7QC Tools' Scope, Limitations, and Implications for Organizational Quality

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Abstract

The quality management system known as ISO 9001 is universally recognized and utilized by businesses and organizations all over the world. In Pakistan's industrial sector, quality management systems are being implemented, and companies are earning certifications in accordance with the ISO 9001 standard. Continuous improvement through internal audits, quality policy, quality objectives, and their targets are some of the primary focuses of this standard. This guideline also places an emphasis on data analysis as a key component. In order to check and evaluate the managerial perception of the usage of 7QC tools and their effective implementation to enhance organizational performance with regard to quality in ISO 9001 certified businesses. The seven fundamental quality control (7QC) tools consist of a scatter diagram, histogram, check sheets, control charts, graphs, and a cause-and-effect diagram. For this purpose, we used responses provided by professionals from 32 different ISO 9001 certified companies in Punjab, Pakistan. The results of our study have demonstrated that there is a significant relationship between the performance of an organisation in quality and the utilization of QC tools.

Key Words*: ISO 9000, ISO 9001, Quality Management, 7QC Tools, SQC Tools, Root Cause Analysis , Productivity, Performance*

Introduction

The environment in which businesses operate is becoming increasingly challenging over the course of time, and in order for businesses to thrive in this super competitive atmosphere, they need to make every effort possible. Cost and quality represent the primary obstacle that the companies must overcome. In the current scenario and environment of business, quality itself has emerged as one of the most important business goals. Over the course of the past three decades, numerous management paradigms, standards, and strategies have come into existence.
The most widely used quality standard is known as ISO 9001, and the majority of organisations begin their journey toward quality management by adopting this standard for their quality management programs. The aforementioned standard requires, in addition, that a formal procedure or system be established, which is related to the monitoring, measurement, analysis, and improvement of quality at all levels throughout the company. In addition to that, this standard is very strict regarding the utilization of various statistical methods. The study was conducted by (Mahmood et al., 2014).

Businesses are operating in an environment that is becoming increasingly difficult over the course of time. In order for businesses to thrive in this extremely competitive environment, they need to make every effort possible. The companies' primary challenge is going to be passing the competition in terms of both price and quality. In the current state of affairs and atmosphere surrounding businesses, quality by itself has become one of the most important business goals. During the course of the past three decades, a great deal of new management paradigms, standards, and approaches have been developed.

ISO 9001 is the quality standard that is utilized the most frequently, and the vast majority of organisations start their journey toward quality management by adopting this standard for their quality management programs. The aforementioned standard mandates, in addition, the establishment of a formal process or system that is connected to the monitoring, measurement, analysis, and improvement of quality at all levels throughout the company. This requirement applies to the entire organisation. In addition to that, this standard is extremely restrictive with regard to the utilization of the many different statistical methods. (Mahmood et al., 2014). were the researchers who carried out the study. The environment in which businesses function is becoming increasingly difficult over the course of time; therefore, in order for businesses to thrive in this increasingly competitive environment, they need to make every effort possible. The companies' primary challenge is going to be beating the competition in terms of price and quality. In the current state of affairs and atmosphere surrounding businesses, quality in and of itself has become one of the most important business goals. During the course of the past three decades, a great deal of new management paradigms, standards, and approaches have been developed.

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regard to the utilization of the many different statistical methods. For this reason, the work that was done on it will make it easier for the reader to comprehend how management views the utilization of 7QC tools. The reader will also gain an understanding of the fundamental factors that contribute to failure or the prevention of using these tools. This research will be helpful to professionals in that it will enable them to overcome the primary causes of failure and effectively implement the appropriate quality control tools within their own domain. In other words, by the end of the study, the viewers will have a more firm understanding of the 7QC tools and how to implement them.

Consequently, individuals in the following roles are likely to benefit from this research: educators, researchers, trainers, quality practitioners and professionals, organisations, employees, managers, and senior management of companies.

Theoretical Model or Framework

The theoretical model as well as the conceptual framework for this study are presented in the following paragraphs. This framework highlights the fact that by utilizing 7QC tools, we are able to perform effective decision making (DM), effective root cause analysis (RCA), control and improve our processes, and control wastage. As a direct result, the overall performance of the organisation in terms of quality improves.

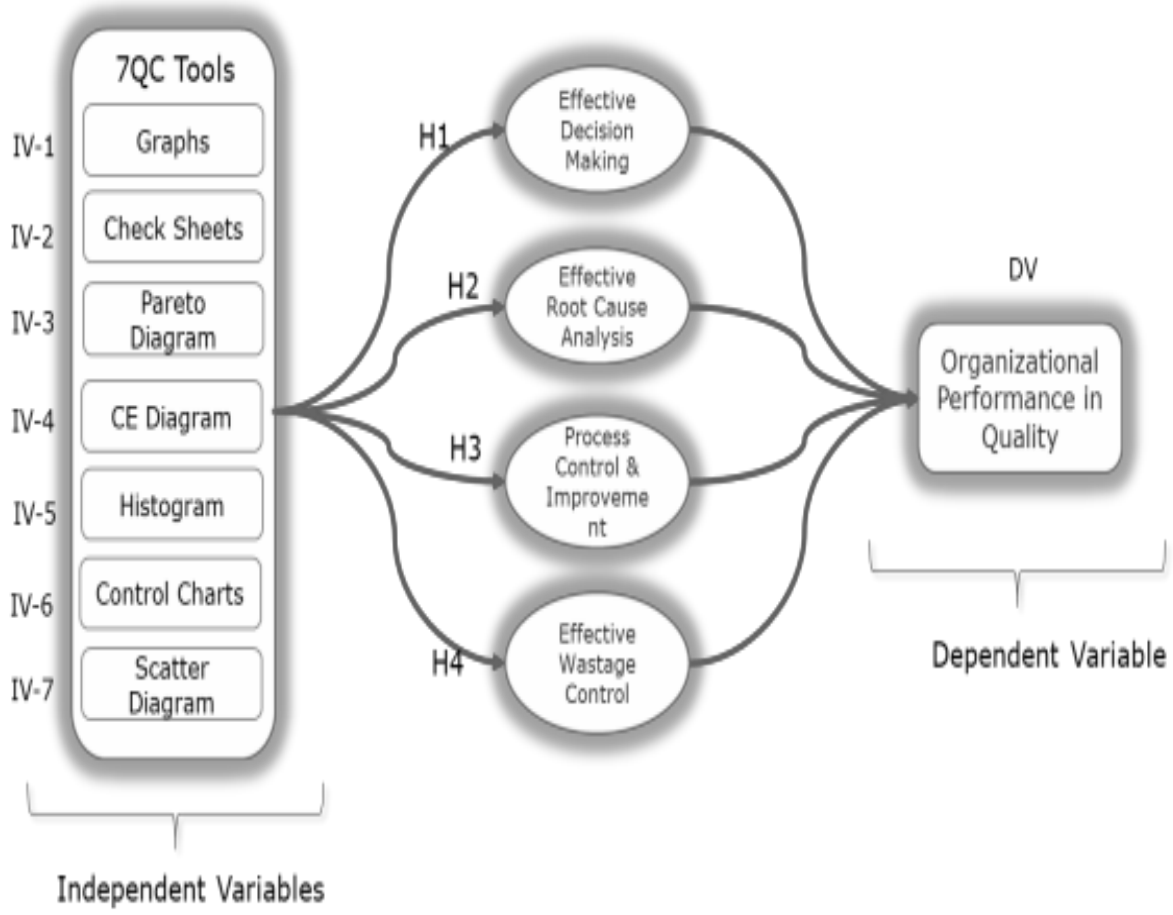

Figure 1-Theoratical Framework

Review of Literature

It is a well-established fact that the quality of an employee's job has a direct bearing on their output. That would be to say, the quality of the product, as measured by the amount of waste or rejection, has a significant bearing on overall productivity. In many cases, it was observed that manufacturing units had a low rate of productivity due to a high rate of rejected products and waste. The efforts that were made were directed toward analyzing the aspect, evaluating and specifying the root cause(s) of the high rate of rejection and wastage, and then eliminating or minimizing these causes in order to improve quality and, as a result, productivity (Kapil et al. , 2016). These quality tools are used very actively in the decision-making processes and improvement activities carried out by experts as well as leadership positions within organisations. They also made the observation that the quality improvement process must incorporate the utilisation of quality tools in the activities pertaining to quality improvement. From the very beginning all the way through to the very end, i.e. from the beginning stages of product development through its marketing and customer support, quality tools can be utilized. In addition, quality professionals and experts have access to a variety of quality tools, such as quality assurance and quality management tools, which are available for use by the quality professionals and experts. According to the findings of the research, the professionals and the leadership of the company are confident that a systematic application of 7QC tools is possible in the industries. In the course of their investigation, they took into consideration numerous kinds of businesses, including those in the fields of power generation, process industries, and health services. Even though the application of 7QC tools is straightforward and the results are straightforward to interpret, research shows that 7QC tools are not being used and implemented as widespread as would be assumed. (Gandhi, R. H., & Acharya, G. D., 2021).

There are a variety of quality improvement tools that have been utilised effectively for a variety of applications, such as I for the process of project management, (ii) for determining the risk of an event that has multiple causes, and (iii) for evaluating the supply chain and business process (Kapil ,2016).

(Cavalline, T. L., Morian, D. A., & Schexnayder, C. J. 2021). The 7QC tools are fundamental statistical and analytical tools that are used in quality control and process control for the collection of data, the analysis of that data, and the presentation of that data. The term "7QC tools" refers to a set of quality control tools that includes graphs, check sheets, pareto diagrams, histograms, scatter diagrams, control charts, and cause-and-effect diagrams. Two facets of these tools examined in this study as part of his research: first, the level of awareness regarding the tools, and then the level of implementation. He came to the conclusion that the level of awareness was excellent in 30% of the industries, satisfactory in 55%, and inadequate in 15% of the industries. While only 10% of industries had a good implementation of 7QC tools, 25% of industries had a satisfactory implementation, and 65% of industries had a poor implementation. (Al-Qahtani et al., 2015). One of the seven quality control tools known as statistical process control (SPC) carries a great deal of weight and is regarded as indispensable for quality assurance. Sometimes the incorrect application of statistical tools results in a misrepresentation of the data's quality, which ultimately leads to incorrect decisions being made. The improper use of quality control tools was the primary focus of the research that was carried out. (Tim, M., Mcnair, S., & Richard, Y., 2004). Any changes to the procedure

could have an effect on the final product or service's quality. This variation can be detected and controlled, which will result in a reduction in both waste and the likelihood that the problem will be passed on to the customer. In the automotive industries, a significant decrease in the rejection rate has been observed, and as a result, a reduction in costs has been accomplished through the implementation of SPC tools to eradicate the root causes. As a result, the 7QC tools are available to assist and facilitate organisations in better comprehending and improving their mechanisms.

There has been an improvement in process capability, according to studies carried out in the automotive industry, and there has been a reduction in rejection.Varsha et al. (2014). In Saudi Arabia, the food industry is facing a number of difficult challenges. The international food processing industry is having a very difficult time competing with Saudi companies. The purpose of Alsaleh, N. A. (2007*)* research was to investigate the application of quality tools within the production setup of the Saudi food industry. During the research, Total Quality Management was also a primary focus in order to conduct an analysis of competitiveness. According to him, companies that were surveyed indicate that quality tools are applied in the Saudi industry, and more than ninety percent of the companies that were surveyed are using at least one quality tool. Harsimran et al. (2016).

According to the findings of studies, quality control tools are useful for enhancing processes and are critical success factors for maintaining a profitable business, as well as for achieving high levels of customer satisfaction and business excellence. In addition, research has demonstrated that organisations are able to monitor, control, and ultimately improve their processes when they make use of fundamental quality control tools.

Because of the following reasons, these quality control tools are considered to be highly effective in improving organisational performance. These reasons include proven techniques for improving productivity, effectiveness in minimising defects, prevention of unnecessary process adjustments, provision of diagnostic information, and provision of information related to the capability of the process to meet customer requirements. Alsaleh, N. A. (2007*).*

The implementation of 7QC tools has also been observed in the ceramic industries in order to analyse and solve problems with the goal of reducing production wastage. It is critical for executives management at a company to devote a significant amount of attention to enhancing the production process and performing at the highest possible level. The purpose of this study is to investigate the reduction of waste in the ceramics manufacturing process achieved through the application of QC tools, identify the underlying issues, and propose viable solutions. It was observed that the rate of reduction in wastage went from 8.97% to 0.29%, showing a significant decline. Nugroho, R. E. et al. (2017).

Control charts are one of the seven quality control tools, and Scordaki and Pasarakis presented some applications of control charts in the context of the Sales and Logistics service departments. In other words, the study centred on the application of quality tools in service industries and presented the developments of control charts in non-manufacturing processes. Puttasayan Narapinij. (2016).

The 7QC tools can be utilised throughout the entirety of the production process, beginning right at the start of product development and continuing all the way through product marketing and customer support. These fundamental tools are used in conjunction with organisational data and that data's analysis in order to determine the underlying cause. Scordaki, A., & Psarakis, S. (2005).

The absence of imperfections or shortcomings is what we mean when we talk about quality. It is extremely difficult, but essential, to keep the quality of the product at a consistent level in order to keep the company's brand name intact and remain competitive in the market. 7QC tools are easy to use and can be implemented to improve product quality in any sector of the economy. These tools offer an efficient method for making improvements to the quality. The improvement of the organisational environment and the enhancement of people's knowledge of the 7QC tools are both important contributors to a total quality culture. When it comes to resolving problems connected to quality, the 7QC tools are the most helpful tools. It has also been observed that the performance of the organisation has significantly improved—even by 95%—as a direct result of the implementation of these tools. The choice of QC techniques has had an effect on the following three factors: I the ease with which these techniques can be used, (ii) the capacity to determine whether or not a product meets its specifications, and (iii) the capacity to ameliorate potentially hazardous quality and productivity problems. In a nutshell, seven quality control tools have been demonstrated to be beneficial to the expansion of industry. Pratik J. Patel (2014).

It is hypothesised that the achievement of total quality can be accomplished by continually convincing employees at all levels of an organisation to work toward continuous improvement. Improvements can be made at any level as a result of the application of methods and tools that seek to identify and reduce variation, waste, and problems. Pratik K.Gadre (2015).

The realisation of quality and the ongoing improvement of it is one of the most important factors for businesses looking to gain a competitive advantage in their industry. This is especially true for organisations.

The following three things are essential for problem solvers to understand in order to be successful in resolving any quality-related issues:

(i) I in what precise position are we?
(ii) What exactly is the nature of the issue?
(iii) What is the underlying cause of it? Before presenting any potential solutions to the problem.

The process of problem solving should be logical, organized, and effective, with the primary goal of locating and removing the underlying cause of the issue.

The 7QC tools play an important part in the data collection process, as well as in the analysis of the data, the visualization of the data, and the development of a comprehensive and solid base from which to make decisions based on the data. (Thamrin, D. A. F., 2017) If a company or organisation wants to achieve continuous quality improvement, they are going to need to make use of a diverse array of quality tools and techniques. Tools are an essential component of a process and fundamental factors in determining the level of quality achieved by an initiative. In most contexts, the 7QC tools are understood to be graphical problem-solving techniques. These tools are straightforward and efficient, making them ideal for any kind of initiative involving improvement. The process of data acquisition, the process of analysis, as well as the identification and analysis of problems all make use of these tools. These tools can also be successfully implemented during the phase of achieved results (**Nascimento** et al., 2019).

Research was carried out in a variety of fields, including power plants, the process industry, government organisations, health care, and tourism service providers, with the goal of reducing the amount of variation in quality. The application of seven different quality control tools and methods was the primary focus of this study, and its primary objective was to improve quality. It was also

demonstrated how these fundamental quality tools can be utilised to address the issue at hand and enhance the quality of work within organisations. A quality management system that has been successfully implemented is an advantage in the successful application of quality tools. These tools have seen extensive use in the manufacturing and service industries, particularly those that have adopted process-improvement initiatives such as six sigma and total quality management. (Bhangale, 2015).

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According to the Quality Management System Guidelines ISO 9004:2000, decisions that are made on the basis of facts and figures require some effective and act ions that are efficient and effective, such as valid analysis, the use of appropriate statistical techniques, and effective decision making. It is also stated in that passage that data analysis is helpful in determining the fundamental cause of problems that are currently occurring or may occur in the future. (Chiragkumar S. Chuhan. 2014).

The data that needs to be determined, collected, and analyzed are generated as a result of the Monitor and Measurement process. (Dr. Kamran Moosa, 2007). The following hypotheses are established on the basis of the theoretical framework that was presented above.

The first hypothesis is that increasing organizational performance is significantly influenced by effective decision making achieved through the utilization of 7QC tools. Evidence-based decision making is one of the seven management principles that must be adhered to. In accordance with the guiding principle, the soundest choices are those that are derived from an examination of relevant information and data (ISO 9004:2009).

Quality tools are utilized in the processes of decision making and activities aimed at improvement by both experts and leadership in organizational settings.

The second hypothesis states that performing root cause analysis with 7QC tools will have a

positive influence on organizational performance.

This hypothesis is founded on the idea that conducting a root-cause analysis is the most crucial stage in the improvement cycle and all problem-solving methodologies. When this strategy is put into practice, it ensures that problems are studied and investigated at the grass roots level, which ultimately makes it easier to identify the root cause of the problem, which can then lead to the problem's elimination through corrective action and the prevention of its recurrence. Third Hypothesis: The control of organizational processes through the utilization of 7QC tools has a positive impact on the performance of the organisation.

Wastage control achieved through the utilization of 7QC tools is shown to improve organizational performance. The primary concentration of Hypotheses 3 and 4 is on the control of the process as well as the reduction of waste and the improvement of this control. Research Methodology:

Research Design: The research study is based on positivism paradigm and Quantitative research approach was used to collect the data. Quantitative research is used to develop models, theories and hypothesis by use of numeric data to enhance the accuracy of results. *Data collection and its interpretation:* Quantitative research approach is usedto collect numeric data from selected industries through survey. To collect data, a survey questionnaire was designed. The face validity and content validity was carried out by subject experts.

Research Population: Refers to the group that forms the subject of study in a particular research. For this study the population was ISO 9001 certified companies in Punjab province.

Research Sample: Sample for this study was 50 companies and 250 professionals for the survey. The conveniencesampling technique (Non-Probability Sampling) was adopted to select the sample for this study. Data was collected by physical visits and through email surveys. Selection of companies is given asbelow;

Table 1
Selection of Companies

Items	Planned	Actual	Response %age
No. of ISO 9001 certified companies	45	32	71%
Professionals to be contacted	250	205	82%

As mentioned above, a self-developed questionnaire was used for data collection. Questionnaire was divided in two main parts i.e. demographic partand technical part. In demographic part some other questions were asked aboutcurrent status of 7QC tools and their implementation in the companies. In second part of the questionnaire technical questions were asked to be responded about 7QC tools impact and QC tools individually. The Likert scale (five-point scale from 1- Strongly Disagreed to 5- Strongly Agreed) was used to record the responses of respondents. The data for the study was collected through close ended questions and further statistical analysis was performed by using various software. Other than descriptive statistics, correlation and regression analysis was also carried out.

Results and Discussion

Demographic Analysis

We collected demographic information such as job position, age, experience, organisation type, organizational sector, organizational size, and location. Following the completion of a descriptive analysis, it was discovered that 52.7% of respondents were from managerial level or cadre, and that 20% of respondents were holding top management positions. In a similar fashion, 28.2% of respondents had experience that was greater than 15 years, 23.3% of respondents had experience that was between 11 and 15 years, 20% of respondents had experience that was between 6 and 10 years, and 25.8% of respondents had experience that was between 1 and 5 years. While 2.4% of respondents did not mention their experience.

Further analysis showed that 8% of surveyed organizations were from automobile industry, 9% from telecom, 2% from fertilizers, 9% from paper and board, 8% from customer services, 9% paper & board, 6% from Tobacco industry, 5% from chemicals and remaining 35% were of different type of the organizations e.g. food industry, oil and gas, PVC pipe etc.

Geographic analysis showed that 62% organizations were located in Lahore, 5% in Sialkot, 4% in Gujranwala and remaining 29% were from other remote areas of Punjab.

Table 2
Demographic Analysis

Parameters	**Count**	**%age**
Job position		
Top Management	42	20.5
Manager	108	52.7
Other	55	26.8
Sector		
Manufacturing	144	70
Service	61	30
Professional experience (years)		
1-5 years	53	25.8
6-10 years	42	20.5
11-15 years	47	23
15 years	58	28.3
Did not mention experience	5	2.4
Age		
20-40	125	61
41-60	80	39
Size of Organizations (Number of employees)		
10-200	68	33
201-1000	84	41
1000		
Location of Organizations		
Lahore	128	62.4
Gujranwala and Sialkot	19	9.3
Others	58	28.5

CORRELATION: -

Correlation analysis was conducted against the responses given by respondents. Following correlation table shows the Pearson Correlation, Significance value of each independent variable and dependent variable. All independent variables were checked with P-values with α-value (Significance value).

Table 3
Correlations

Correlations

		Effective Role In DM	Effective Role In RCA	Organizational Perfor Improvement (Quality)	Process Control and Improvement	Reduction In Wastage
Effective Role In DM	Pearson Correlation	1	.610**	.383**	.033	.392**
	Sig. (2-tailed)		.000	.000	.645	.000
	N	201	201	194	192	189
Effective Role In RCA	Pearson Correlation	.610**	1	.445**	.109	.356**
	Sig. (2-tailed)	.000		.000	.132	.000
	N	201	201	194	192	189
Organizational Perfor Improvement (Quality)	Pearson Correlation	.383**	.445**	1	.199**	.317**
	Sig. (2-tailed)	.000	.000		.006	.000
	N	194	194	194	188	185
Process Control and Improvement	Pearson Correlation	.033	.109	.199**	1	.317**
	Sig. (2-tailed)	.645	.132	.006		.000
	N	192	192	188	192	189
Reduction In Wastage	Pearson Correlation	.392**	.356**	.317**	.317**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	189	189	185	189	189

**. Correlation is significant at the 0.01 level (2-tailed).

Hypothesis 1: *Effective Decision Making through 7QC Tools' Vs Organizational performance*

From the above correlation table 3, the Pearson Correlation value of Effective Decision Making through 7QC Tools against Organization's performance is 0.383 and it suggests the significant correlation between effective decision making through 7QC Tools and Organization's performance with regard to Quality. Further the P-value (Significant value) is = 0.000 which is < 0.05 so we rejected null hypothesis Ho between Effective Decision Making and Organizational Performance and accepted HA: Relationship exists between Effective Decision Making and Organizational Performance.

Hypothesis 2: *Effective Root Cause Analysis through 7QC Tools Vs Organizational Performance*

From the above correlation table 3, the Pearson Correlation value of Effective Root Cause Analysis through 7QC Toolsis 0.445 against Organization'sperformance and it suggests the significant correlation between effective root cause analysis through 7QC Tools and

Organization's performance with regard to Quality. Further the P-value (Significant value) is = 0.000 which is < 0.05 so we rejected Ho: No Relationship between Effective Root Cause Analysis and Organizational Performance and accepted HA: Relationship exists between Effective Root Cause Analysis and Organizational Performance.

Hypothesis 3: *Process Control & Improvement through 7QC Tools Vs Organizational performance*

From the above correlation table, the Pearson Correlation value of Process Control & Improvement through 7QC Tools is 0.199 against Organization's performance and it suggests the significant correlation between Process Control and Improvement through 7QC Tools and Organization's performance with regard to Quality. Further the P- value (Significant value) is = 0.006which is < 0.05 so we rejected Ho: No Relationship between Process Control & Improvement through 7QC Tools and Org. Quality Performance and accepted HA: Relationship exists between Process Control & Improvement through 7QC Tools and Organizational Performance.

Hypothesis 4: *Wastage Reduction through 7QC Tools Vs Organizational Performance*

From the above correlation table, the Pearson Correlation value of Waste Reduction through 7QC Tools is 0.383 against Organization's performance andit uggests the significant correlation between wastage Reduction through 7QC Tools and Organizational Performance. Further the P-value (Significant value) is 0.000 which is < 0.05 so we rejected Ho: No Relationship between Wastage Reduction through 7QC Tools and Organizational Performance and accepted HA: Relationship exists between Wastage Reduction through 7QC Tools and Organizational Performance.

Regression Analysis

Regression Analysis was conducted against the responses given by respondents.

Overall Model Significance

Table 4

Anova

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.644	4	3.911	15.568	.000[a]
	Residual	45.221	180	.251		
	Total	60.865	184			

a. Predictors: (Constant), Reduction in Wastage, Process Control and Improvement, Effective Role in RCA, Effective Role in DM b. Dependent Variable: Organizational Perfor Improvement (Quality)

From the above ANOVA table 4 the significance value (P-value) is 0.000 which is < 0.05 so we rejected Ho: Overall Model is not significant and accepted HA: Overall Model is Significant.
Accuracy of the model

Table 5
Model Summary

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.507[a]	.257	.241	.501	.257	15.568	4	180	.000

Predictors: (Constant), Reduction in Wastage, Process Control and Improvement, Effective Role in RCA, Effective Role in DM b. Dependent Variable: Organizational Perfor Improvement (Quality)

From the above table of Model Summery the value of Adjusted R square is .241. On the basis of Adjusted R Square value, our model is 24.1% accurate or useful. *Linear Model Equation*

Table 6
Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.626	.312		5.206	.000
	Effective Role in DM	.114	.060	.163	1.912	.057
	Effective Role in RCA	.281	.078	.298	3.585	.000
	Process Control and Improvement	.094	.050	.128	1.864	.064
	Reduction in Wastage	.087	.061	.106	1.417	.158

a. Dependent Variable: Organizational Performance Improvement (Quality)

From above table of coefficient, we have β coefficient values i.e. βo is 1.626, β1 (7QC Role in effective DM) is 0.114, β2(7QC Role in effective RCA) is 0.281, β3(7QC Role in Process C&I) is 0.094 and β4(7QC Role in wastage reduction) is 0.087. On the basis of above information following model is developed i.e.

$$Organization's\ Performance\ Quality = \beta + \beta 1(Effective\ DM) + \beta 2(Effective\ RCA) + \beta 3(Process\ C\&I) + \beta 4(Wastage\ Reduction)$$

(Equation 1)

By replacing β values in equation 1, we have following final model;

$Organization's\ Performance\ Quality$ = 1.626 + 0.1141 $(Effective\ DM)$ + 0.281 $(Effective\ RCA)$ + 0.094 $(Process\ C\&I)$ + 0.087 $(Wastage\ Reduction)$ ----------(Equation 2)

From equation 2 we can conclude that Effective Root Cause Analysis through 7QC tools has more impact on organization's performance with regard to Quality as compared with others independent variables. Further to verify our statement we conducted β testing. *B'S Testing*

Table 7
Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.626	.312		5.206	.000
	Effective Role in DM	.114	.060	.163	1.912	.057
	Effective Role in RCA	.281	.078	.298	3.585	.000
	Process Control and Improvement	.094	.050	.128	1.864	.064
	Reduction in Wastage	.087	.061	.106	1.417	.158

a. Dependent Variable: Organizational Performance Improvement (Quality)

Hypothesis 1: *Performance Vs Effective DM through 7QC*

From the above table of Coefficient, the P-value (Significant value) is 0.057 which greater than (>) 0.05, therefore, Ho: Effective DM through 7QC tools has no impact on the performance is accepted. Hence, both performance and Effective DM through 7QC tools are not correlated to each other. In other words, Effective DM through 7QC tools has no impact on the performance of the organization. It is also evident from Model Equation

Hypothesis 2 *: Performance Vs Effective RCA through 7QC tools*

From the above table of Coefficient, the P-value (Significant value) is 0.000 which < 0.05, therefore, Ho: Effective RCA through 7QC tools has no impact on the performance is rejected. HA: Effective RCA through 7QC tools has impact on the performance is accepted. Hence, both performance and Effective RCA through 7QC tools are correlated to each other. In other words, Effective RCA through 7QC tools has impact on the performance of the organization. It is also evident from Model Equation as well.

Hypothesis 3: *Performance Vs Process C & I through 7QC tools*
From the above table of Coefficient, the P-value (Significant value) is 0.064 which is not <≠ 0.05, therefore, Ho: Process C & I through 7QC tools has no impact on the performance is accepted and HA: Effective Process C & I through 7QC tools has impact on the performance is rejected. Hence, both performance and Effective Process C & I through 7QC tools are not correlated to each other. In other words, Effective Process C & I through 7QC tools has no impact on the performance of the organization. It is also evident from Model Equation as well

Hypothesis 4: *Performance Vs Wastage Reduction through 7QC tools*
From the above table of Coefficient, the P-value (Significant value) is 0.158 which is not <≠ 0.05, therefore, Ho: Wastage Reduction through 7QC tools has no impact on the performance is accepted and HA: Wastage Reduction through 7QC tools has impact on the performance is rejected. Hence, both performance and Wastage Reduction through 7QC tools are not correlated to each other. In other words, Wastage Reduction through 7QC tools has no impact on the performance of the organization. It is also evident from Model Equation as well.

Conclusion and Finding

According to the findings of this study, there is a significant connection between an organization's performance in quality and the utilization of QC tools. This study is an attempt to explain the managerial perception about the usage of 7QC tools and their impact on the organization's performance with regard to quality in Pakistanis businesses that have been certified as meeting the requirements of ISO 9001. The findings of this research will be beneficial for quality managers, quality practitioners, consultants, and instructors. The study will also provide helpful insights that can be used to improve the performance of an organisation by making efficient use of 7QC tools. The findings of the study could potentially provide a topic of discussion that is beneficial to quality professionals working in this particular field. Our research revealed that the majority of businesses follow a formal and structured standard operating procedure for data analysis. In addition, it was discovered that approximately 62% of professionals had either received formal training on 7QC tools or had acquired expertise through self-study. In addition, approximately 45% of professionals were capable of understanding 7QC tools, interpreting them, and teaching them to others. This study also found that approximately 53% of the companies surveyed did not include data analysis as part of their internal quality audits. This information was obtained from the study. The failure of industries to successfully implement 7QC tools was primarily due to a lack of training as well as a lack of interest and comprehension on the part of individuals. According to approximately 71% of industry professionals, 7QC tools play an important part in effective decision making. The effective usage of 7QC tools in daily activities shows a mean value of (4), which indicates that these tools are generally effective. Ormance in quality and the utilisation of QC tools. This study is an attempt to explain the managerial perception about the usage of 7QC tools and their impact on the organization's performance with regard to quality in Pakistanese businesses that have been certified as meeting the requirements of ISO 9001. The findings of this research will be beneficial for quality managers, quality practitioners, consultants, and instructors. The study will also provide helpful insights that can be used to improve the performance of an organisation by making efficient use of 7QC tools. The findings of the study could potentially provide a topic of discussion that is beneficial to quality professionals working in this particular field. Our research revealed that the majority of

businesses follow a formal and structured standard operating procedure for data analysis. In addition, it was discovered that approximately 62% of professionals had either received formal training on 7QC tools or had acquired expertise through self-study. In addition, approximately 45% of professionals were capable of understanding 7QC tools, interpreting them, and teaching them to others. This study also found that approximately 53% of the companies surveyed did not include data analysis as part of their internal quality audits. This information was obtained from the study. The failure of industries to successfully implement 7QC tools was primarily due to a lack of training as well as a lack of interest and comprehension on the part of individuals. According to approximately 71% of industry professionals, 7QC tools play an important part in effective decision making. The effective usage of 7QC tools in daily activities shows a mean value of (4), which indicates that these tools are generally effective.

According to the regression model, professionals and managers believe that an effective root cause analysis and an effective decision-making process using 7QC tools are two of the most important factors that affect the quality performance of organizations.

In spite of these constraints, the research was carried out. The entire province was considered uncovered due to a lack of available resources. Coverage was limited to the country's three most important cities: Lahore, Islamabad, and Gujranwala. No one really looked into the whole industrial sector, which includes banking, universities, agriculture, and other fields.

Because there are limits on research, the study has been narrowed down from the whole country to each province and then to the four biggest cities in the province of Punjab: Lahore, Islamabad, Sialkot, and Gujranwala.

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