analysis, heuristic analysis of the data was performed. Correlation test was used to describe and measure the relationship between variables, and SPSS® and PLS (Partial Least Squares regression) software was used to test the hypotheses. The results indicated that CD affects corporate culture. Corporate culture affects VI. Client dependency does not directly affect VI, but it has an indirect effect on VI through corporate culture.

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## 1. INTRODUCTION

With the drastic increase in the technological communications between organizations and the high pace of technological change, organizations have become so dependent with each other to be able survive and engage in competing with others. It is believed that in some cases collaboration between organizations could create innovations in internal development (Fisher, 2006). Vendor innovation (VI) and client dependence (CD) are new concepts attracting the attention of researchers. In this regard, contradictory results have been achieved about the impact of CD on VI. Some studies indicated that excessive CD to the organization creates power inequality and destroys flexibility (Gassmann et al., 2010; Johnsen & Lacoste, 2016). While in other contexts, CD on the organization creates trust and communication and coordination, enabling the service provider or product vendor

to discover more innovative actions (Sivadas & Dwyer, 2000; Varadarajan & Cunningham, 1995).

## 2. RESEARCH THEORY FRAMEWORK

### 2.1 CD

CD is of the important factors in consumer behavior and in the continuing client-company relationship. Dependence is usually categorized as a part of the economic outlook of the relationships because the consumer measures the costs and benefits of staying with a company. Thus, when a client is excessively dependent on a service provider, he is so willing to respond to some of its specific policies, programs and requests, as otherwise it might mean the loss of the service provider or parts of the value received from the service provider (Ashley et al., 2011).

### 2.2 VENDOR INNOVATION (VI)

VI is usually defined as the adoption of the idea or behavior of a product, service, device, system, policy, or program approved of by the organization (Duncan & Holbick, 1973; Damanpour, 2000).

### 2.3 CORPORATE CULTURE (CC)

It is a set of methods, beliefs, perceptions and inferences and thinking methods in which the members of the organization have some commonalities, and CC is the personality of the organization and the secret force that goes beyond the tangibility of the organization (Daft, 1998).

### 2.4 REVIEW OF LITERATURE

Some studies have indicated that interdependence of the vendor and client increases the opportunity for institutional change as it creates actors for the creation of new joint institutions (Furnari, 2016), but excessive dependence enables the client to preserve his status (Furnari, 2016).

Likewise, excessive dependence on business partners will probably prevent the desire of one or both actors (vendor and client) to change due to lack of trust, opportunistic behavioral patterns, or severe dissatisfaction in the results of this asymmetric relationship (Johnsen, 2006; Lacoste, 2016; Mitrga, 2006; Zolkiewski, 2012; Rosene, 2003).

The relationship between CC and company performance aspects has been studied in a seminal study (Quinn and Rohrbo, 1983).

Different studies show that dominant CC affects VI capabilities (Hult, 2006; Tellis, 1998; Hurley, 2006; Cluely, 2014).

### 2.5 CONCEPTUAL FRAMEWORK OF THE STUDY

In line with the literature review and the aim of study as described at the start of the paper, the conceptual framework of the study was configured as demonstrated in Figure 1.

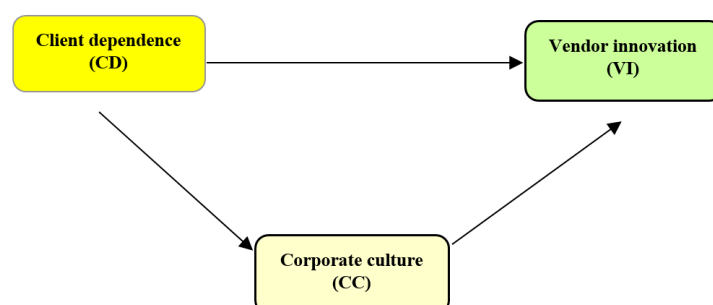


Figure 1: Conceptual model

### 3. METHODOLOGY

The study was quantitative in terms of nature and applied in terms of its purpose conducted in correlation design. Presenting the results to the education authorities for better decisions and boosting their efficiency is of the applied goals of the study. As the correlation between variables was analyzed, the study was descriptive-correlation type because correlation refers to the relationship between two or more variables that can be converted into quantity.

The population was all employees, who were 95 people and clients of Varamin Telecommunications Department in a specified period with uncertain number. The employees filled out VI and corporate culture questionnaires, and the clients answered CD questionnaire. Given the number of population members and based on Morgan's table, 76 subjects were selected for the vendor and 384 for clients.

The tool used in this study was three questionnaires. Prior to data analysis, heuristic analysis of the data was performed. Correlation test was used to describe and measure the relationship between variables, and SPSS® and PLS software was used to test the hypotheses.

#### 3.1 EXAMINATION FOR THE NORMALITY OF THE DATA

Skewness and kurtosis tests were used to test the normality of the variables, whose results are presented in the Table 1. As can be seen, as the range of skewness and kurtosis numbers is between 1 and -1, the variable distribution has a normal kurtosis (Plant, 2009).

**Table 1:** Results of normal data test

Variable	Skewness	Kurtosis
CD	0.287	0.459
VI	-0.332	-0.326
CC	0.707	-0.237

#### 3.2 KOLMOGOROV-SMIRNOV TEST

In the present study, Kolmogorov-Smirnov test was used to verify the normality of the data or it having skewness or kurtosis to ensure the normal distribution.

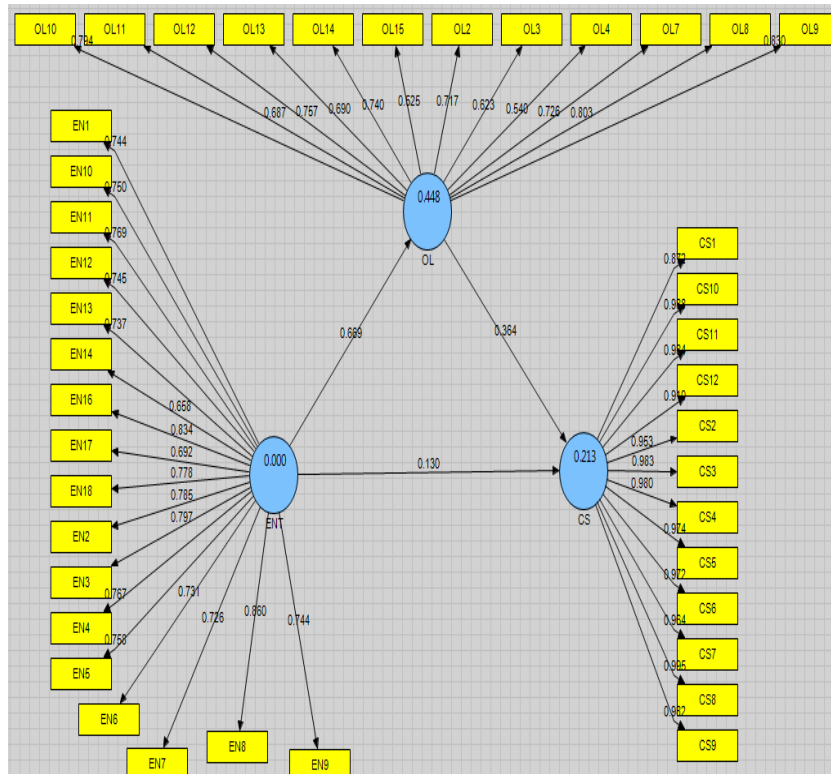
**Table 2:** The results of the Kolmogorov-Smirnov test

Variable	Test statistic	Sig.
CD	1.115	0.153
VI	0.999	0.271
CC	0.310	0.545

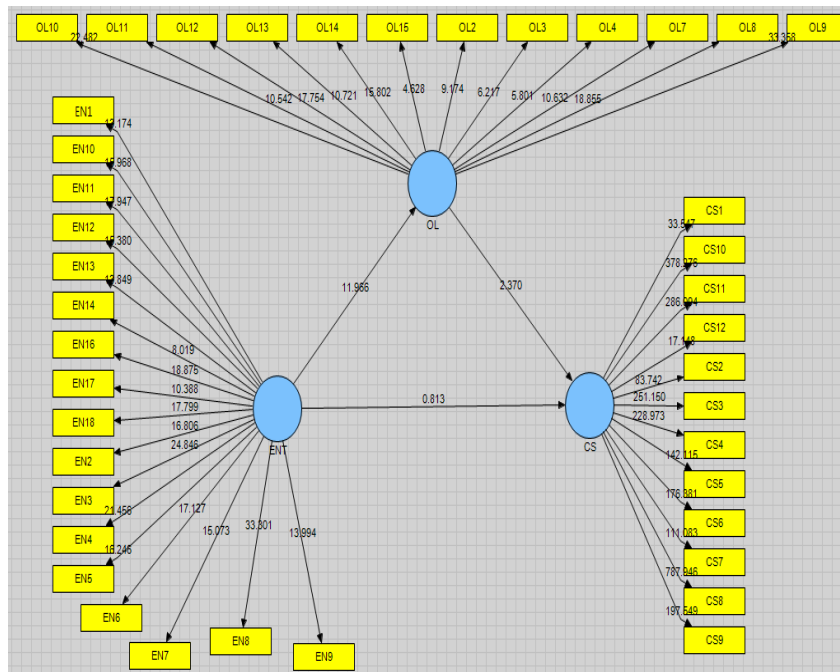
As the significance level of the test for all variables is higher than 0.05, the normality of the variables is accepted.

#### 3.3 RESEARCH MODEL

In any study, by collecting data and information in an accurate and scientific way, as well as analyzing them, the researcher strives to answer the research questions and evaluate the hypotheses derived from the theoretical basics. Thus, according to the results of the statistical analysis, the researcher opines on the hypotheses and confirms or rejects them according to the results. Through data analysis, the following structural equation model is obtained:



**Figure 3:** Conceptual model fitted in standard estimation.



**Figure 4:** Conceptual model fitted in the significant state of the parameters.

In this model, Figure 4, path coefficients or beta coefficients ( $\beta$ ) are determined. P values are also shown in Figure 5. Other outputs of the software, as seen in the Figure 4, are the  $R^2$  coefficients, which is represented in Figure 4: within the circle of each endogenous latent variable (i.e. the variable that is assumed to be affected by one or more other variables before). This coefficient shows a percentage of the variance of the latent variable, explained by the latent variables affecting it (Cook, 2010). Thus, for the client orientation that is endogenous and affected by other variables,  $R^2$  is set 0.142. According to the results obtained by Smart PLS software, we analyzed and interpreted the internal and external models (measurement and structural models) as well as the research hypotheses.

A structural equation model, in solving which partial least squares (PLS) is used, should be analyzed and interpreted in two stages. First, the model of measurement and then the structural model will be analyzed and interpreted (Sanchez and Liro, 2010). The purpose of studying the measurement model is examining the weight and load analysis of the latent variables, and the purpose of studying the structural model is to study the path coefficients between the latent variables.

### 3.4 ANALYSIS OF THE MEASUREMENT MODEL

At this stage, it is determined whether theoretical concepts are correctly measured by the observed variables or not. For this purpose, their validity and reliability are tested. In a PLS model, reliability of each indicator of the latent variable (Individual reliability of each item for constructs), internal consistency as well as construct validity and convergent validity are analyzed.

**Table 3:** Value of factor loading of the indicators of latent variables

Indicators	Latent variables	CD	VI	CC	P values
EN1		0.774			<0.05
EN2		0.785			<0.05
EN3		0.796			<0.05
EN4		0.767			<0.05
EN5		0.757			<0.05
EN6		0.730			<0.05
EN7		0.725			<0.005
EN8		0.895			<0.005
EN9		0.743			<0.005
EN10		0.750			<0.005
EN11		0.769			<0.005
EN12		0.745			<0.005
EN13		0.737			<0.005
EN14		0.657			<0.005
EN16		0.833			<0.005
EN17		0.691			<0.005
EN18		0.778			<0.05
OL2			0.717		<0.05
OL3			0.623		<0.05
OL4			0.540		<0.05
OL7			0.735		<0.05
OL8			0.803		<0.05
OL9			0.830		<0.05
OL10			0.794		<0.05
OL11			0.686		<0.05
OL12			0.756		<0.05
OL13			0.689		<0.05
OL14			0.739		<0.05
OL15			0.523		<0.05
CS1				0.871	<0.05
CS2				0.952	<0.05
CS3				0.983	<0.05
CS4				0.980	<0.05
CS5				0.973	<0.05
CS6				0.972	<0.05
CS7				0.964	<0.05
CS8				0.995	<0.05
CS9				0.981	<0.05
CS10				0.998	<0.05
CS11				0.984	<0.05
CS12				0.909	<0.05

### 3.5 RELIABILITY OF INDICATORS OF VARIABLES

The reliability of each of the indicators of the latent variables in the PLS model is determined by the factor loading of each indicator. The value of each factor loading of indicators of latent variable should be greater than or equal to 0.4 (Falkner & Miller, 1992). In the Table 3, the factor loading for each indicator is visible for the latent variables.

As is seen in Table 3, all the values related to the latent variables specified in the colored homes are greater than 0.4. Thus, it can be said that the measurement model has sufficient reliability regarding the indicators of the latent variables. Table 3, the probability values (P values) are shown for the indicators. These values are usually introduced as the validity parameters associated with the confirmatory factor analysis as the relationships between the indicators and the latent variables are specified beforehand. As is seen, all probability values are less than 0.05 and the research tool has a proper validity. In addition, the factor loadings are used to examine the convergent validity of the research tool. A measuring tool has a convergent validity, provided that the questions (indicators) related to each latent variable are already understood by the respondent, as desired by the designer. Two criteria must be met to prove that the research tool has convergent validity: first, the probability values should be less than 0.05, and second, the values of the corresponding factor loadings should be greater than or equal to 0.5. As is seen in Table 3, both criteria in question for the current research tool and therefore the research questionnaire have an proper convergent validity.

### 3.6 CONSTRUCTION FOR RELIABILITY (INTERNAL CONSISTENCY)

Construct reliability enables the evaluation of the internal consistency of the indicators measuring a concept. In other words, construct reliability shows with what accuracy the observed variables (indicators) measure the variables. Composite reliability index is presented in the PLS model to measure this reliability. This index is calculated based on Cronbach Alpha coefficient. The value of this index should be greater than or equal to 0.6 (Nunnally,1978). Table 4 shows the value of construct reliability for each of the latent variables.

**Table 4:** Composite reliability and Cronbach alpha of the main variables

Variable	CD	VI	CC
Cronbach alpha	0.949	0.906	0.952
Cronbach alpha	0.958	0.922	0.933

As can be seen, Cronbach's alpha coefficient and composite reliability are shown in Table 4, and it is seen that these coefficients are all higher than 0.6. Thus, the measurement model has good construct reliability.

### 3.7 CONVERGENT VALIDITY

The convergent validity is analyzed in PLS model by Average variance extracted (AVE). This index shows the variance that an existing construct (latent variable) derives from its indicators. For this criterion, Farnell and Locker (1981) suggest values greater than 0.5, as this ensures that at least 50% of the variance of a construct is defined by its markers. The results of the convergent validity study are presented in this paper.

**Table 5:** Convergent validity of constructs (latent variables)

Latent variable Convergent validity	CD	VI	CC
AVE	0.575	0.502	0.928

As is seen in Table 5, all the values of AVE are greater than 0.5, so the measurement model has an appropriate convergent validity.

### 3.8 STRUCTURAL MODEL ANALYSIS

The predictive power of the designed model is analyzed using the value of the variance explained ( $R^2$ ) for dependent variables (Leal and Roldán, 2001; Falk & Miller, 1998; China, 1998). Falk and Miller (1992) stated values greater than or equal to 0.1 for the explained variance. In the present study, given the values in Table 6, one can conclude that the structural model of the present research has enough predictive power. In other words, about 12% of variance of clients' satisfaction is explained by the variables entering the model, which is an acceptable value.

**Table 6:** Variance explained by the dependent variable

Dependent variable	Index	$R^2$
VI		0.123

Concerning the issues mentioned on the analysis of the model, it is seen that all the indicators studied have the necessary conditions, so the proposed model has sufficient predictive power in this research. After analyzing and measurement model, we studied the research hypotheses.

## 4. TESTING THE HYPOTHESES

### 4.1 STUDYING THE HYPOTHESES

Hypotheses and test results are given in Table 7.

**Table 7:** Path coefficient between variables

Hypothesis	Path coefficient	t-value	Test result
CD → VI	0.130	0.813	Rejected
CD → CC	0.669	11.966	Confirmed
CC → VI	0.364	2.370	Confirmed

**Table 8:** Path coefficient between CD and VI through CC

Indirect variable	Through	Test result
CD → VI	CC	Confirmed

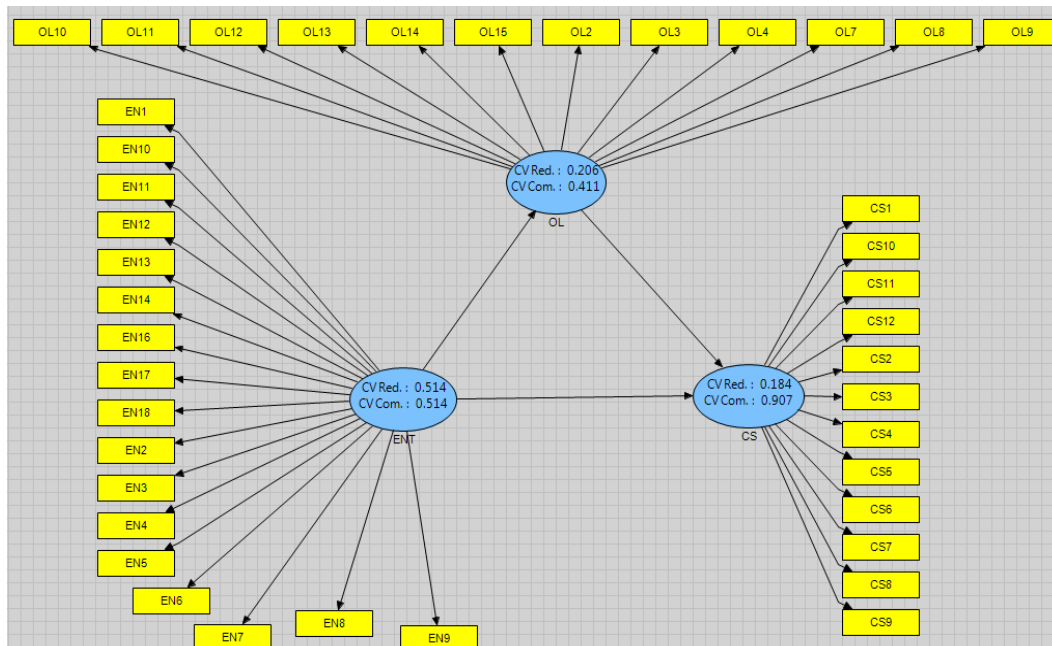
### 4.2 EVALUATION OF MODEL FIT INDICES

Cross-validation, including CV-Communality and CV-Redundancy, has been used to evaluate the quality or credibility of the model. CV-Communality measures the quality of each block's measurement model. CV-Redundancy, also called the Aston-Gayer  $Q^2$ , measures the quality of the structural model for each inbound block, considering the measurement model. The positive values of these indices show a suitable and acceptable quality of the measurement and structural model.

Table 9 presents the values of each of the indices for independent and dependent variables. As is seen, the indicators are positive and larger than zero.

**Table 9:** CV-Communality (CV Com) and CV-Redundancy (CV Red)

Variable	CV Com	CV Red
CD	0.514	0.514
VI	0.907	0.184
CC	0.411	0.206



**Figure 5:** Fit indices of the research model

## 5. CONCLUSION

The results of this research indicated that the vendor's dependence does not affect VI. Moreover, the vendor's dependence affects CC, and CC affects VI and CC is a moderating variable between CC and VI.

Thus, as CC has played an important role and made the two variables affect each other, in fact, the vendor is influenced by the client in some cases, and culture is an important factor as a good base for the effect of these two variables. Overall, the findings showed that attention to the competitive culture for the organizations remaining innovative and creating commitment and dependence in clients will contribute to VI.

## 6. SUGGESTION

As the vendor cannot fully control the level of dependence on the client, it is recommended that the vendor create a proper cultural structure to surmount the negative effects of the relationship between the vendor and the client.

Managers as vendors should pay sufficient attention to their clients to create innovations in order to make the client more and better, so that clients can react to changes quickly.

Using innovative techniques in the relationship between the organizations, the organizations should create a competitive culture to enhance CD.

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