Analysing the Influence of Organizational Culture on Supply Chain Outcomes: Structural Model Analysis

Dinesh Goyal[1], Dr. Yashesh Zaveri[2], Varun Ojha[3], Dr. Urvashi Thakur[4], Dr. Kajal Chheda[5], Tannmay Gupta[6], Pushparajesh V[7]

[1]Quantum University Research Center, Quantum University, India. dinesh.ca@quantumeducation.in

[2]Associate Professor, Parul Institute of Management and Research-MBA, Parul University, India, yashesh.zaveri29542@paruluniversity.ac.in

[3]Chitkara Centre for Research and Development, Chitkara University, Himachal Pradesh, India, varun.ojha.orp@chitkara.edu.in

[4]Associate Professor, Department of Management, ARKA JAIN University, India, dr.urvashi@arkajainuniversity.ac.in

[5]Assitant Professor, Department of ISME, ATLAS SkillTech University, India, kajal.chheda@atlasuniversity.edu.in

[6]Centre of Research Impact and Outcome, Chitkara University, Rajpura, Punjab, India, tannmay.gupta.orp@chitkara.edu.in

[7]Professor, Department of Electrical and Electronics Engineering, Faculty of Engineering and Technology, JAIN (Deemed-to-be University), India, v.pushparajesh@jainuniversity.ac.in

Abstracts

Employee behavior, decision-making, and cooperation across the supply chain network are all greatly influenced by organizational culture (OC). In supply chain outcomes (SCO), an understanding of the effect promotes efficiency overall, improves coordination, and maximizes performance. The structural equation modeling (SEM) technique was initially applied to experimentally analyze data from a survey of 85 enterprises using a quantitative approach. The relationships between cultures such as OC, market culture (MC), clan culture (CC), Hierarchy culture (HC), Professional culture (PC), Adhocracy culture (AC), and supply chain outcomes are analyzed in this research. The findings are evaluated using the combination of a reliability and validity test, multiple regression analysis. The SEM approach is employed to investigate the intricate correlation that exists between these cultural aspects and SCO. A more detailed comprehension of these linkages is provided by the simulation technique, which enables a thorough investigation of the ways in which each cultural feature affects SCO. Positive correlations between the independent variables (OC, AC, MC, HC, PC, and CC) and the dependent variable (SCO) are predicted. The majority of these relationships exhibit statistically significant positive impacts($p < 0.05$), signifying noteworthy and substantial benefits for SCO.

Furthermore, although OC, AC, MC, PC, and CC have substantial positive impacts, HC has a relevant but invisible effect. OC has a major influence on SCO, according to the study, with some cultural characteristics having a considerable impact on performance measures. Improved efficacy and efficiency in supply chain operations are fostered by a well-aligned culture.

Keywords: Organizational Culture (OC), supply chain outcomes (SCO), structural equation modeling (SEM), Quantitativeanalysis, Culture dimensions.

Introduction

An organization's success or failure is largely determined by its organizational culture, which has a significant impact on the way employees behave, hold values, and interact in the workplace. It embraces the norms, beliefs practices, and attitudes, which facilitate the interaction between the staff members and other people [4]. Thus, a positive corporate culture offers ownership, identity, and a sense of purpose to workers, which fosters involvement, collaboration, and innovation. Culture has a much more significant role in the present environment than in the past, when the issues of inclusion, adaptability, and flexibility are especially sensitive in dealing with challenging situations and when opportunities arise [5].

Supply chain outcomes refer to the measurable impacts and consequences of effective SCM as well as the integration of supply chain activities. Some of the variables include overall profitability, customer satisfaction, costs, and organizational performance [12]. Actual performance in terms of production, distribution, inventory, and procurement effectiveness are well-coordinated in supply chain volumes. Faster cycle time, lower total costs, and higher product stock are the research. Thus, effective SCM can lead to shortened lead times, less running expenses, and higher-quality products. Also, it assures timely and accurate delivery of products, which is crucial in improving customer services [15].

Several factors are simultaneously at work to result in a fast-paced, high-stress corporate atmosphere in the contemporary world. First, the scope and size of corporate operations were significantly increased by the high growth of markets worldwide. Companies can operate on a global level, no longer bound to local or domestic markets [10]. This growth presents new difficulties relating to various legislative frameworks, cultural variances, and logistical difficulties, all of which need flexible and quick responses. Unexpected events happen to businesses extensively more frequently in the type of environment. Throughout the supply chain (SC), uncertainties brought out by small modifications generate risks and waste in routine procedures and operations [2].

The RDT advises businesses to reduce EU and complexity by forming alliances with significant suppliers and customers while maintaining stability and flexibility in commercial dealings [9]. SCM can also be viewed as broad collaborations across SC participants with a purpose of reducing uncertainty and inefficiency in the logistical operations from raw material suppliers to the end user. In addition, corporations no longer perceive themselves as competing against other private enterprises, but rather as a component of a SC that interacts with other SCs [14]. The

study aims to investigate how different aspects of organizational culture affect supply chain outcomes using SEM. Determining the important cultural elements that improve supply chain network performance, coordination, and efficiency.

The rest of the study is divided into several sections so that the research is presented in a clear and thorough manner. Reviewing previous research and fundamental studies that place the current study in context, Section 2 offers the relevant work. Several approaches are reviewed in section 3, along with a description of the research methods and strategies used. Part 4 provides an examination of the results and their implications, including the experimental findings. Section 5 presents a discussion. By summarizing the key findings, elucidating the significance of the findings, and proposing potential topics for more research, Section 6 effectively concludes the research.

Related works

The main moderating factors in the link between SCM, integration, and corporate efficiency are trust and significant areas of the presented study [3]. Information was obtained from Jordanian food product manufacturers, an important sector of the national economy. The results demonstrated a noteworthy impact of hypotheses and confidence on the connection in organizational performance and supply chain partners integrated. Some of the data inadequacies in the research were filled up by the study.

With an emphasis on the financial and operational elements of company success, the research [7] investigated the link between SSCM and corporate efficiency. It demonstrated that a successful SSCM greatly raises company performance. 202 corporate replies and 41 unstructured interviews with industrialists were included in the study. The results emphasized the crucial SSCM for boosting operational and financial success and recommended that it be incorporated into the broader company plan.

It attempted to evaluate how CRM, CA, and SSCM affect organizational performance in the study [6]. The results provided credence to the hypotheses that were presented. The research indicates that there is a significant association between SSCM, CRM, and OP. However, the findings indicated that there was a minimal but positive correlation between CA and OP.

It aimed to investigate how three aspects of organizational performance were affected by five aspects of GSCM practices [13]. The impact of GSCM techniques on each result related to organizational performance was examined using SEM. The study found that eco-design, the main predictor of operational effectiveness, was not as strong an indication of sustainability performance as the recovering investments strategy.

The connection between environmental responsibility, company success, and sustainable supply chain integration was examined [8]. SEM was used to collect and evaluate data from 296 industrial enterprises in Pakistan. The findings demonstrated that environmentally friendly organizational and process innovations were fostered by sustainable integration, which has a favorable impact on financial performance. The results have consequences for green innovation and SSCM.

The performance of Malaysia's manufacturing industry was examined in the research [11] in terms of its digital supply chain and organizational structure. 1160 manufacturing businesses were issued a survey, and 63 of them responded. To analyze the data, partial least squares SEM (PLS-SEM) was employed. The findings provided credence to the idea that Malaysian manufacturing firms could maintain dependability in a competitive environment by using DSC.

It investigated the GSCM affected Jordan's financial, operational, and environmental performance.[1]. Jordan was a developing nation. The research, which gathered data from 215 manufacturing companies, discovered that GSCM enhances operational and environmental outcomes. While there was an occasional though unfavorable direct impact, GSCM has a positive and considerable overall impact on business success.

Research hypothesis

Hypothesis (H1): Organizational culture shows a significant correlation in the SCO (OC→SCO)

Hypothesis (H2): Adhocracy culture shows a positive correlation in the SCO (AC→SCO)

Hypothesis (H3): Market culture shows a significant correlation in the SCO (MC→SCO)

Hypothesis (H4): Hierarchy culture shows a positive influence in the SCO (HC→SCO)

Hypothesis (H5): Professional culture shows a positive correlation in the SCO (PC→SCO)

Hypothesis (H6): Clan culture shows a significant correlation in the SCO (CC→SCO)

Methodology

The conceptual framework of the research and the interactions between the variables under consideration are shown in Fig 1. The independent variables are OC, AC, MC, HC, PC, and CC, the dependent variables are SCO. It is hypothesized that organizational culture influences SCO, and each independent variable reflects a different aspect of that culture.

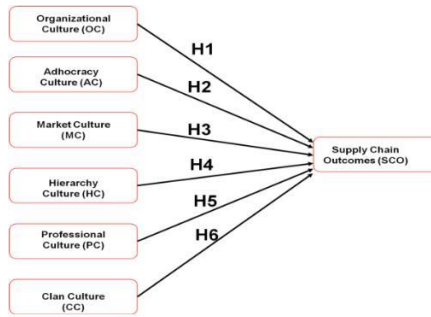

Fig 1 Conceptual framework

Samples

320 manufacturing companies provided data for the study, which used a quantitative approach. A significant portion of these 180 did not answer to the survey, which might have an effect on the results as a whole. Furthermore, the data from 55 enterprises is not as useful for a thorough examination because they provided only partial answers. A total of 85 firms provided all of their replies, which constitutes the study's final sample size. The industrial sector's large-scale surveys provide obstacles in gathering full and complete data, as demonstrated by the response rate.

The sample of 85 respondents is broken down into several groups in the table I and Fig 2. 35.3% of the industry sector is made up of manufacturing, followed by retail (23.5%), and services (41.2%). Procurement experts (47.1%), operational managers (23.5%), and supply chain managers (29.4%) are among the job positions. The age distribution shows that most responders (29.4%) are in the 25–34 age range, while 47.1% have more than 10 years of experience. The most common organizational sizes represented are large (41.2%) and medium (35.3%).

Table I Demographic data

Variable	Categories	Sample size (n)	Percentage (%)
Industry sector	Manufacturing	30	35.3
	Retail	20	23.5
	Services	35	41.2
Job role	Supply chain manager	25	29.4
	Operational manager	20	23.5
	Procurement Specialist	40	47.1
Age	18-24	10	11.8
	25-34	25	29.4
	35-44	20	23.5
	45-54	15	17.6
	55+	15	17.6
Years of experience	Less than 5	15	17.6
	5 to 10	30	35.3
	More than 10	40	47.1
Organization size	Small	20	23.5
	Medium	30	35.3
	Large	35	41.2

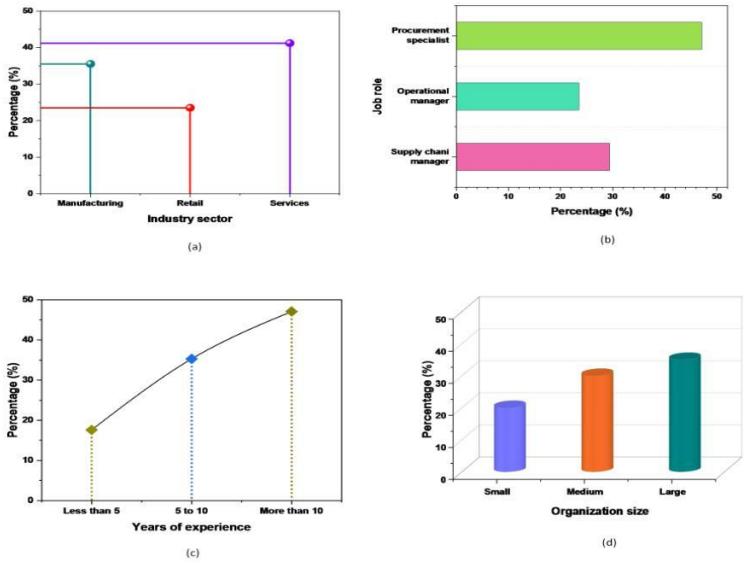

Fig 2 Sample data (a) Industry sector (b) Job role (c) years of experience (d) organization size

Research instrument

A survey with 12 questions was employed as the research instrument in the study to collect particular data from participants. Five points on a Likert scale were used to frame the questions, which are often used to examine attitudes, viewpoints, or perceptions. Typically, the scale has five possible responses three indicate "neutral," one indicates "strongly disagree," four indicate "agree," two indicate "disagree," and five indicate "strongly agree." Respondents can indicate how much they agree or disagree with each item using the format, giving a quantitative indication of their opinions. To allow for a thorough investigation of respondents' replies, the likert scale is especially helpful in measuring the strength of respondent's views or thoughts.

Statistical analysis

This research utilized SPSS version 29. 0 to provide a thorough quantitative approach to estimate the influence of different components of the OC on SCO. Employing the SEM, the relations between the predictors and the variables were unbundled. SCO has to be the dependent variable to analyze its value depending on the independent factors which are OC, AC, MC, HC, PC, and CC. Validity and reliability of the measures used were carried out with the intend of establishing the reliability and precision of data collected. The degree and nature of the association between

the independent and dependent variables was also ascertained using multiple regression analysis, which improved the comprehension of the factors affecting SCO.

Results and findings

SEM, Multiple regression analysis, reliability and validity test are used to analyze the influence of OC on SCO.

I. Multiple regression analysis

The results of a multiple regression analysis evaluating the correlation between several predictors (OC, AC, MC, HC, PC, and CC), the outcome variable SCO are shown in table II. For each association between a predictor and SCO, the following information is provided: t-value, p-value, standard error, and regression coefficient (β). As an illustration, the regression coefficient of OC is 0.352, with a t-value of 4.512 and a $p < 0.001$, suggesting a statistically significant positive influence on SCO. Comparably, AC has a substantial beneficial influence with a coefficient of 0.213 and a $p-$value of 0.002. With $p < 0.05$, additional variables like PC and MC correspondingly show substantial positive impacts on SCO. A $p-$value of 0.018 indicates that the positive effect of HC is significant but not as strong as other effects. With a p-value less than 0.001, a coefficient of 0.321, and the most significant positive effect, is demonstrated by CC. All variables, with the exception of HC, significantly contribute to the overall explanation of variation in SCO, highlighting their significance within the model.

Table II Multiple regression test

Hypothesis	Regression coefficient β	Standard error	t-value	p-value	Result
OC→SCO	0.352	0.078	4.512	<0.001	Significant positive
AC→SCO	0.213	0.062	3.435	0.002	Significant positive
MC→SCO	0.185	0.054	3.426	0.002	Significant positive
HC→SCO	0.102	0.041	2.487	0.018	Positive
PC→SCO	0.275	0.065	4.231	<0.001	Significant positive
CC→SCO	0.321	0.071	4.515	<0.001	Significant positive

II. Reliability and validity test

The reliability and validity test results for a variety of factors are shown in table III. For every variable and its indicators, it contain the load factors, composite reliability, Cronbach's alpha, and AVE. Higher values imply stronger correlations. The load factor values, which range from 0.68 to 0.85, indicate the degree of correlation that exists between each indicator and the associated variable. Cronbach's alpha and composite reliability numbers indicate the scales' internal consistency and dependability, which are typically over 0.70 for all variables, suggesting that the scales are reliability constructs. Values above 0.50 indicate good convergent validity. The AVE values, which range from 0.52 to 0.61, show the amount of variation collected by the variables compared to the variance attributable to measurement error. Overall, table III demonstrates the validity and reliability of the variables and their indicators, as well as their strong internal consistency and convergent validity.

Table III Reliability and validity test

Variables	Indicators	Load factor	Cronbach's alpha	Composite reliability	AVE
OC	OC1	0.75	0.82	0.87	0.59
	OC2	0.78			
AC	AC1	0.80	0.78	0.84	0.55
	AC2	0.74			
MC	MC1	0.72	0.75	0.81	0.52
	MC2	0.68			
HC	HC1	0.76	0.79	0.85	0.57
	HC2	0.81			
PC	PC1	0.74	0.76	0.82	0.54
	PC2	0.71			
CC	CC1	0.79	0.81	0.86	0.58
	CC2	0.80			
SCO	SCO1	0.83	0.85	0.89	0.61
	SCO2	0.85			

III. SEM

The findings of a study using SEM to assess the correlations between the various hypotheses (H1 to H6) and the corresponding coefficients, t-values, p-values, and significance levels are displayed in table IV and Fig 3. Every hypothesis is examined to determine how it affects the model, revealing information about the importance and strength of these connections. The predicted impact size for each hypothesis is represented by the coefficient (β), which shows how much the variables are related to one another. A greater correlation is indicated by an increased coefficient. Larger t-values suggest that the coefficient is substantially different from zero. The t-value quantifies the statistical significance of this coefficient. The probability that the observed effect could have occurred by coincidence is evaluated by the $p-$ value. All $p-$ value are less than the standard threshold of 0.05, suggesting that there is statistical significance for each and every hypothesis. The reliability of the model's findings is further supported by the hypotheses with coefficients ranging from 0.33 to 0.55, all of which exhibit strong evidence (t-values between 3.20 and 5.35) that the correlations reflects are significant.

Table IV SEM

Hypothesis	Coefficient (β)	t-value	P-value	Result
OC→SCO	0.52	5.15	<0.001	Significant
AC→SCO	0.46	4.80	<0.001	Significant
MC→SCO	0.50	5.00	<0.001	Significant
HC→SCO	0.33	3.20	0.001	Significant
PC→SCO	0.38	3.50	<0.001	Significant
CC→SCO	0.55	5.35	<0.001	Significant

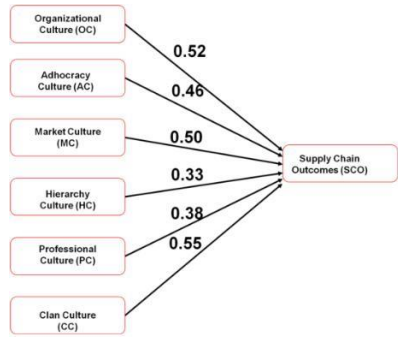

Fig 3 SEM evaluation

Discussion

The dependent variable (SCO) and the independent variables (OC, AC, MC, HC, PC, and CC) are anticipated to have positive correlations. The majority of these associations have significant positive effects ($p < 0.05$), demonstrating substantial and meaningful contributions to SCO. Additionally, HC has a beneficial but less noticeable effect, whereas OC, AC, MC, PC, and CC have strong positive effects. It contains measures for validity and reliability for a number of variables, such as AVE, composite reliability, load factors, and Cronbach's alpha. Acceptable load factors (≥ 0.68) and reliability metrics (Cronbach's alpha ≥ 0.75, composite reliability ≥ 0.81) are present in the indicators for each variable. AVE values (≥ 0.52) show strong construct validity as it exceeds the 0.50 barrier. The SEM findings for the six hypotheses are shown. With values ranging from 0.33 to 0.55, each hypothesis has a positive coefficient (β), which indicates the degree to which the variables are associated. With t-values much above the standard threshold of 1.96, all hypotheses are statistically significant ($p < 0.05$) and indicate strong support for each suggested relationship.

Conclusion

This study examines the connections between SCO and culture as OC, AC, MC, HC, PC, and CC. Initially, a quantitative approach was used to empirically examine data from a survey of 85 firms using the SEM technique. The SEM method is used to examine at the complex relationship that various cultural factors interact with SCO. A multiple regression analysis, a validity test, and a reliability test are used to examine the results. The use of simulations enables a deeper comprehension of these connections and allows for a comprehensive analysis of the ways in which each cultural characteristic influences SCO. It is anticipated that there would be positive correlations between the independent (OC, AC, MC, HC, PC, and CC) and dependent variable

(SCO). Most of these associations show statistically significant positive effects ($p < 0.05$), indicating notable and significant advantages for SCO. Moreover, whereas OC, AC, MC, PC, and CC all have significant benefits, HC has a significant but undetectable influence. OC has a significant impact on SCO. The use of information from a single survey that was insufficient to capture the variety of business cultures is one of the study's limitations. For a more thorough understanding of these associations, future study should examine additional cultural factors or longitudinal impacts in addition to increasing the sample size.

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