

# The Effects of Organisational Cultures on Supply, Chain Performance

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**Abstract:** The purpose of this study was to examine the relationship between organizational culture and supply chain performance. Data were collected with the help of structured questionnaire and then analyzed with the help of PLS SEM technique. The Results showed that there is a positive and significant impact of organization culture on supply chain performance. Study is useful for both the future researchers and practioners as it highlighted the newly adopted methodology in the area of supply chain management in specific while logistics in general and insight out that the cultural impact is significant while going to green supply chain paradigm.

**Keyword:** PLS SEM highlighted the newly adopted methodology

## I. INTRODUCTION

According to the researchers, the performances of the organization is strongly affected by the organizational culture [1]. Organizational culture was defined by Schein (1990, p. 111) as:

“A pattern of basic assumptions, invented, discovered, or developed by a given group, as it learns to cope with its problems of external adaptation and internal integration that has worked well enough to be considered valid and, therefore is to be taught to new members as the correct way to perceive, think, and feel in relation to those problems.”

Marshall, Metters, and Pagell (2016) states that the improvement in decision making process of operation management and for its effective performance, the better knowledge of organizational culture plays an important role. [1] have shown that direct relation between the culture and the performance of organization by saying that congruent culture contribute more in achieving better performance as compare to incongruent culture. Other than this, research is also done to know the relation between organizational culture and supply chain performance [2]. Can direct results be drawn?

The main reason behind finding the relation between organizational culture and supply chain performance is the growing significance of supply chain in operations management. Specifically, it is of value to gain more insight into how the levels of congruence or deviance in organizational culture between the organisations in a supply chain would affect the supply chain performance.

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The way and design of operation management and its practices is determined by organizational culture. Cameron and Quinn (2006) worked for developing a structure for understanding and for determining organizational culture. This structure comprises four types of culture: clan, adhocracy, market, and hierarchy. For instance, the qualities of the clan culture are ‘teamwork, participation and consensus’ and ‘formal rules and policies’ are the main qualities of hierarchy framework [1], [3]

On the basis of these qualities, it is crystal clear that a hierarchy culture in a focal organization will possessed a different way of operational management and practices than the clan culture which deal as strategic supplier. The main focus of research will be on the *congruence* and *deviance*, that how it will affect the supply chain performance in organizational culture and which culture (s) has a direct or indirect relation with the performance of supply chain.

Marshall et al. (2016) make a plea that one should not only determine that a lack of fit between culture and operational management practice can be detrimental for performance; but rather that this should be a starting point to study how organisations can adapt, build or change a culture to create the needed fit. The work of this study is related to this plea. This research project will not only focus on the present cultures adopted by the organizations, but will also focus on the preferred culture that organization will adopt in future. It the results shows that the performance of supply chain is affected by the congruence or deviance, then these results are used in determining if the preferred culture is appropriate in achieving a better supply chain performance and if the firm should constructively adapt, build or change a culture to achieve the most appropriate preferred culture for each individual firm in the supply chain.

The Kraljic (1983, p. 112) matrix explains the four types of procurement focus: “strategic items, bottleneck items, leverage items and noncritical items”. [4] explain the strategic partnerships as: “long-term relationships with key suppliers should always contribute to the competitive advantage of the firm”. On the basis of these, this research says that the core business and the supply chain performance is strongly affected by the strategic supplier.

## II. LITERATURE REVIEW ORGANIZATIONAL CULTURE

Cameron and Quinn (2006, p. 6) refer to Porter (1980) who originally identified that “all the successful companies that have above normal financial returns follow some well-defined conditions to sustain the profitability” These features are as: ‘presence of high barriers to entry’ and ‘a large value of market share’.

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Cameron and Quinn (2006) research have reached at remarkable results. Their conclusion was that in last twenty years, the above described competitive advantages was not gained by any successful firm present in U.S. The top five organizations of U.S. considered their culture of organization the key of the success. The values, beliefs and the vision of the company is also one of the reasons behind all the achievements. The culture followed by the company is easily identified by their workers. Cameron and Quinn (2006, p. 5) states that, “Successful companies have developed something special that supersedes corporate strategy, market presence, and technological advantages. Highly successful firms have capitalized on the power that resides in developing and managing a unique corporate culture”. Cameron and Quinn (2006, p. 5) focusses on the acknowledgement of many scholar of organizations by saying that “The performance and long-term effectiveness of organizations is effected by the culture followed by the organization”. Many empirical studies considered the culture as the improving factor of the organizational performance [5]–[7]. Furthermore Giorgi, Lockwood, and Glynn (2015) describes the culture as the key to organizational research. They say that culture is used to express the reason behind all the happenings [8].

Through the culture, the principles like values and beliefs get easy to understand and also the methods that characterize the firms. A toolkit was developed by Giorgi et al. (2015) to have the proper understanding of the culture. In last 30 years, these approaches have been used the most and these are derived from the management literature. Values, stories, frames, toolkits, and categories are the five approaches.

Within these years, the culture within a business has been changed a lot. A comprehensive model was developed by Hofstede (1983) on cross-cultural differences, and individualism vs. collectivism was considered as a main cultural dimension. Then, in later years, culture was studied from an organizational viewpoint. The work of Cameron and Quinn (2006) was at the top because the description given by them about four quadrants of culture was focused and understandable. The definition of organizational culture was presented by many researchers. In many ways all the definition has some similarity. Terms like values, norms, and procedures was common in all the definitions. In many ways, the content of the definition has been incorporated in the four quadrants of Cameron and Quinn (2006).

The results shown by Dowty and Wallace (2010) can be applied in the supply chain. In other way, we can say that if the firm follow different cultures then the way of handling and performing the tasks also varies [9].

According to the researcher, culture of the organization is a stationary variable and the end results of different operational methods are affected by it. Marshall et al. (2016) does not view the term “culture” as a stationary element, and he was of the view that it is dynamic and changes with time. He considered the quantitative research as a limited view of culture and concludes that it provides less information about the effect of culture in an operational method [2]. We accept all the limitation in order to understand the impact of organizational culture on the performance of supply chain. The quantitative research also put focus on the research that studies the suitable culture for future organizations. With

this point of view, we can notice the change that occurs in the culture and we use this information for improving the performance of supply chain. This research is not only limited to a quantitative method but one can achieve more information regarding the changes that occur continuously in the culture of organizations by doing the qualitative research

### III. SUPPLY CHAIN PERFORMANCE

The term ‘supply chain’ is defined in many ways in the literature.

However, there are no perfect words that goes fit for the performance of supply chain. Therefore, for this research, I defined supply chain by one definition and it’s performance by another definition. By combining these two definitions, the performance of supply chain is fully described.

Christopher (1992, p. 13) described the supply chain as: “the network of organisations that are involved through upstream and downstream linkages, in the different processes and activities that produce value in the form of products and services delivered to the ultimate consumer”. We can also say that many companies are involved in supply chain. This goes fit for both the down and up stream. Mentzer et al. (2001, p. 4) describes that “we can determine the three main degree of supply chain complexity within this definition, a ‘direct supply chain; an ‘extended supply chain’ and an ‘ultimate supply chain’. A company, supplier and a customer are a part of a direct supply chain, and they are involved in the upstream or downstream flow of products, services, finances, and/or information[10]

For measuring the performance of supply chain there are many theories. On the other hand, some authors prefer to deal with the objective values. These values are originated from the real data, which are not depended on the subjective data. (Murray, 2018). Murray (2018) differentiates between the three main groups of supply chain performance measurements, these are as ‘time, cost and quality’. Time can be defined as a measurement that explains the operational effectiveness. For instance, the level of on-time deliveries, on-time receipts, time to process purchase orders, and time to fulfil an order. The level of the performance of the efficient part of the firm is determined by the Cost. This variable is an important as making the profit is the key role of every business. The satisfaction of the customer depends upon the quality, so this element is appropriate for the measurement of performance. As the quality of the product is directly proportional to the satisfaction of the customer.

Some authors like [11] uses the combination of both subjective and objective data. For clarification for the correct levels of management authority and for controlling the performance of supply chain, these terms were grouped as: strategic (subjective), tactical (subjective/objective) and operational (objective) [11]. Sople (2012) describes the significance of supply chain management approach as: “It is the product and service for the customer. It integrates the activities of all members of the value-added chain to produce higher levels of performance than can be achieved individually. Supply chain management practices create supply chain integration that yields superior business performance” [12]



The main purpose of doing exploratory research is to find the first impression with the condition that the matter of the subject should be of worth to go in detail. For determining the performance of supply chain between focal organization and supplier, the subjective data collection method was appraised more useful. For the representation of various indicators, mainly three indicators were selected, and these are somehow, related to the performance of supply chain management. [13] has studied these three indicators. These three indicators are as: cost performance, innovation performance and quality performance.

A questionnaire was developed by [14] for the performances of these three indicators. The questionnaire survey and for this research purpose, the above developed questionnaire proved very helpful [14].

#### IV. ORGANIZATIONAL CULTURE AND SUPPLY CHAIN PERFORMANCE

[15] have specified that the importance of cultural fit in supply chain relationships are discussed by many scholars, but in literature there is a limited amount of empirical research present. To fill this gap, Cadden et al. (2013) have worked on determining the level at which organizational cultural fit, between a purchaser and supply chain member, that directly affects the performance. The methodology adopted by [15] was different in a way that have find relation between the performance and culture of the firm. For the assessment of culture, the updated version of Hofstede was used by Verbeke's (2000), Objective data such as lead time, delivery time and inventory carrying costs was used for the performance measurement and tools for organizational practices as proposed by [16].

According to their findings: "complementarity between the partners of supply chain gained more success rather than congruence". Two kinds of supply chain have studied by the authors: high-performing chain and the low-performing chain. The culture profiles of both chains were studied and they reached at the result that the culture profiles of high-performing supply chain are different whereas the low-performing supply chain had same cultural profiles. The 'collaborate culture' has a great impact on achieving performance. While talking about the 'adversarial culture', it has the poor performance. There is a similarity between these two above-mentioned dimensions of culture and the cultural dimensions 'clan' and 'hierarchy' given by Cameron and Quinn's (2006), respectively.

[17] highlights the connection that exists between the organizational culture and the Supply Chain Cooperation (SCC). Van der Veen (2016) explains that we can coordinate the various entities of supply chain by two methods. On the basis of different management philosophy and a different view of man, these entities are designed.

- (1) One entity has the complete control on the entire chain that imposed more or less than the other entities. The main control on all the activities of chain partners is of 'chain director' and it impose all the things on other parties without any hesitation in case of any occasion.
- (2) Different structure shared common goals on the basis of equality, and these are Supply Chain cooperation. They follow some important rules which are as: a proper

partnership, that change is started and followed throughout the chain, all the risks are shared and that mutual goals are considered in lower rank. All the parties strongly believe and work on the principles of teamwork with the faith that the team will get stronger when everyone will contribute towards it [17]

- (3) In recent decades, the starting point was the process of the dominant chain director as it was very common. Due to many crises, there is a lot of changes in the view and SCC is considered by many firms and chain is known as a fully-fledged alternative. For the current business, SCC is best the best option, and the higher supply chain performance is the result of this. (Van der Veen, 2016).

For applying SCC, the parties have to switch towards another paradigm of management. So, a change occurs during its implementation. Part of the required transition for SCC, is that a different type of organizational culture is needed than the more usual method of a dominant chain manager (Van der Veen, 2016).

Clan culture is perfectly suitable for the SSC. (top left in the Competing Values Framework). Whereas, the adhocracy culture is the second-best choice for SSC. These choices are on the basis of significance of improvements and innovations that will exists within the chains (Van der Veen, 2016).

For the successful implementation of SCC, the condition applied by the clan and adhocracy cultures jointly plays a better role as compared with the hierarchy and market cultures. Some weakness of the clan culture is covered by the adhocracy culture (ability to orientate internally and thus to ignore the main innovations). Flexibility must be more common in all the fronts than having the stability [17]

#### V. METHODOLOGY

Organizational culture was measure by using five (05) items. These items are already used by a number of researchers in developing nations like, Malaysia, Pakistan, India ect. The items were adopted from the earlier work done by Sambasivan and Nget Yuen (2010)

##### Supply Chain Performance

Supply chain performances assess the extent to which the firm's supply chain performance is measured in terms flexibility performance, resource performance and output performance [18]

##### Supply Chain Flexibility Performance

The methods of measuring the dimension, Supply Chain Flexibility Performance can be itemized into five (05) elements, beginning with response to demand variation, response to poor production performance, response to poor supplier production performance, response to poor delivery performance and finally, response to new product, new markets and new competitors.

##### Supply Chain Resource Performance

The methods of measuring dimension, Supply Chain Resource Performance can be itemized into five (05) elements,

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beginning with total cost of resource used, total cost of distribution, total cost of production, cost of inventory and finally, return on investment.

### Supply Chain Output Performance

The methods of measuring dimension, Supply Chain Output Performance can be itemized into seven (07) elements, beginning with sales, order fill rates, on time delivery, customer response time, shipping error, production lead time and finally, customer complaint.

### Data Analysis

Data analysis in this study was conducted with the help of the software package, SmartPLS, Version 3.0 M3 as suggested by [19] Smart PLS is extensively utilized in the field of marketing and management science [20], [21], [30]–[34], [22]–[29]. This technique uses two stage approach to analyze the data 1-evaluation of measurement model 2-evaluation of structural model.

The results of the measurement model given in table 1 and 2 shows that all the required values were achieved.

**Table1 : Measurement Model evaluation**

Construct	Items	Loading	Cronbach's Alpha	CR	AVE
Organization Culture	OC1	0.79	<b>0.818</b>	<b>0.901</b>	<b>0.721</b>
	OC2	0.823			
	OC3	0.846			
	OC4	0.841			
	OC5	0.899			
Supply chain performance	SCP1	0.807	<b>0.82</b>	<b>0.881</b>	<b>0.649</b>
	SCP2	0.83			
	SCP3	0.794			
	SCP4	0.792			
	SCP5	0.837			
	SCP6	0.811			
	SCP7	0.801			
	SCP8	0.769			
	SCP9	0.812			
	SCP10	0.907			
	SCP11	0.891			
	SCP12	0.813			
	SCP13	0.73			
	SCP14	0.888			
	SCP15	0.621			
	SCP16	0.859			
	SCP17	0.901			

**Structural Model Evaluation** In order to ensure further construct validity of the outer model, the discriminant validity is important to be established. Hence, prior to hypotheses testing, discriminant validity was ensured. Discriminant validity refers to the level to which items can differentiate among different constructs in that it shows that the items of different constructs are not overlapping. Additionally, discriminant validity of measures share

variance between each individual construct and hence it should be higher than the variance shared among specific constructs[35]. In this study, the discriminant validity of measures was established through [36] method, where the square root of AVE for the entire constructs was replaced at the diagonal elements of the correlation matrix. The above results of the outer model's construct validity ensure that it is appropriate to test the proposed hypotheses.

**Table 2: The Discriminant Validity Matrix**

	OC	SCP
OC	<b>0.838</b>	
SCP	0.44	<b>0.892</b>

### The Assessment of the Inner Model and Hypotheses Testing Procedures

After the measurement model evaluation, the next phase involves the testing of hypotheses relationships among the variables with the help of PLS Algorithm, Smart PLS. Table 3

Table 3: Results of Hypothesis Testing

Hypothesis No.	Hypothesis	Path Coefficient	Standard Error	T-Value	P-Value	Decision
H1	OC -> SCP	0.162**	0.098	2.642	0.05	Supported

From the above table we can see that organizational culture has a significant impact on supply chain performance

### VI. DISCUSSION

Between focal organizations and strategic suppliers, the level of congruence and deviance of some are directly related to the performance of supply chain. A better supply chain performance is a result of two organizations working in a supply chain congruency, for example, in a clan-clan culture (high level of congruency) or a clan-adhocracy culture (somewhat congruent). And on other hand, organizations show a poor supply chain performance when they have the high level of deviance, such as in a clan-hierarchy or a clan-market culture. According to the strategic supplier, there is negative effect of deviance in the performance of supply chain. In simple words, it can be explained as if in between the focal organization and the strategic supplier, there occur a difference in the culture type than it will affect the three-performance factor directly in a negative way. Mainly, deviance in the hierarchy culture has a negative impact on the cost factors and innovations and deviance in clan culture has a negative effect on the quality performance. The converse situation for the above findings is consequently applicable, congruence in the organizational cultures will relate to a positive effect on supply chain performance. This study shows that supply chain will have the negative effect if one of organization follows the hierarchy culture while the other does not follow this in, supply chain.

This research also focusses on the fact that firms with incongruence does not only “reduce the energy and the focus of organizational members” (Cameron & Quinn, 2006, p. 74) but also it also lessens the energy and pay attention on the members of supply chain. So, incongruence is detrimental to the supply chain as well as within an organization (Cameron & Quinn, 2006).

The above-explained impact of hierarchy culture on the performance of supply chain is supported by the results shown by [37] ,[38] , and [39] that there is a negative effect on performance by the hierarchy culture. Fekete and Böcskei (2011), and Naranjo-Valencia et al. (2016) also describes the different elements of the hierarchy culture, such as regulation, procedures, formalities, and control of co-worker behavior, are the main reason for having the negative effect

of the hierarchy culture on performance within an individual organization. The conclusion can be drawn by these characteristics that there is a negative effect of hierarchy culture on the performance of supply chain.

The theory of Van der Veen’s (2016) supports the negative effect of hierarchy culture on the performance of supply chain, which says that the hierarchy culture is not best suited for the supply chain cooperation and there is no correct match of using supply chain cooperation between hierarchical and clan organizations as it will create disturbance. According to this work, it is suggested that the elements like teamwork, participation, and consensus, which shows the clan culture, and the characteristics of a hierarchy culture, like procedures and rules, are the main elements that are not good suited with each other. This difference is the main reason behind the negative performance and a system that ends with difficulties and misunderstandings.

As mentioned above, for good supply chain performance the relation between a clan-clan or clan-adhocracy cultures proves good whereas in case of negative performance clan-hierarchy or clan-market cultures are the reason. Van der Veen (2016) further supported this statement by suggesting that for supply chain cooperation and performance, clan-clan culture types are the perfect options and after this culture type, clan with adhocracy culture is the considered best. Van der Veen (2016) also put the light on the adhocracy culture that this culture type supports some weakness of clan cultures. (ability to be internally linked and thus to miss main innovations). Further [15]V similarly work on the collaborative culture. That it is somehow similar to clan culture and it proves good in supply chain relationship.

By showing the impact of congruency or deviance that exists within a supply chain and on its performance, this research work proved valuable for supply chain management. It could be suggested that, for having the better performance two or more firms should possess the same characteristics of same culture. The reason for this is that, then they will have the same style of running the business as it is also mentioned by [9] in the definition organizational culture.

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Two organizations will run the things in a similar way by following the congruent culture whereas there will be difference in the ways of handling the things if they will follow the deviant cultures.

According to the evaluation done by the suppliers, the deviance in adhocracy culture has positive impact on the cost performance. Through this we can say that the difference in adhocracy culture is directly proportional to the performance of the organization. It also means that by following the adhocracy culture, two organization can have the negative effect on performance. This outcome was not expected. The clear explanation for this result could be

“that a cooperation between two adhocracy organisations, who both are entrepreneurial, willing to take risks and invest in innovations, could lead to financial decisions that consequently have a negative effect on cost performance”.

This research work also analyzed the methods of strategic suppliers regarding the link between the culture of focal organization and performance of supply chain without considering the congruence or deviance present between two firms. The result shows (a) a positive impact of adhocracy culture on the performance of supply chain (b) a negative effect of hierarchy culture on the supply chain performance. Many other authors also supported these results through their findings. Naranjo- Valencia et al. (2016) also showed through their work in finding the connection between organizational culture (in an individual organization) and performance, the results are as (a) the positive performance is shown by the adhocracy culture (b) the negative performance is shown by the hierarchy culture. Van der Veen (2016) indicates that

- A. For external supply chain cooperation, the adhocracy culture proves beneficial for the organization.
- B. For supply chain cooperation, the hierarchy culture is of no use in the organizations.

Cadden et al. (2013) shows that the adversarial culture proves unbeneficial for the better performance of supply chain. The adversarial culture is comparable to the hierarchy culture.

## VII. PRACTICAL IMPLICATIONS

All the research work is total relevant for the practical implementation in organisations. This can be proved by the following. In this research the main stakeholders were the focal organizations as they interested in the outcomes. They were interested in improving their own supply chain cooperation by learning how the culture effects the cooperation. So, the researcher shares all the outcomes with them. On request of three participating focal organisations, the researcher and the management consultancy company House of Performance have submitted a proposal to the focal organisations on how consultancy support can help them to adapt their organisational culture to achieve a better supply chain performance together with their strategic suppliers.

## VIII. CONCLUSION:

The outcomes of this research work are not only based on the participants but it has a wider scope. The results are applied in all the supply chain cooperation as the main element in the business management is the performance of

supply chain. By the use of OCAT assessment, research can be done on the supply chain by the consultant, on request of a focal organization. So, by the outcomes the consultants can achieve their goals of improving the organizational culture which has the direct effect on the performance of the organization. Depending upon the different situation the support for this research varies. For instance: this information is used by the focal organization who is in the midst of a transition (as was one of the suppliers that was quoted in the chapter Interview results) to find the correct way for the transition process and to adopt those elements that proves beneficial for the culture of the organization. The solution for the deviance is to find the new suppliers who proves more compatible in the culture of organization when it comes to focal organization.

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