

## The Mediating Effect of Innovation on The Relationship Between Organizational Culture and Performance of Large Manufacturing Firms in Pakistan

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### ABSTRACT

*The purpose of this paper is to examine the mediating role of innovation on the relationship between organisational culture and performance of large manufacturing firms in Pakistan. Data for the study was collected through a survey from 320 large manufacturing firms operating in Pakistan and responses were analyzed to assess the relationships between organisational culture, innovation, and firm performance. The results indicate that organisational culture is positively related to firm performance, and its positive relationship is mediated by innovation. These findings provide useful insights for organizations, particularly in the manufacturing industry, seeking to be competitive and responsive to environmental changes by successfully introducing innovations. Conclusions emphasize that mechanisms to encourage and foster an innovative culture in the organization are likely to facilitate the introduction, adoption, and diffusion of innovations which, in turn, is likely to result in the achievement of superior firm performance. In addition, a few scholars have considered innovation as a key driver of firm performance besides that, fewer researchers have studied innovations as being impacted by organisational culture. This paper makes a significant contribution to the prevailing literature by empirically examining the relationship between organisational culture, innovation, and firm performance.*

## INTRODUCTION

Organizations strive for improving firm performance and organisational culture has been recognized as one of the important drivers of better firm performance (Porter, 1985; Stace & Ashton, 1990). Previous researchers have emphasized the significance of organisational culture in several outcomes related to firm performance, such as job satisfaction, productivity, and employee turnover. At the same time, innovation has also been found to have positive impacts on the firms' performance, a nation's economy, industrial competitiveness, and the standard of living in the nation (Gopalakrishnan & Damanpour, 1997). Innovations are regarded as a competitive instrument for the firms' long-term performance and success and are considered an important means of adapting to the needs of a changing and evolving environment, gaining competitive advantage, and facilitating implementation for change initiatives (Blackwell, 2006; R. Deshpande, Farley, & Webster, 1993; Nonaka & Yamanouchi, 1989; Schein, 1992). Therefore, organizations devote considerable energies to understanding ways for promoting and nurturing organisational cultures as well as the mechanisms for being ready for developing, buying, or adapting innovations in organizations. Several researchers have studied innovations in the context of organisational culture as an attempt to impact the innovation abilities of the organization (Damanpour, 1992; Gopalakrishnan & Damanpour, 1997; Rogers, 1995). The research reported here studies innovations and organisational culture as an attempt to understand their impact on firm performance. Recent studies on innovation suggest that organisational innovation plays a key role on firm performance and competitiveness (Baker & Sinkula, 2002; Damanpour, 1991; Farley, Hoenig, & Ismail, 2008; Jimenez-Jimenez & Sanz-Valle, 2011; Luk et al., 2008). It is also commonly implicit in the innovation literature that organisational culture plays an important role in impacting

the innovations in the organization (Martins & Terblanche, 2003; Tushman & O'Reilly, 1997). But there are only a few studies which have specifically modeled and empirically researched the nature of relationship between organisational culture, its innovations, and firm performance (R. Deshpande et al., 1993; Martins & Terblanche, 2003). Therefore an examination of the relationship between an organization's culture, the firm's innovations, and the firm's performance will provide important managerial insights into impacting the firm's performance. Given the paucity of literature in this area, the aim of this research is to investigate the relationship between organisational culture and firm performance and the role of organisational innovations in this relationship. The context for studying the relationship between the organisational culture, firm performance, and the innovations in the organization is of a developing economy. Several motivations prompted us in this decision. We believe that innovation and firm performance are critical characteristics which can contribute to a developing economy's growth and competitiveness (Kelly & Kumar, 2009). It is important that we understand and contribute to the progress of developing economies as their growth and development has important advantages in the stability and engagement of the global community in the post-industrial era. Other studies conducted in developing economies and nations have also tried to understand the mechanisms which strengthen their innovativeness and entrepreneurial orientations (De Carvalho & Barbin Laurindo, 2006; Kumar & Uz Kurt, 2010).

The first half of the paper examines the body of literature and findings on the constructs of innovation and organisational culture. The next section sets up the relationships and hypotheses for examining the relationship between organisational culture, firm performance, and the role of innovation. The second half of the paper empirically examines the proposed hypotheses with data from 320 large manufacturing firms in Pakistan.

## **LITERATURE REVIEW**

Organisational culture has the ability to create innovative behavior among employees of the organization. Organisational culture is defined as the organisational members' common values, beliefs and hidden assumptions (Cameron & Quinn, 1999; D.R. Denison, 1990; Rohit Deshpande Webster, 1989; Miron, Erez, & Naveh, 2004). It has been observed that flexibility oriented cultures promote innovation while stability oriented cultures do not promote it. Kwon Choi, Koo moon and ko (2013) exhibited that innovation significantly mediates the relationship between culture and performance of the organizations. Organization culture also enhances interpersonal relationships. Kwon Choi et al. (2013) also explored that ethical climate of the organization strongly supports innovation.

### **Firm Performance**

There are a lot of meanings that defined organisational performance over the years. During the 50s, Georgopoulos and Tannenbaum (1957) defined the organisational performance is a part of the objective and as an extension of the organization. At this time, the structure of the organization, work, and the people were evaluated to determine the performance. In year 60s and 70s, Yuchtman and Seashore (1967) determined the organisational performance as an ability of the organization through the environment to access the resources that limited. Within the 80s and 90s, with the more challenging market, the organisational performance becomes successful if the factor of effectiveness and efficiency are achieved. However, Campbell, Dunnette, Lawler, and Weick, (1970); and Lusthaus and Adrien, (1998) stated that the organisational performance that uses unlimited resources can help the organization to achieve its objectives. It needs more effort in order to ensure the effectiveness of organisational performance (Brewer & Selden, 2000). Performance is the

firm's ability to achieve and accomplish its objectives by using all the firm's resources in an efficient and effective manner (Daft, 2000). Moreover, Ling and Hong, (2010) stated that organisational performance is the sum of accomplishments attained by all businesses/ departments involved with an organization goal during a given period of time, with the goal either meant for a specific stage or on the overall extent.

Saunila, Pekkola, and Ukko (2014) exhibited that performance measurement is necessary to develop and improve innovative capabilities of the organization Strategic performance measurement system is used to measure the performance of employees. Chenhall (2005) interpreted that financial and non-financial performance can be measured with the help of strategic performance measurement system. He also exhibited that this system also helps in improving the competitiveness of the organization. Kaplan and Norton (1992) described that most important tool of the strategic management system is Balance Scorecard. This Scorecard ensures the rational interpretation of the measurement of performance. It describes the effect of learning, growth, business activities and customers. Anthony and Govindarajan (2003) exhibited that Balance Scorecard is the best tool to measure the performance of the organization and to improve the strategies of the business. He also exhibited that this system also helps in improving the competitiveness of the organization. Kaplan and Norton (1992) described that most important tool of the strategic management system is Balance Scorecard. This Scorecard ensures the rational interpretation of the measurement of performance. It describes the effect of learning, growth, business activities and customers. Anthony and Govindarajan (2003) exhibited that Balance Scorecard is the best tool to measure the performance of the organization and to improve the strategies of the business. Burns and Mckinnon (1993) exhibited that performance measurement

systems must be used to remain aware of the performance and to control uncertain events by improving its corporate strategies.

### **Organisational Culture and Firm Performance**

Lim (1995) explored the positive relationship between organisational culture and performance of the organization. Denison (1990) exhibited that Organisational Performance depends on the degree of sharing of cultural values among employees. Organization culture influences the behavior and decisions of employees and helps them in showing good performance. Organisational culture helps employees in increasing efficiency and helps them in understanding the objectives of the organization. Organization culture motivates the employees as a driven force in showing superior performance. Saffold (1988) exhibited that the ethical behavior of employees can be improved by organisational culture. Deal and Kennedy, (1982) exhibited that the superior performance of the organization can be achieved if organisational culture is strong and the goals of employees are in line with goals of management.

Barney (1991) pointed out that if the culture is rare and imperfectly imitable then it can lead to superior organisational performance. Organisational culture plays a pivotal role in improving the performance of employees of the organization which in turn can lead to improved performance of the organization. Researches demonstrate that organisational culture helps employees in doing their work efficiently and effectively. When an employee works in an organization then he adjusts himself with the values of the organization and after the successful adoption of organisational culture, he performs his work efficiently. Hence, it can be inferred that organisational culture has a positive impact on the performance of the organization. Gallagher, Brown, and Brown, (2008) interpreted that 60 research studies were conducted between

1990 and 2007 covering 7600 small business units to find the impact of organisational culture on Organisational Performance. All these research studies showed a positive relationship between organisational culture and performance of the organization.

In the light of the above arguments, this paper proposes that:

**H1: Organisational culture is significantly related with firm performance.**

### **Organisational Culture and Innovation**

Hartmann (2006) exhibited that organisational culture influences employees to get more engaged in business activities and influences their behavior to accept innovation. Many scholars exhibited a strong relationship between organisational culture and innovation (Martins & Terblanche, 2003; McLean, 2005; Mumford, 2000).

Matsuno, Mentzer and Ozsomer (2002) exhibited that flexibility oriented cultures have proactive strategic orientation and encourage freedom that leads to creativity, thus encourages innovation. Wallach (1983) proposed that the innovative organisational culture is the culture characterized as dynamic since it is filled with creativeness, challenge and risk. As for Innovative organisations, they are driving, enterprising, stimulating, creative, result-oriented and risk-taking in nature.

Organisational culture has the ability to create innovative behavior among employees of the organization. Organisational culture is defined as the organisational members' common values, beliefs and hidden assumptions (Deshpande and Webster, 1989; Denison, 1990; Cameron and Quinn, 1999; Miron, Erez, and Naveh, 2004). It has been observed that flexibility oriented cultures promote innovation while stability oriented cultures do not promote it. The link between culture and innovation has also been well

documented in the literature ( Kanter, 1983; Brannen, 1991; Ahmed, 1998; Conceicao, Hamill, and Pinheiro, 2002; McLean, 2005). Organisational culture influences employees to get more engaged in business activities and influences their behavior to accept innovation (Hartmann, 2006).

If organisational culture encourages creative solutions, problems could be defined and solved in innovative ways (Lock & Kirkpatrick, 1995). Such organisational cultures affect the extent to which creative solutions are encouraged, supported, and implemented (Martins and Terblanche, 2003). Innovations can then be absorbed into the organization more successfully (Syrett and Lammiman, 1997; Tushman and O'Reilly, 1997). The innovation absorption capacity of an organization and its management processes have been studied in the context of firm performance and organization culture and has been found to be an important factor impacting the success of the organization (Tushman and O'Reilly, 1997).

It is also commonly implicit in the innovation literature that organisational culture plays an important role in impacting the innovations in the organization (Tushman and O'Reilly, 1997; Martins and Terblanche, 2003; Yang, 2007). But there are only a few studies which have specifically modeled and empirically researched the nature of the relationship between organisational culture, its

innovations, and firm performance (Deshpande et al., 1993; Martins and Terblanche, 2003). Therefore an examination of the relationship between an organization's culture, the firm's innovations, and the firm's performance will provide important managerial insights into impacting the firm's performance (Uzkurt, Kumar, Kimzan, & Eminoglu, 2013).

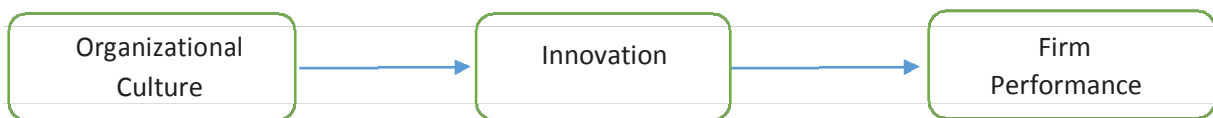
Therefore, according to the aforementioned previous literature, innovation mediates the relationship between organisational culture and firm performance. However, this study has further investigated this relationship in the context of Pakistan large manufacturing firm. So on the basis of the above arguments following Hypotheses can be formulated.

**H2: Organisational culture is significantly related with innovation.**

**H3: Innovation mediates the relationship between organisational culture and firm's performance.**

### Framework

By reviewing the literature, the impact of organisational culture has been identified on innovation leading to superb organisational performance. The following figure shows the relationship between variables and highlights the mediating effect of innovation.



**Figure 1** The framework of this study

## METHODOLOGY

### Sample and Data Collection Instrument

According to Zikmund (1994) survey method seeks to elaborate a phenomenon and looks for the causes of any specific activity. As discussed by Neuman (1997) survey method is quite useful as it facilitates the researcher to gather data from a large number of respondents in order to measure multiple variables and testify many hypotheses. Therefore, the current study has employed survey method as survey method is very popular and is quite frequently employed for conducting quantitative research in the field of business and management (Hair, Bush, and Ortinau, 2003; Cooper and Schindler, 2006). The advantages of survey method include access to a large number of respondents, less costly to administer, and is free from interviewer bias (Sekaran and Bougie, 2010; Bryman and Bell, 2003). Thus, it was quite appropriate to employ survey method for conducting this study.

As far as the sample is concerned, when the sample units in the target population under study are limited, the researcher may select the whole population rather than taking a sample for the study (Zikmund, 2003). There are different views of researchers to determine sample size. Sample size which is less than 500 and larger than 30 are usually considered appropriate to conduct the research study (Roscoe, 1975). The population of this study is large manufacturing firms in Pakistan and the list was obtained from Pakistan stock exchange website. Hence, survey questionnaires were distributed to 399 large manufacturing firms listed in Pakistan stock exchange and 341 of them were returned. 21 of the returned surveys were eliminated due to insufficient data and the remaining 320 surveys were analyzed for research findings.

### Measurements

*Independent variable:* Organisational culture is the independent variable in this study. However, organisational culture has been measured by adopting (Wallach, 1983) Organisational Culture Index with 24 items that have been used by many previous researchers for example (Lok Crawford, 2004; Sanz-Valle, Naranjo-Valencia, Jiménez-Jiménez, & Perez-Caballero, 2011; Watts, Robertson, Winter, & Leeson, 2013). The organisational culture index developed by (Wallach, 1983) provides a description of organisational culture in light of three dimensions namely, bureaucratic organisational culture, innovative organisational culture and supportive organisational culture.

*Dependent variable:* The dependent variable in this research is firm performance, thus in this study items of subjective measures for performance have been adopted from Jabeen (2014) who adapted from previous works of (Valmohammadi, 2011); and (Jaworski & Kohli, 1993) to measure firm performance. This study has utilized six items, sales growth rate, profitability, market share, customer satisfaction, the overall performance of firm relative to competitors and overall firm performance to measure the performance of large manufacturing firms in Pakistan. Respondents were asked to report their satisfaction and assessment regarding the firm's performance.

*Mediator variable:* In this study innovation was used as a mediator variable and two main dimensions have been used to measure innovation namely, product and process innovation. Product and process innovation dimensions were measured by five and ten items, respectively. To define the dimensions for innovation and for the measurement scale, we referred to a scale developed by (Camisón & Villar López, 2010) based on (OECD, 2005) guidelines and adopted from (Camisón & Villar-López, 2012).

*Measurement Scale:* The Likert scale is found to be more appropriate for this study due to the nature of the respondents and the information they are required to provide (Alreck & Settle, 1995). Additionally, Krosnick and Fabrigar, (1997) stated that a scale between five and seven points is more reliable than higher or lower scales and a scale with no midpoint may increase the measurement error. Additionally, Psychometricians have recommended using a seven or nine-point scale because they produce slightly higher mean scores relative to the highest possible attainable score with greater variance adequacy (Dawes, 2008). Thus, this study has used seven-point Likert scale to measure all variables from 1= Strongly Doesn't Describe to 7= Strongly Describe (organisational culture Wallach 1983), and 1= strongly disagree to 7= strongly agree (innovation and firm performance).

Before proceeding the collection of complete data, a pilot study was conducted. The questionnaire was distributed among 40 respondents Out of the distributed questionnaires, 32 were collected and 2 were not properly completed but Only 30 response were considered for analysis. The high response rate of about 75% was achieved due to the distribution and collection of questionnaires personally. The reliability coefficient of Cronbach's alpha was used to assess the consistency of the scale. All the variables met the threshold value of Cronbach's alpha (i.e. 0.7). The Cronbach's alpha value of firm performance, innovation and Organisational culture were 0.842, 0.913 and 0.879. The study used structural equation modeling (SEM) and applied partial least squares (PLS) using Smart

PLS 3.2.7 to assess the Measurement model and structural model. The first step in this study focuses on construct reliability and validity (Measurement Model), whereas the second step tests structural relationships among the latent constructs (Structural Model).

## **RESULTS**

Primarily data analysis has been conducted to meet the assumption of running the PLS-SEM.

After that measurement model and structural model have been assessed by PLS-SEM.

### **Measurement Model Assessment**

Hair, Ringle, and Sarstedt (2013) and Hair, Hult, Ringle, Sarstedt and Thiele (2017) recommended a two-step process in the assessment of PLS-SEM. The approach involves the determination of the measurement model and the structural model. According to Henseler, Ringle, and Sinkovics (2009), testing the structural model may be meaningless unless the measurement model has been evaluated. Therefore, the present study assessed the measurement model before the structural model to determine the extent to which the data collected fits the model.

The results from this study revealed that composite-reliability (CR) values are 0.887 (Firm Performance), 0.927 (innovation), and 0.905 (organisational culture) as shown in Table 1. The Cronbach Alpha values are and 0.842 (Firm Performance), 0.913 (innovation), 0.879 (organisational culture) as shown in Table 1 and Fig. 1.

**Table 1** Reliability and validity of the constructs

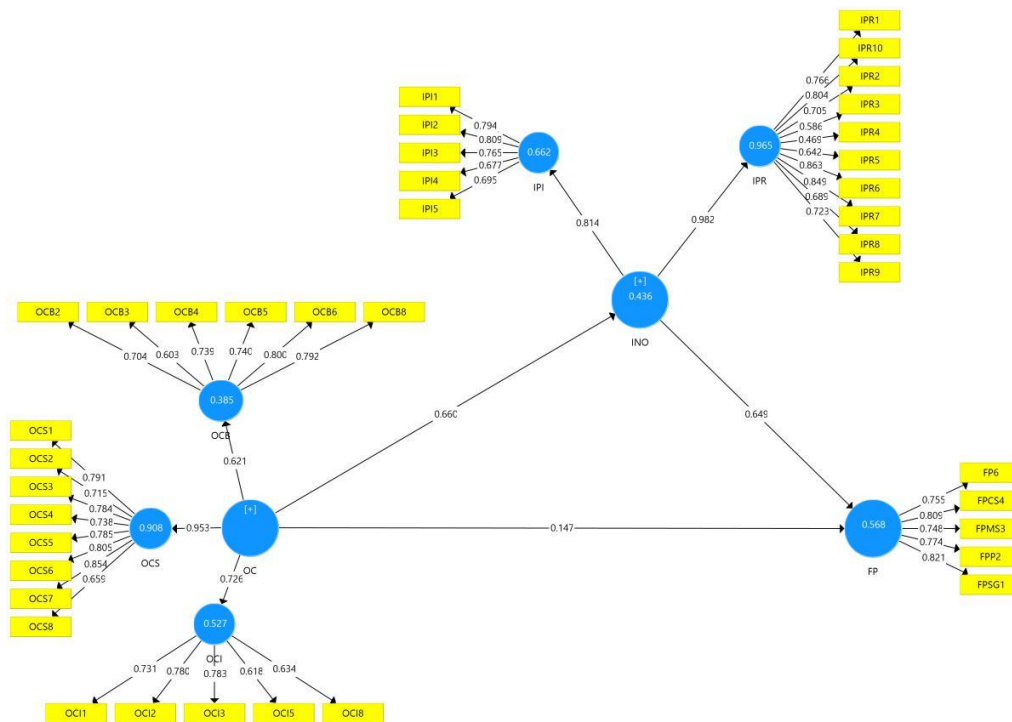
	Cronbach's		Composite	
	Alpha	rho_A	Reliability	Average Variance
				Extracted (AVE)
FP	0.842	0.855	0.887	0.611
INO	0.913	0.917	0.927	0.515
IPI	0.808	0.826	0.865	0.562
IPR	0.891	0.904	0.912	0.517
OC	0.879	0.883	0.905	0.547
OCB	0.827	0.841	0.873	0.537
OCI	0.764	0.769	0.836	0.508
OCS	0.9	0.908	0.92	0.59

Convergent-validity assessed by AVE which values are 0.611 (Firm Performance), 0.515 (Innovation), and 0.547 organisational culture) as shown in Table 1. Discriminant validity for this model has been measured by Fornell-Larcker Criterion (J. Hair, Black, Babin, & Anderson, 2010) as shown in Table 2. It indicates that the square root of AVE (diagonal) is higher than the correlations (off-diagonal) for all reflective constructs.

**Table 2** Fornell-Larcker

	FP		INO	OC
FP		0.782		
INO		0.745	0.758	
OC		0.575	0.660	0.740

Note: OC = Organisational Culture, INO = Innovation, FP = Firm Performance



**Figure 2** PLS algorithm

Note: OC = Organisational Culture, INO = Innovation, FP = Firm Performance



### Structural Model Assessment

Once the reliability and validity have been achieved in the measurement model, we have assessed the structural model. In the structural model we have examined the path coefficient (Hypothesis testing), Coefficient of determination (R<sup>2</sup> value). The coefficient of determination (R<sup>2</sup> value) of this study is 56.5% and 43.4% in Firm performance and innovation, as shown in Fig. 3. For evaluating the path coefficient (hypotheses testing), we run the bootstrapping in Smart-PLS. one-tailed test with 5% level of significance to assess the P-Value and T-statistics to test the significance or insignificance of hypothesis. Baron and Kenny (1986) is used to test for mediation effect of innovation on the relationship between organisational culture and firm performance. This method proposed that an explanatory variable (which is organisational culture in this study) must be related independently to both a mediator variable (which is innovation) and dependent variable (which is a firm performance). In our regression analyses, organisational culture was included as an independent variable while innovation was

included as both independent and mediator variable. The premise that organisational culture is related to both innovation and firm performance is based on our analysis of the correlation results. If the regression coefficient associated with organisational culture is insignificant when both organisational culture and innovation are simultaneously included as an explanatory variable in a regression equation, then it is assumed that innovation has a mediating role on the relationship between organisational culture and firm performance. The results of the structural model, also known as the inner model, are presented in Table 3 below. The first hypothesis H1 (i.e., Organisational culture is significantly related to firm performance) proved to be supportive at 0.05 level of significance ( $\beta=0.147$ ,  $t=3.427$ ,  $p<0.05$ ). Based on hypothesis 2 (H2), the results obtained show that Organisational culture is significantly related to innovation ( $\beta=0.660$ ,  $t=18.291$ ,  $p<0.01$ ). Likewise, third hypothesis H3 (i.e., Innovation mediates the relationship between organisational culture and firm's performance.) was also proved to be empirically at 0.01 level of significance ( $\beta=0.649$ ,  $t=13.681$ ,  $p<0.01$ ).

**Table 3** Results of the structural model path coefficient hypothesis testing

	<b>Beta</b>	<b>Stander error</b>	<b>T Statistics ( O/STDEV )</b>	<b>P-Values</b>	<b>Decision</b>
OC -> FP	0.147	0.043	3.427	0.001	Supported
OC -> INO	0.660	0.036	18.291	0.000	Supported
OC -> INO -> FP	0.649	0.047	13.681	0.000	Supported

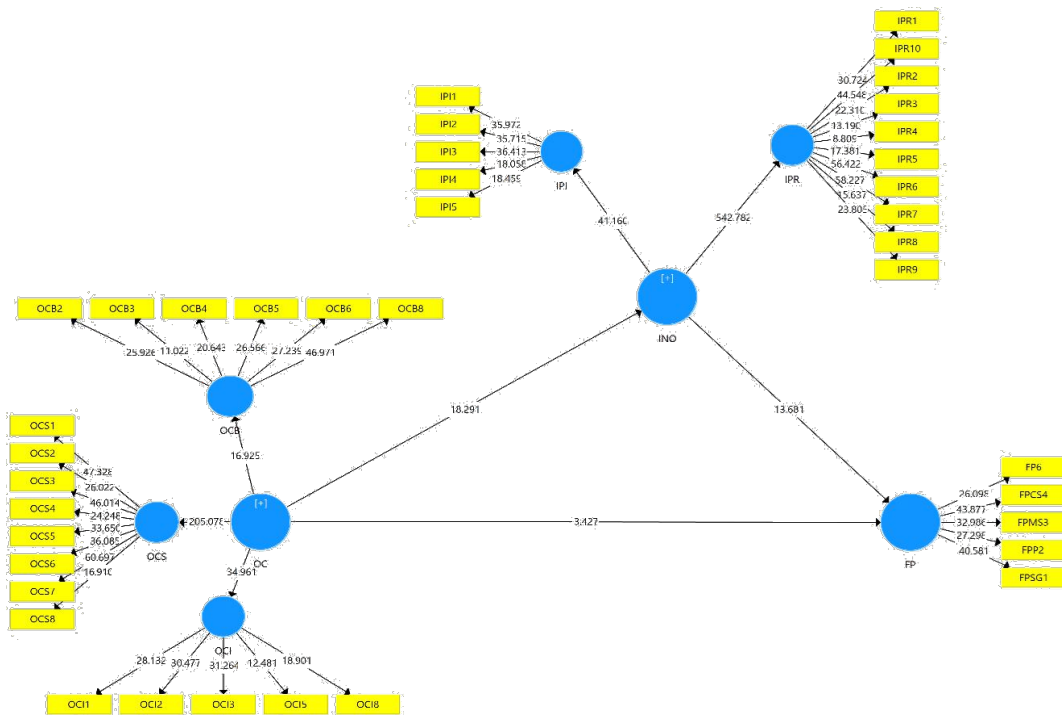


Figure 3 PLS bootstrapping

Note: OC = Organisational Culture, INO = Innovation, FP = Firm Performance

### DISCUSSION

Innovation has become one of the important means for firms to stay competitive and ensure continued good performance. Organizations spend considerable time and effort fostering an organisational culture which contributes to sustained good performance. This research studied the relationships between organisational culture, its innovations, and its performance. The overall premise of the model tested was that encouraging and increasing innovations in the organization can be positively impacted by the organization culture, which in turn would be related to good firm performance. The findings of this study are in line with previous studies such as (Heskett, 1992; Denison and Mishra, 1995; Daft, 2007; Kotter and Ngo and Loi, 2008; Prajogo and Mcdermott, 2011; Ahmad, 2012; Wahjudi, Singgih, Suwignjo, and Baihaqi, 2016). Our results are strictly applicable to the large manufacturing firms in Pakistan. However, the extensive literature review conducted in this study leads us to expect that perhaps results will apply to the manufacturing sector in other

cultures as well, although future research will be needed for such generalizability.

### CONCLUSION

#### Contribution and Implication

While organisational culture is recognized as critical for innovation and performance, to the best of the knowledge of the authors, no empirical study has investigated how OC and innovation jointly affect performance specifically in the context of large manufacturing firms in Pakistan. Our study found positive results for all the relationships hypothesized in our model. Organisational culture, as well as an organization's innovations, had a significantly positive relationship with firm performance. There was also a significant and positive relationship between organisational culture and organisational innovations. In addition, very notably, our results show that organisational innovations play a mediating role in the relationship between organisational culture and firm performance. Innovation

explained a significant amount of variance in the firm performance dimensions. Our findings indicate that it is beneficial for organizations to nurture an innovative organisational culture by instituting mechanisms and structures which foster new ideas and ways of thinking and operating as this is likely to improve firm performance. We found that innovations are encouraged by an innovative organisational culture. Our conclusions emphasize that the introduction, adoption, and diffusion of innovations can be facilitated in the organizations with mechanisms to encourage and foster an innovative culture. Managerial implications this study allows us to make important managerial recommendations for improving firm performance as well as organisational innovations. Managers can harness the positive impacts of the relationship we concluded exists between organisational culture and innovations. Managers work hard to increase innovations of all types and at various levels in their organizations. We can now say that the generation of innovations can be impacted by fostering the right organisational culture. Results from the survey used in our study indicate it is possible to instill an innovative organisational culture with active encouragement and support from managers. An innovative organisational culture is open to the risks and opportunities for innovations and new ideas.

### Directions for Further Research

The valid model which developed in this study can help future researchers to simultaneously measure OC, innovation and performance for examining the relationships between these variables in their case studies. An avenue for further investigations is to examine the model in the other industries/sector and specifically in service companies. The other direction for further research would be to investigate the direct and indirect effects of OC on performance in the presence of the other variable instead of innovation, for example, Human Resource Management (HRM). In addition, it is needed to

longitudinally evaluate how an organization's culture profile influences the innovation implementation as well as the resulting effect on organisational performance during the life cycle of companies.

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