

# The Relationship between Total Quality Management, Organisational Culture, and Organisational Performance

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The present study aims to examine the relationship between Total Quality Management and Organisational Cultures, and Organisational Performance from the transportation sector, especially the Ministry of Transportation, and Al Hejaz Railway in Jordan. The researcher distributed (196) questionnaires all top managers from the transportation sector, especially the Ministry of Transportation, and Al Hejaz Railway in Jordan. This study is also important to the general practitioner as it emphasizes the role of Total Quality Management towards higher organisational performance. By exploring the significant role of organisational culture, this study is able to scientifically persuade Jordanian business managers, especially Al Hejaz railway managers, that introducing total quality management is essential but is not enough to gain the desired level of performance, unless it is supported by a focus on Organisational Cultures. The research applies Smart PLS for data analysis. The valid and final number of questionnaires that were good for analysis consisted of 179 participants. The results indicated that total quality management had a significant and direct positive effect on Organisational Cultures. Organisational Cultures had a statistically and direct positive effect on Organisational Performance. Organisational Culture had a significant effect on the relationship between Total Quality Management and Organisation Performance by mediating the relationship. This study contributes to filling a theoretical gap in the Total Quality Management, Organisational Culture, and Organisational Performance by validating the direct and indirect relations among Total Quality Management and Organisational Culture and the effects of these on Organisational Performance.

**Key words:** *Total quality management, Organisational culture, organisational performance.*

## Introduction

Today, customers demand quality in products, services, and life. They have turned out to be progressively perceptive and have begun searching for choices more tuned in to their essential needs, prerequisites and self-regard. They are ready to incur additional costs for a quality product or service (Yildirim, 2012).

Performance quantification and perfection is the crucial constituent in tactical management practice (Poister, 2010). In developing tactics for railway presentation upgrading, the first step to take is an operational approach for the appraisal of presentation. Numerous methods have been used for performance appraisal in railway manufacturing, for example, the quantification of total quality management (TQM) and efficacy, as well as service quality procedures (Chiou et al., 2011). Still, no one measure can satiate the performance necessities of all participants when used separately (Mir & Pinnington, 2014, Punt et al., 2016). For workable progress of the performance of the railway system, an inclusive agenda for performance appraisal and enhancement is a prerequisite.

Without well-functioning maintenance, the railway infrastructure would quickly lose its efficiency. Furthermore, the total quality management system is organised to encounter the inside and outside requirements of consumers and providers by assimilating them with the corporation and refining the industry environment, the chance for revolution and growth, and cultivating business procedures and beliefs (Mitreva, 2011). In exercise, several establishments identify that the TQM viewpoint is to repetitively recover the performance of the goods/service area. The obligation of administration, concentrating on clients, the participation of all personnel in the procedure, non-stop improvement, a conglomerate with providers and gagging performance are elementary ideas that reinforce the viewpoint of TQM and are necessary for the sustainability of corporations in the 21st century (Mitreva, et al., 2015).

Also, the organisational culture (OC) of an organisation is the product of individual and group values, attitudes, perceptions, competencies, and patterns of behaviour that determine the commitment to, and the style and proficiency of, an organisation's health and safety management. Organisations with a positive culture are characterized by communications founded on mutual trust, by shared perceptions of the importance of safety, and confidence in the efficacy of preventative measures. Whilst previous research

enables a better understanding of culture and can help support systems of reliable measurement, an organisation with a culture problem will want to make sense of their problems. They will want to determine the best course of action to address a negative culture. Reason (1998), describes managing culture through the management of five aspects of culture, learning, reporting, just, flexible and informed culture. This study will examine the importance of TQM and OC as these factors are important for the organisational performance (OP) of Al-Hejaz Railway.

### **Objective of Study**

The overall purpose of this study first is to determine the Current (TQM) practices in Jordan Hejaz railway. The second is to examine the relationship between TQM management and OP in Jordan Hejaz railway. The third is to examine the relationship between OC and OP in Jordan Hejaz railway. The fourth is to examine the relationship between TQM management and OC in Jordan Hejaz railway, and the fifth is to examine the mediating effect of OC on the relationship between TQM and OP in Jordan Hejaz railway

### **Problem Statement**

Railways are complex systems consisting of interconnections and interactions of several subsystems (e.g. track, rolling stock, operation). Al Hejaz railway faces the challenge of balancing predictable growth of transport petition while improving train performance. One of the methods to satisfy the augmented demand is to make more railway nets or improve the current railway (Ali J., et.al 2013). However, it is not probable to put in innovative railway lines in various parts, due to time restrictions, wealth, ecological and even governmental and societal causes. More efficient is the use of available resources which are very necessary (Alhusan, 2008).

Performance had an opposing effect on the excellence of the railway traffic service and the upgrading of the railway's affordability in the transportation sector; for instance, the recurrent interruption of the railway service, the rise of total possession cost, and even the uninterrupted rise of the possible damage for individuals and surroundings produced rail calamities (Petersen, 2012).

The present overall situation regarding railway transportation is inefficient and chaotic. This is the result of practices governing railway transportation - particularly relating to the layout of routes and the granting of licenses for running them - that have been taking place over more than four decades. During this period, numerous governmental

institutions have had an impact on railway transportation. Based on the above, there must be solutions to performance problems.

The TQM system is organised to come across the interior and exterior necessities of clientele and providers by assimilating them with the enterprise and refining the business microclimate, the chance for invention and growth, and cultivating business procedures and culture (Mitreva, 2011). In practise, many administrations recognise that the TQM viewpoint is to continuously recover the performance of goods/services.

Furthermore, there are many different causes for system failures but what unifies them is the fact that they are principally avoidable. The avoidance of system failures is possible only when there is enough knowledge about causal factors to prevent them from occurring in the future. TQM is a very important tool for balancing transport service business and safety purposes. Also, OC plays an important role in shaping the values and behaviour of organisational members. According to Deal and Kennedy (1982), performance improvement in an organisation is associated with deliberate efforts by management towards developing OC. In a related piece, Bennett, et al. (1994) argue that organisational success depends on achieving a good fit between strategy, structure, and culture. Giberson, et al. (2009) consider culture as an integrating mechanism that guides organisational behaviour. Once established, culture tends to become self-reinforcing.

## **Literature Review**

### ***Total Quality Management (TQM)***

The pioneering founders of TQM include Demings (1986), Jurann (1986), and Crosby (1979). Total Quality Management (TQM) transformed the business philosophy around the globe. The growing and intensive literature in the management field reveals that TQM practices have become a crucial factor for organisations to achieve a sustainable competitive advantage (Harrington & Williams, 2004). TQM is one of the quality management evolutions. TQM developed prevalently in the mid-1980s; however numerous important foundations were advanced through the era in the middle of the 1950s and 1970s. Utmost theoretical growths in the progression of the idea were made in the US; though Japan has been creative about presentation (Martinez-Lorente et al., 1998).

In many advanced economies, TQM is one of the utmost significant competitive policies obtainable to managers through the 1990s; it was extensively applied through different areas of the world. An agreement advanced that TQM characterises a viewpoint that delivers a business with the aptitude to recover its complete effectiveness, permitting it to participate worldwide (Kanji & Tambi, 1999). The remunerations of TQM comprise

such samples as products with fewer flaws, a lessening in the rewrite and main times, cost discounts, better business attractiveness, rises in market share and productivity, increased traceability, and improved employee and client fulfillment (Youssef & Zairi, 1995).

The global market, as it exists in the early twenty-first century, is highly competitive, and the demands of customers are becoming more and more exacting, as they can access improved quality products and services from markets in regions all over the world. Modern business organisations, therefore, require a process of continuous improvement in all of their business activities and must place the needs of the customer at the centre of all organisational activities, with an emphasis on flexibility and quality as a means of confronting the competitive threats that are constantly evolving (Dale, 2003).

Besides, any organisation that aims to accept and apply TQM must appreciate its values, outfits, and practices, as stated by academics such as Deming, Juran, and Crosby. The subsequent unit exemplifies the primary TQM experts' viewpoints and approaches. Other (TQM) definitions have their bases on their principles. Among them, Anderson, Rungtusanatham & Schroeder (1994) defined the strategy of TQM as a complete method to the complete quality of the firm with the help of major principles like leadership, ongoing improvement, effective management of the process, product or service design, customer involvement and satisfaction and involvement of customers and employee training and involvement. Moreover, Dean and Bowen (1994) proposed that the (TQM) strategy can be considered in terms of principles, practices, and techniques. The first one covers customer focus, ongoing improvement, and teamwork, with every principle having a set of determining practices like customer relationships, group training and skills, and quality and process control. To make sure of these practices' effective application, they have to be assisted by quality functions including deployment, team-building methods, and control charts. TQM can be referred to as the management system comprising several interconnected critical factors that assist in developing a set of actions geared towards achieving the specific goals of the organisation.

### ***The Relationship between TQM and OP***

According to a report by EFQM (2012), performance is measured as "a set index to assess the attainment of an individual, a group, a business or a procedure in any given situation". Samson & Terziovski (1999) exposed a robust relationship between TQM practise and OP and argued that this relationship is "cross-sectional" in nature. Moreover, the TQM exercise strength clarifies an important amount of variation in performance. Likewise, Allen & Kilmann (2001) also presented that there is a straight association among the extent of the OP and usage of TQM on the bases of practical association, the large

implementation of TQM exercise, the advanced level of structural performances and vice-versa. Montes et al. (2003) presented an agenda for the analysis of the association among TQM fundamentals and OP over the eventuality approach, hence, the planned model exposed how these associations are arbitrated by TQM-focused cultural alteration appreciation. From an industrial mindset viewpoint, the outcomes of the study emphasised the connection between the arrangement and individual aspects. The writers dedicated on these aspects because it had theoretically been abandoned in TQM works, and then, TQM fundamentals have to be related to negotiating separate learning procedures in the instructive setting. There are a substantial number of TQM related empirical studies in the literature; however, just a few of these were focused on the impact of TQM on OP. Lim, et al. (2004) have supported this standpoint, which suggests that such a gap still exists in TQM literature. Also, none of these studies take into account the whole picture of OP in terms of railway performance achievements as expected in this study.

### ***Organisational Culture (OC)***

The cultural distinctiveness of an organisation establishes an inimitable structural ability to create its competitive gain over its competitors (Hall, 1993). In the present raging and continuously changing worldwide business setting, the distinguished leaders see how to form the OC of their business to attain short as well as longstanding objectives (Kuratko & Welsch, 2004). Furthermore, of ineffective cultures, influential operators recognise that the competitive advantage doesn't last forever. They, therefore, have to continually encourage fluctuations and establish inventive business situations (Kuratko & Welsch, 2004). Cameron & Quinn (2006), said that most organisational scholars recognise that OC affects the presentation and longstanding efficiency of businesses. With the speedy alteration of economies, the influence of globalisation, and growing multinational corporate collaboration, OC is a greater imperative today than before. It has a serious effect upon a business's performance and ability to implement progressions such as technical change, change in businesses and marketplace, deregulation, changes in the worldwide economy, amplified organisational difficulty, and newer occupational models (Keller and Richey, 2006). Looking at its outcomes, Deal & Kennedy (1999) defined OC as the men-made viewpoint that enhances the cohesion among entities and inspires them to augment their output through high obligation. Moreover, Deshpande & Webster (1989) and Schein (1992) defined OC as the arrangement of common values and opinions that aids individuals to appreciate the meanings of a business by supplying agreed upon standards to regulate the behaviours. Put simply, OC is demonstrated as the simple standards, checks, and actions amongst all the participants of an organisation (Yilmaz & Ergun, 2008). OC is one of the most critical organisational variables that have received increasing attention in organisational behaviour literature (Schein, 1992). This attention

is because of the high impact of OC on OP. Additionally, OC is deemed by the theorists to shape organisational procedures (Jarnagin & Slocum, 2007), provide solutions for many problems that face the organisation (Schein, 1984), coordinate and direct various organisational capabilities and activities into a cohesive whole (Day, 1994). On the other hand, OC hinders or facilitates the achievement of the overall organisational goals and objectives (Denison, 1990). Since OC qualities are usually inimitable due to their social complexity, it is considered a valuable source of sustainable competitive advantage (Hall, 1993).

### ***The Rationality of the Expected Mediating Effect (OC) on the TQM Practices, and (OP)***

Sila & Ebrahimpour (2002) found that empirical studies exploring the relationship between TQM practices and OP are inconsistent. To resolve this confusing situation and clarify the reasons behind the mixed results, some scholars such as Ehigie & McAndrew (2005) suggested that some variables might influence successful TQM implementation and that OP should be deeply investigated and examined in the future research work. However, it has been widely reported in the literature that OC is among the variables that can influence and better explain the relationship between organisational strategies and long-term OP. Moreover, it has been claimed by Reed et al. (2000) that there is almost an agreement among researchers in the operations management discipline that supportive OC is the main factor towards successful TQM strategy implementation. Supportive organisational culture (OC) implies that all the employees are committed to TQM practices that result in producing high-quality products and services. Besides, a supportive organisational culture (OC) enables all the employees to be fully engaged and positively participate in the implementation and evaluation of the TQM processes.

Many researchers have confirmed the substantial role played by OC in successful organisational change driven by TQM initiatives (Krasachol & Tannock, 1999). However, the lack of an accepted theoretical framework of TQM strategy opened the door for endless debates among different approaches. On the other hand, Brah & Lim (2005) attributed the failure of TQM to enhance OP, as reported in the literature, mainly to three reasons. The first reason is the lack of organisational strategic focus among the top management. As a result, there is wishful thinking that TQM implementation will result in immediate results in the short run.

The second reason is related to the lack of top management commitment towards the quality of products and services in an organisation that affects quality performance. Finally, the lack of a supportive OC affects the successful implementation of the TQM strategy as a change strategy towards improving the overall OP. These views, however,

are in line with the assumptions of contingency theory and organisational change theory that focuses on the fit concept. That is, the more the fit between strategies such as TQM and OC, the more successful and effective strategy implementation. To successfully implement TQM strategy, Brah and Lim (2005) emphasised that organisations should establish strategically focused OC rather than with a short-term focus. It was also argued that the blind imitation of (TQM) practices may cause a lack of fit between TQM practices, failing to produce the desired organisational outcomes (Llorens Motes & Verdu Jover, 2004). In summary, some researchers have questioned the existence of a universal agreement regarding the link between OC and OP (Ogbonna & Harris, 2000). However, there are many recommendations to examine the effect of (OC) on the relationship between (TQM), and (OP). Therefore, this study has contributed to the available literature by studying the mediating effect of OC on the aforementioned relationship.

## **Methodology**

### ***Target Population***

In the present study, the population refers to all top managers from the transportation sector, especially the Ministry of Transportation, and Al Hejaz Railway in Jordan.

### ***Sample and Procedures***

Questionnaires were distributed among 196 managers of the ministry of transportation and al Hejaz railway in Jordan by personal delivery and were collected from December 2019 to January 2020. The valid and final number of questionnaires that were good for analysis consisted of 179 participants. The sample individuals were selected with the likelihood sampling (probability) technique, which was used because of its equal chance of choosing the components in the population as the sample (Sekaran & Bougie, 2010; Zikmund et al., 2010). In addition, this method provides a more illustrative sample proficient of supporting broader “generalisability” of the investigation discoveries (Sekaran & Bougie, 2010). From the 196 questionnaires, 9 participants refused to participate. 7 questionnaires were empty (not filled at all) and two questionnaires filled only with the demographic data but not the other variables questions. So, the (179) represents a percentage of (91.0 %). Sekaran, (2003) stated that a response rate below 50% represents a minority and reflects an incorrect generalisation of the population. Since the response rate is above (50%), it is considered that the current sample is good and adequate. Missing data was handled using the mean imputation technique to replace the missing values for data analysis (George & Mallery, 2006).

### ***Reliability and Validity***

The researcher used Smart PLS (Version 3.2.9) to perform the necessary calculation and test the study hypotheses and to explore the validity and reliability of the questionnaire constructs. Validity is a major issue and characteristic of researches. It is composed of two types; the convergent and the divergent validities, the convergent validity was expressed by standardised loading. Table 1 shows that all constructs are reliable, since the composite reliability values are over 0.7 and even over 0.8 (Nunnally, 1978). In fact, the lowest value of composite reliability is 0.854. For discriminant validity, the average variance of manifest variables extracted by constructs (AVE) is at least 0.5. Table 1 shows that the lowest value of AVE is 0.506, which is over the minimum value of 0.5.

**Table 1:** Model validity and reliability

<b>Construct</b>	<b>Code</b>	<b>Construct loadings</b>	<b>AVE</b>	<b>Composite Reliability (CR)</b>	<b>Cronbach Alpha (CA)</b>
<b>Total Quality Management (TQM) (11 items)</b>	TQM1	0.786	0.506	0.918	0.902
	TQM2	0.697			
	TQM3	0.734			
	TQM4	0.683			
	TQM5	0.764			
	TQM6	0.696			
	TQM7	0.743			
	TQM8	0.646			
	TQM9	0.726			
	TQM10	0.630			
	TQM11	0.706			
<b>Organisation Structure (OC) (5 items)</b>	OC1	0.853	0.734	0.932	0.909
	OC2	0.785			
	OC3	0.887			
	OC4	0.865			
	OC5	0.889			
<b>Organisation Performance (OP) (5 items)</b>	OP1	0.771	0.541	0.854	0.787
	OP2	0.798			
	OP3	0.648			
	OP4	0.702			
	OP5	0.749			

A PLS model requires two stages of analysis, which is adequacy of the measures and structural model. The former is assessed by evaluating the reliability of the individual measures and the discriminant validity of the constructs (Hulland, 1999). Item reliability is assessed by examining the loadings of the measures on their corresponding construct. Each item loadings approach or exceed 0.707 (Carmines & Zeller, 1979). Table 1 shows that all individual measures are reliable, since all item loadings exceed the value of 0.707.

As to composite reliability, Table 1 shows that all constructs are reliable, since the composite reliability values are over 0.7 and even over 0.8 (Nunnally, 1978). In fact, the lowest value of composite reliability is 0.854.

For discriminant validity, the average variance of manifest variables extracted by constructs (AVE) is at least 0.5. Table 1 shows that the lowest value of AVE is 0.506, that is over the minimum value of 0.5

## Analysis

### *Research Model and Hypotheses*

Based on the literature review, a framework is developed to discuss the relationships between TQM, OC, and OP in the ministry transportation and al Hejaz railway in Jordan.

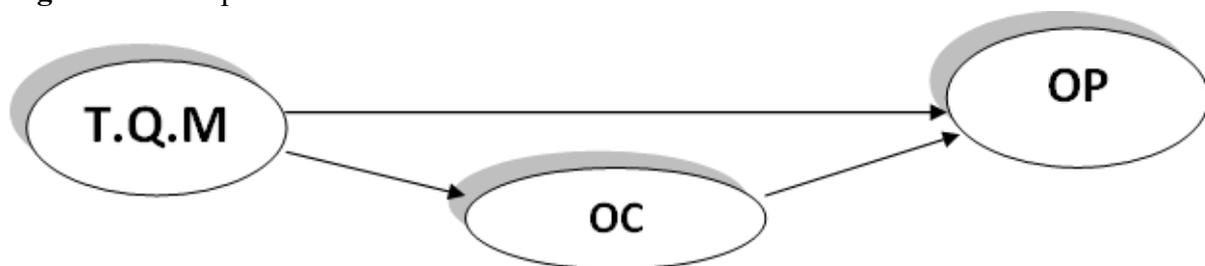
**H1:** There is a significant relationship between (TQM) and (OP).

**H2:** There is a significant relationship between (OC) and (OP).

**H3:** There is a significant relationship between (TQM) and (OC).

**H4:** There is a significant mediating effect of (OC) between the relationship of (TQM) and (OP).

**Figure 1.** Conceptual Framework



### *Direct Relationships*

The direct relationships in SEM are the relations that go directly from one exogenous latent variable to an endogenous latent variable. Below, Table 2 shows the status of three hypotheses in the final structural model.

**Table 2.** The analytical results of direct effects

Hypotheses	Impact Direction			$\beta$	Std.dev	t value	p-value	Result
<b>H1</b>	TQM	--->	OP	0.350	0.155	2.255	0.025	Supported
<b>H2</b>	OC	--->	OP	0.294	0.120	2.459	0.014	Supported
<b>H3</b>	TQM	--->	OC	0.550	0.080	6.885	0.000	Supported

Tabulated t value at (0.05) level = 1.98

**Table 3:** The analytical results of total effects

Hypotheses	Impact Direction			$\beta$	Std.dev	T value	P-value	Result
<b>H1</b>	TQM	--->	OP	0.512	0.114	4.494	0.000	Supported
<b>H2</b>	OC	--->	OP	0.294	0.120	2.459	0.014	Supported
<b>H3</b>	TQM	--->	OC	0.550	0.080	6.885	0.000	Supported

Tabulated T value at 0.05 level = 1.98

The effect of TQM on OP is positive. Its path coefficient ( $\beta$ ) is 0.512 and T-value is 4.494 ( $p < 0.05$ ) revealing the fact that TQM has a significant effect on OP. The improved TQM leads to better OP. (H1) of the study has been accepted.

The effect of OC on OP is positive. Its path coefficient ( $\beta$ ) is 0.294 and T-value is 2.459 ( $p > 0.05$ ), revealing the fact that OC has a significant effect on OP. The improved OC leads to better OP. H2 of the study has been accepted.

The effect of TQM on OC is positive. Its path coefficient ( $\beta$ ) is 0.550 and T-value is 6.885 ( $p > 0.05$ ), revealing the fact that TQM has a significant effect on OC. The improved TQM leads to better OC. H3 of the study has been accepted.

### ***Indirect Relationships (Mediating Relationships)***

An indirect relationship or mediating relationship is formed when a third variable mediates two exogenous latent variables. The mediating effect was tested among TQM and OP mediated by OC.

**Table 4:** The analytical results of indirect effects

Hypotheses	Impact Direction			B	Std.dev	t value	P Values	Result	Mediation %	Mediation description
H4	TQM	--->	OP	0.162	0.064	2.514	0.012	Supported	31.6	partial

Tabulated t value at (0.05) level = 1.98

Hypothesis H4: OC mediates the relationship between TQM and OP. Table 4 shows that the results indicated that the B of the indirect path of TQM and OC and OP was reported as 0.162. The T value for the indirect path of TQM and OC and OP was 2.514. This value is higher than 1.98 and the P value was 0.012, which indicates the significance of the mediation effect, thus hypothesis H4 was accepted.

## Conclusions

The purpose of this paper was to study the relationship between TQM, OC and OP in al Hejaz railway in the Jordan. The results show that there is a positive relationship between TQM and OP. This result is supported by A. Joiner (2007) and Kaynak (2003). Also, the research results show that there is a positive relationship between OC and OP in Hejaz railway in Jordan. The results are in line with the findings of Ng'ang'a and Nyongesa (2012), Shahzad et al. (2012), and Ahmed and Shafiq (2014).

Also, the research results show that there is a positive relationship between TQM and OC in Hejaz railway in Jordan.

The results are in line with the findings of Valmohammadi and Roshanzamir (2015). Also, the research results show that there is significance in the mediation effect of OC between TQM and OP.



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