

EVALUATING THE READINESS FOR ISO 9001:2015 CERTIFICATION: A CASE STUDY

Oriel M. Omallao^{1*}, Jonathan C. Gano-an^{2*}

¹ University of Southeastern Philippines, Davao City

² University of Southeastern Philippines, Davao City

e-mail: oriel.omallao@gmail.com¹

jcgano-an@usep.edu.ph²

ABSTRACT

This quantitative exploratory paper evaluates the degree of adoption of a cooperative to Total Quality Management (TQM) practices as a precursor study for its readiness for ISO 9001:2015 Quality Management System certification. Questionnaires were developed to explore practices already implemented within the ambit of TQM. Selected participants were grouped into two: (1) Management which is the middle-level management up to the CEO and (2) Governance composed of the Board of Directors, elected and appointed officers. A total number of 37 respondents were surveyed simultaneously. Primary data gathered from survey questionnaire were tested statistically for non-parametric datasets using SPSS16 for descriptive statistics and test of normality. Test statistics using Mann-Whitney U Test examines if the adoption of Quality Management Principles (QMPs) of ISO 9001-2015 is equally perceived by the two variable groupings. The study concluded that the seven QMPs are somewhat adopted based on the result of the overall mean score. Results of descriptive statistics for each of the QMP revealed that Leadership has the highest mean. Whereas other QMPs such Customer Focus, Improvement, Process Approach, Evidence-Based Decision Making, Engagement of People, and Relationship Management are somewhat adopted. Results of Mann-Whitney U Test revealed that TQM adoption is perceived more by the Governance group than by the Management group and the two variable groupings have differing perceptions on the adoption of TQM, thus rejecting the null hypothesis of similarity among the two groups.

Keywords: ISO 9001:2015, total quality management, cooperative

ABSTRAK

Makalah eksploratif kuantitatif ini mengevaluasi tingkat adopsi suatu koperasi terhadap praktik Total Quality Management (TQM) sebagai studi pendahuluan untuk kesiapan sertifikasi Sistem Manajemen Mutu ISO 9001:2015. Kuesioner dikembangkan untuk mengeksplorasi praktik yang telah diimplementasikan dalam lingkup TQM. Peserta yang dipilih dibagi menjadi dua kelompok: (1) Manajemen yang terdiri dari manajemen tingkat menengah hingga CEO dan (2) Tata Kelola yang terdiri dari Dewan Direksi, pejabat terpilih, dan diangkat. Sebanyak 37 responden disurvei secara bersamaan. Data primer yang dikumpulkan dari kuesioner survei diuji secara statistik untuk dataset non-parametrik menggunakan SPSS16 untuk statistik deskriptif dan uji normalitas. Uji statistik menggunakan Uji Mann-Whitney untuk memeriksa apakah adopsi Prinsip Manajemen Mutu (QMP) ISO 9001-2015 sama-sama dirasakan oleh dua kelompok variabel. Studi ini menyimpulkan bahwa ketujuh QMP sedikit diadopsi berdasarkan hasil skor rata-rata keseluruhan. Hasil statistik deskriptif untuk masing-masing QMP mengungkapkan bahwa Kepemimpinan memiliki rata-rata tertinggi. Sedangkan QMP lainnya seperti Fokus pada Pelanggan, Peningkatan, Pendekatan Proses, Pengambilan Keputusan Berbasis Bukti, Keterlibatan Masyarakat, dan Manajemen Hubungan sedikit diadopsi. Hasil Uji Mann-Whitney menunjukkan bahwa adopsi TQM lebih dirasakan oleh kelompok Tata Kelola daripada kelompok Manajemen, dan kedua kelompok variabel memiliki persepsi yang berbeda tentang adopsi TQM, sehingga menolak hipotesis nol tentang kesamaan di antara kedua kelompok.

Kata Kunci: ISO 9001:2015, manajemen mutu total, koperasi

1. INTRODUCTION

Total Quality Management (TQM) was pioneered in 1940 by Dr. Edward Deming but only in 1985 that it started its use (Milosan, 2014). It is a management philosophy that emphasizes working

processes (throughput) and the people with the primary objective of customer satisfaction and improving the overall performance gearing towards quality (Oluwatoyin & Oluseun, 2014). TQM harmonizes customers, suppliers, and

employees and incorporates statistical evaluation in the overall continuous improvement process into a more comprehensive approach (Wang & Meckl, 2020). As business is expanding and growing serving multiple arrays of clients, operational and procedural processes also are evolving gearing toward quality of service for the satisfaction of customers (Zulganef & Nilasari, 2022), hence TQM is the art of managing the entirety towards exceptional performance (Besterfield *et al.*, 2012). TQM has multiple definitions from various authors and sources. The most convenient definition is to dissect the three elements: "Total- the participation of all in the organization; Quality- meeting the satisfaction of customers, and Management- the art of providing quality products and service". British Standards Institution (1992) defines TQM as "management philosophy and company practices that aim to harness the human and material resources of an organization in the most effective way to achieve the objectives of the organization". While ISO states that "TQM is a management approach of an organization centered on quality, based on the participation of all its members and aiming at long-term success through customer satisfaction and benefits to all members of the organization and society" (Shoshan & Celik, 2018). The climate of business is changing at a rapid pace with the advent of many strategies introduced to sustain competition and enhance productivity through the quality of management (Al-Maamari & Raju, 2020). Quality is a continuous engagement and it covers the entire operations of the organization. As years passed by, TQM has been referenced by various firms in enhancing processes and capabilities to achieve and withstand competitive advantage (Milosan, 2014). Several researchers discussed the

association between TQM and how the organization perform and revealed that operation will be improved from some perspective (Al-qahtani, Sa & Aziz, 2020). Critical successes depend on how the management adopts or rejects improvement in the entire sphere of the organization and that is a collective effort of all participants for the sustainability and long-term success of the organization. As cited by Pangaribuan (2000), the application of TQM has an affirmative influence on the performance of any business and helped improve the performance of organization management. Cooperative sector has been identified as one of the drivers in promoting equity, social justice and economic development as articulated in Articles 12 and 13 of the 1987 Philippine Constitution. Given the importance of cooperatives as a social enterprise in building the nation by upholding a just society with strong economic base (Castillo & Castillo, 2017), studies on total quality management needs to be instituted especially to those cooperatives that arose from being a micro-cooperative to now a billionaire one.

This paper explores the practices made by one of the leading cooperatives in Region XII, Philippines which aims to determine the degree of adoption to Total Quality Management (TQM) for readiness for certification to International Organization for Standardization for Quality Management Systems (ISO 9001:2015) based on the seven (7) areas of Quality Management Principles (QMPs) namely: Customer Focus, Leadership, Engagement of People, Process Approach, Improvement, Evidence-Based Decision Making, and Relationship Management. Further, this study provides more perspective how quality practices in operations are adopted by this cooperative and to identify areas

that needed to be improved. Specifically, this paper determines:

1. If the seven (7) QMPs of ISO 9001:2015 are adopted by the Cooperative based on the overall mean of the 7-point Likert Scale results and the individual mean of each QMP; and
2. If the adoption of seven (7) QMPs of ISO 9001:2015 is perceived equally among the two (2) grouping variables of respondents, the Management and the Governance.

2. LITERATURE REVIEW

2.1 Total Quality Management

The managerial implications of quality management are to enhance the level of awareness and significance by having quality systems in the spectrum of operations and market penetration (Meek, 2003) and by implementing principles in TQM, the workforce in the organization participates in the culture, services, and improvement of the processes (Menza & Rugami, 2021). The general perceptions of TQM according (Levine et al. 2010) as further cited in Androniceanu (2017) is the enhancement of the management by improving the processes to produce quality products and services which will result to satisfaction of the which will lead to the success of the organization. The TQM is grounded on four (4) major areas: leadership accountability for continuous improvement; emphasis on processes to attain perfection; research and statistically bounded measurement of performance; and participation and empowerment of people (Tesfaye & Kitaw, 2017).

2.2 Conforming Studies on the Application of TQM for Organizational Success

The study by Hafeez et al.,(2018) discussed the significant and positive agreement of TQM to production

performance, product performance, and financial performance and a good lever to enhance business innovativeness. TQM is also effective in collaboration with other operational applications such as Just-in-Time and Supply Chain Management (Masudin & Kamara, 2018). According to Jong, Sim and Lew (2019), TQM is significantly correlated to organizational performance, conversely other variables such as leadership, strategic planning, and customer focus have no cogent influence on performance due to the influence of mediating factors.

As postulated by Kumar and Sharma (2016), the levers of TQM such as excellent client service leading towards satisfaction, reducing the cost of production or service, enhancement of process and cycle time leading to shortened waiting time, investment to service development, teamwork, feedback system, training to employees and human resource integration are interconnected and interdependent to each other which are the critical success factors to TQM compliance. Ayash, El-Mousawi and Younis (2020) also concluded that the following constructs significantly effect on improving the financial performance of the organizations: focus on affiliates, high management, continual improvement, training of employees, and teamwork. As referred to by Vrtođušić Hrgović, Črnjar and Škarica (2020), a statistical correlation between employee engagement with continuous improvement, however, no relationship exists for internal customer focus to continuous improvement. The study aimed to focus on employee involvement in the improvement process by observing harmonious working relationships.

In conjunction with Magd, Ansari and Negi (2021) it showed that the complementation of TQM and knowledge management to innovation and integration of the three factors will impact

performance results, thus gaining a better position in competition leading to organizational excellence. Sreenath (2022) further acknowledged that influences such as quality of the working environment, management commitment, training, empowerment of people, initiatives to TQM, acknowledgment of good works, and culture in the workplace are effective drivers to TQM in the human resource functions.

2.3 Quality Principle of ISO 9001: 2015 QMS

The quality management principles used in this paper are drawn from the concepts described in ISO 9001, Quality Management Systems (QMS) – Requirements. The seven Quality Management Principles (QMP) are Customer Focus, Leadership, Engagement of People, Process Approach, Improvement, Evidence-Based Decision Making, and Relationship Management (Sader, Husti & Daróczy, 2019) as depicted in Figure 1.



Figure 1: ISO 9001:2015 Principles and TQM implementation
Source : Sander et al., 2019)

The implementation of ISO 9001 based on literature by (Bravi et al., 2019) have two (2) main categories: internal and external. Internal motivations are related to attaining improvement of internal management while external motivation is concerned with marketing and

promotions, pressures from the clients, and increase of market share.

QMP 1: CUSTOMER FOCUS

Customer focus shall be demonstrated and committed by the top management by customer requirements are always met, conformities of products and services are determined and satisfaction of customers are addressed, customer satisfaction is enhanced and maintained (Robere, 2015). As evidenced by the study of Topalović (2015), satisfied customers provided by an organization are the main measurement of quality satisfaction. In process of formulating products and services, involving the stakeholders is necessary to come up with quality to fully met or even surpassed client needs. In the TQM model, the customer is the primary mover, and satisfying them is the beginning of quality initiative (Pambreni *et al.*, 2019). With competition in the industry present and inevitable in every business, relying on customer increasing demand with superior product and service quality is the most important influence for every organization to intensify competitiveness (Cetindere, Duran & Yetisen, 2015). Most customers should one at top of the ladder in terms of prioritization of their needs. The concept of customer satisfaction direct linked to customer loyalty has been hypothesized in various research (Kumar and Mokha, 2021; Nuseir and Madanat, 2015; Kamrul Islam Shaon and Hasebur Rahman, 2015).

QMP 2: LEADERSHIP

Leadership and commitment to QMS are firstly practice by the top management through accountability for effectiveness; establishment of a quality policy, objectives, and strategic direction; integration into the business process; use of process approach and risk-based thinking; communication and conformance; achieves its intended

results; promotes improvement (Robere, 2015). Traditional leadership is defined as having character, behavior, influence on others in performing roles, and authority in managerial and structured positions (Barbosa, Gambi & Gerolamo, 2017). Leadership in the organization is a management concept that exercises central strategic direction at the entire stages of the organizational structure that is essential in achieving its goals (Sungkawati, 2020). Leaders must comprehend quality management, and belief in its ideologies by demonstrating faith and action. Guarantees that directions, ideals, values, and organizational principles are communicated down to the lowest level to deliver emphasis, a clear path, and common understanding among all personnel (Milosan, 2014). According to Sweis et al., (2019), dynamic leadership is the very key component of the commitment of the top management to exemplify active function to improve performance and the focus it wanted to attain by outlining quality goals, policies, and action plans. Opined in (Besterfield *et al.*, 2012) the success of quality management lies in the active part of middle managers since they are accountable for achieving many goals and outputs and they have the link in the communication process from top management to front-line personnel. Transformational-transactional leadership has evolved from its original proposition by Deming as "visionary leadership". This leadership developed organizational culture associated with quality management policies and procedures that accepts better change (Barbosa, et al, 2017).

QMP 3: ENGAGEMENT OF PEOPLE

Involvement and empowerment of employees are important to increase the aptitude to serve the customer value of

service (Pangaribuan, 2000). Encouraging employees to suggest fresh perspectives and participate in the risk-taking process is a major element of TQM (Alghamdi, 2018). Employees are vital in building a strong and competent "human capital" of the organization (Al-qahtani, Sa & Aziz, 2020) and empower them by giving the extent of autonomy to decide customer-related concerns (Shahin & Dabestani, 2011). As employees are given more responsibility, have effective communication skills, creative, participative, and innovative, it has a better drive toward quality. TQM also links employees' remuneration to customer satisfaction and job satisfaction correlates with employees' attitudes and behaviors. The same study revealed that personnel's sense of accomplishment is the result of higher awareness and investment in the organizational level of commitment (Mo & Borbon, 2022). However, the study Mawuko (2017) concluded that both employee and customer satisfaction has no statistical significance to TQM when other factors such as political interference, understaffing and other challenges are imminent in the organization. This is the outcome when management is disconnected with the line personnel because of no clear quality policy and motivation.

QMP 4: PROCESS APPROACH

Process-based thinking sees innovation as a complicated process that frequently involves different social groupings in businesses (Firman, Mustapa & Ilyas, 2020). As described by Sader, Husti and Daróczy (2019) business process that is effective and efficient is achieved when it is clear and consistently improved. Three main stages of process under the process-based approach (Kowalik & Klimeckatatar, 2018), are the technical and organizational quality of the inputs,

excellent process of interaction between the provider and receiver of service, and output quality of the services provided meeting customer expectations. The basic approach of ISO 9001 towards process management is how an organization structured its processes by recognizing the essential methods and describing the relationship of the processes and how the products and services are served towards quality management philosophy of differentiation (Mustapha et al., 2018).

QMP 5: IMPROVEMENT

As evidenced by Mo and Borbon (2022), continuous improvement is the key concept of innovation. The modern public has a great favor to humanization, individuation, and quality and the organization's leadership has difficulty in achieving those differing needs of a diverse market. It is through the people and operational procedures within the organization that products are developed and services are delivered with quality that comes within the process (Pambreni et al., 2019). Amoozegar et al., (2019) posits that continuous process improvement emphasized the formulation of products and services by knowledgeable people due to heightened complex transactions by upgrading processes to reduce wastage and expenses. Continuous improvement is a device to change the track for improvement of operations in short-term and maintaining traction over long periods based will all players involved because continuous improvement is everybody's responsibility (Ghani Al-Saffar & Obeidat, 2020). To implement continuous improvement, the organization should involve tools and technology to evaluate weaknesses, wastage, and variances for a total improvement of the whole process (Tsfaye & Kitaw, 2017) as further cited by Hailu, Mengstu & Hailu (2018).

QMP 6: EVIDENCE-BASED DECISION MAKING

Evidence-based management is a procedural task. As asserted by Hulpke and Fronmueller (2022) before a decision is reached, consideration must be implied to population, intervention, comparison, results, and the circumstances as the relevant evidence to “ask, acquire, appraise, aggregate, apply and assess” the necessary stages in providing more structured decision-making process. The goal of evidence-based management is to link the theoretical aspect of management to its practical application (Hasanpoor et al., 2018). The more clear definition of this principle based on several works of literature is heralded in (Briner, Denyer and Rousseau, 2009) stating that decisions to be made must be grounded on “conscientious, explicit and judicious” consumption of varied information originated from various sources. Another consideration of this approach is an option for leaders to draw unbiased decisions from available evidence for an enhanced level of transparency (Walshe & Briner, 2013) and necessitates the prescribed data management program for a more systematic process of information governance (extraction, storage, processing, interpreting and enforcing) taking into account the sensitivity, confidentiality, and security of evidence or data (Elijah & Moturi, 2017).

The best way to plan, evaluate, and track operational performances are to refer to data and studies using statistical analysis which provides an objective and reliable basis. Decision-making is made based on logical and coherent ground (Omer, et al. 2018). Importantly, this evidence-based research should be translated into action and application to have its impact (Aarons, Hurlburt & Horwitz, 2011).

QMP 7: RELATIONSHIP MANAGEMENT

Relationship management is defined as the interrelationship of the organization to its external providers in which the organization gained mutual benefits and enhances both parties to increase its value. These providers include customers, suppliers, service providers, networks, community, government, etc. (Zanqar *et al.*, 2019). Relationship management is an incremental approach for building better linkages with customers and partners and creating value-adding activities to meet shareholders' expectations (Deszczyński, 2018). The main features of this philosophy according to (Galbreath & Rogers, 1999) involve: the establishment of a long-term relationship, there is reciprocal benefits to internal and external parties and communication to parties on creating a better value chain process.

3. METHODOLOGY

This research used a quantitative-exploratory method design. The respondents of this study, all of whom are connected to the cooperative under this study were grouped into (1) Management Group consisting of branch manager level up to the chief executive officer and (2) Governance Group representing the Board of Directors, the appointed and elected committee officers and evaluate if the two groups have the same perception on TQM adoption. Survey questionnaires using the 7-point Likert Scale was utilized to generate primary data sent via Google Forms through the respective email addresses identified in the Management and Governance Groups. The distribution of the responses gathered is shown in Table 1.

Table 1
Distribution of Sample Size

Groupings	Population	Sample Size	%
Management	31	22	71%
Governance	25	15	60%
Total	56	37	66%

Source: Data Processing (2023)

4. RESULTS AND DISCUSSION

4.1 Descriptive Statistics

Data generated from the survey questionnaire were analyzed using the SPSS16 software. The result of descriptive statistics for 37 responses showed the following means and standard deviations:

Table 2
Overall Mean

	N	Min	Max	Mean	Std. Deviation
Overall Mean	37	2.94	5.98	5.608	1.1007
Valid N (listwise)	37				

Source: Data Processing (2023)

As referred to the Table 2, the overall mean is 5.6084 which is interpreted as the respondents somewhat agreed to the adoption of the Cooperative to the seven (7) Quality Management Principles (QMPs) of International Organization for Standardization for Quality Management Systems (ISO 9001:2015)

The following are the results of the descriptive statistics for each of the seven (7) Quality Management Principles of ISO 9001:2015:

Table 3
Mean and Standard Deviation of Each Variable

Variable	Mean	Standard Deviation
CUF-Customer Focus	5.7477	0.91798
LDR-Leadership	6.1204	0.97160
EOP-Engagement of People	5.4204	1.43734
PRA-Process Approach	5.5845	1.16892
IMP-Improvement	5.5676	1.26973
EDM-Evidence-Based Decision Making	5.4363	1.19805
RLM-Relationship Management	5.3822	1.27378

Source: Data Processing (2023)

Mean as one of the measures of central tendency is computed using the

sum of observations divided by the number of observations. This measure is used to assess the representative value of the data set to be used for comparing two or more groups (Mishra & Pandey, *et al.*, 2019). Comparing each mean of the seven (7) variables of ISO 9001:2015 in Table 3, revealed that QMP-Leadership obtained the highest mean of 6.1204 which the respondents believed they agree that the leadership principle of TQM is being adopted by the Cooperative. Meanwhile, respondents somewhat agree that QMPs-Customer Focus (mean=5.7477), Improvement (mean=5.5676), Process Approach (mean=5.5845), Evidence-Based Decision Making (mean=5.4363), Engagement of People (mean=5.4204), and Relationship Management (mean=5.3822) are somewhat adopted by the Cooperative.

Test of Normality

The test of normality is evaluated by reference to the result of descriptive statistics to identify if data sets exhibit significant skewness or kurtosis.

Table 4
Skewness and Kurtosis of Each Variable

Variable	Skewness	Standard Error of Skewness		Kurtosis	Standard Error of Kurtosis
		s	s		
CUF-Customer Focus	-1.161	0.388	1.098	0.759	0.759
LDR-Leadership	-1.845	0.388	3.607	0.759	0.759
EOP-Engagement of People	-1.070	0.388	0.178	0.759	0.759
PRA-Process Approach	-0.133	0.388	1.554	0.759	0.759
IMP-Improvement	-1.296	0.388	0.871	0.759	0.759
EDM-Evidence-Based Decision Making	-7.720	0.388	-0.148	0.759	0.759
RLM-Relationship Management	-1.144	0.388	1.424	0.759	0.759

Source: Data Processing (2023)

Skewness and Kurtosis quantify the normality of the variable distribution with a normal value of zero (0) (Kim, 2013). Skewness quantifies the proportion of the distribution of variables and Kurtosis measures the comparison of data set distribution to normal distribution (Hatem *et al.*, 2022). As seen in Table 4, six (6) variables are negatively skewed at less than -1, except for the Process

Approach. Meanwhile, variables Customer Focus, Leadership, Process Approach, and Relationship Management showed a characteristic of being leptokurtic (too peaked) with more than +1 Kurtosis results. Moreover, normality can be best tested using the Kolmogorov-Smirnov Test for a large sample size and Shapiro-Wilk Test for a small sample size (Orcan, 2020). For this study with 37 sample sizes tested, the result from Shapiro-Wilk Test detects departures from normality for a sample size of less than 50 ($n < 50$), (Bee Wah and Mohd Razali, 2011).

Table 5
Test of Normality

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statisti			Statisti		
	c	df	Sig.	c	df	Sig.
CUF	0.156	37	0.024	0.897	37	0.002*
LDR	0.234	37	0.000	0.794	37	0.000*
EOP	0.163	37	0.015	0.869	37	0.000*
PRA	0.186	37	0.002	0.871	37	0.001*
IMP	0.182	37	0.003	0.85	37	0.000*
EDM	0.153	37	0.029	0.93	37	0.023*
RLM	0.197	37	0.001	0.903	37	0.024*

*p value < 0.05

Source: Data Processing (2023)

Table 5 revealed the results of the Normality Test for the seven (7) variables of ISO 9001:2015. Shapiro-Wilk Test revealed that the level of significance (Sig.) of the seven variables is less than 0.05 ($p\text{-value} < 0.05$), therefore we reject the assumption of normality (Ahad *et al.*, 2011).

TEST STATISTICS

Given the small size of the sample ($n = 37$) for this paper, the assumption of normality is difficult to achieve (Derrick, White and Toher, 2019). For data sets not following the normality of the distribution, the decision will lead to the use of the non-parametric test (Mukasa *et al.*, 2021). Non-parametric test or distribution-free test is a method used to compare other than means or a statistical test used to compute data that is continuous with non-normal distribution

(Mishra, C. Pandey, *et al.*, 2019). When samples had not passed the test for normality, Mann-Whitney U Test shall be applied (Rochon, Gondan and Kieser, 2012). The Mann-Whitney U Test specifies that two independent sets of variables are the same and similarly distributed. This is used to compare observations from one group with observations from the other group (Nachar, 2008).

To determine if the seven (7) QMPs namely: Customer Focus, Leadership, Engagement of People, Process Approach, Improvement, Evidence-Based Decision Making, and Relationship Management is the same across categories of groupings, a Mann Whitney U Test is used for non-parametric t-test:

Table 6: Mann-Whitney U Test - Ranks

Groupings	N	Mean Rank	Sum of Ranks
CUF	Management	22	14.50
	Governance	15	25.60
	Total	37	319.00
LDR	Management	22	15.27
	Governance	15	24.47
	Total	37	367.00
EOP	Management	22	14.66
	Governance	15	25.37
	Total	37	380.50
PRA	Management	22	14.75
	Governance	15	25.23
	Total	37	378.50
IMP	Management	22	15.59
	Governance	15	24.00
	Total	37	360.00
ED	Management	22	15.27
	Governance	15	24.47
	Total	37	367.00
RL	Management	22	15.52
	Governance	15	24.10
	Total	37	341.50

Based on Table 6, the outcome of the mean ranks from the Mann-Whitney U Test disclosed that Governance group has higher mean ranks among all seven (7) QMPs which indicate that the adoption of seven (7) QMPs of ISO 9001:2015 is perceived more by the Governance group than by the

Management group. This means, the Governance believed that the seven (7) QMPs of ISO 9001:2015 are partly being implemented in the operational practices of the cooperative. Whereas, Management group got the lower scores in each variables. Results of mean ranks revealed that there are material differences between ranks of Governance and Management groups in the seven (7) variables of TQM.

To determine if the seven (7) QMPs of the ISO 9001:2015 are perceived equally by Management and Governance variable groupings of respondents, inferential statistics for Mann-Whitney U Test of significance is presented in Table 7:

Table 7: Mann-Whitney U Test

	CUF	LDR	EOP	PRA	IMP	EDM	RLM
Mann-Whitney U	66.000	83.000	69.500	71.500	90.000	83.000	88.500
Wilcoxon W	319.000	336.000	322.500	324.500	343.000	336.000	341.500
Z	-3.071	-2.546	-2.960	-2.901	-2.324	-2.540	-2.375
Asym. Sig. (2-tailed)	0.002**	0.011**	0.003**	0.004**	0.020**	0.011**	0.018**
Exact Sig. [2*(1-tailed Sig.)]	0.002*	0.010*	0.002*	0.003*	0.020*	0.010*	0.017*

* Not corrected for ties
** *p* value < 0.05

Test statistics for Mann-Whitney U Test in Table 7 reported that there was a significant difference in the perceived adoption of seven (7) QMPs of ISO 9001:2015 by comparing Mann-Whitney U to 2-tailed (corrected for ties) results, where *U*-value > *p*-value (66.0 > 0.002; 83.0 > 0.011; 69.5 > 0.003; 71.5 > 0.004; 90.0 > 0.020; 83.0 > 0.011; and 88.5 > 0.018) for QMPs: Customer Focus, Leadership, Engagement of People, Process Approach, Improvement, Evidence-Based Decision Making, and Relationship Management, respectively.

Also, Table 7 showed levels of significance for seven QMPs enumerated at 2-tailed (corrected for ties) revealed the following *p*-values of .002, .011, .003, .004, .020, .011, and .018, respectively (at *a* = 0.05 wherein *p* < .05), therefore, the conclusion based on test statistics in Table 7 that the adoption of seven (7) QMPs of ISO 9001:2015 is not equally perceived

by the Management and the Governance variable groupings, thereby rejecting the null hypothesis that Management and Governance groups have similar perception of 7 QMPs of ISO 9001:2015.

5. CONCLUSION AND RECOMMENDATION

5.1 Conclusion and Managerial Implications

TQM is not anymore, a new dimension mostly to those who participated in the study, there is already an awareness of its concept from the governance and management people of the cooperative. This is a better start to begin alignment of some practices to the principles of ISO 9001:2015 especially those cited in the literature of this study. Among the seven quality principles, Leadership got the highest mean score of 6.1204. This only concludes that the cooperative has a strong leadership structure according to ISO 9001:2015 standards but has to properly establish quality management policies and be the front liners in encouraging and promoting quality practices. Another principle where the cooperative got a high score is on the Customer Focus principle having a mean score of 5.7477 and denoting being member-centered. Nevertheless, emphasis should be given to complaint management, customer satisfaction studies, and the involvement of members in quality management formulation.

However, it is worth noting that there were low individual mean scores to some questions asked, particularly on: the conduct of job satisfaction and career expectation studies (4.78); conduct of performance evaluation (4.92); provision for career planning and self-realization goals to employees (4.95) and availability of data and information readily available for processing and interpretation (4.95). These perspectives can be firstly adopted

considering these factors received the lowest mean scores.

As an initial step to TQM implementation, the following are the necessary stages may be a good guide according to (Lotich, 2022):

- a) Emphasize the Vision, Mission, and Values of the organization. Employees as well as members should be well-informed of the general direction, what to accomplish, and the operational values of the organization. This can be integrated during membership meetings, the orientation of new employees as well as during annual gatherings of employees.
- b) Identification of Critical Success Factors (CSF). CSF should be recognized and measured in all key areas of operations (financial, customer expectation, process improvement, market analysis, employee satisfaction, and service quality).
- c) Development of CSF measurement. This is to track and monitor progress in addressing the identified CSF. A common example is customer satisfaction survey and job satisfaction survey for employees.
- d) Identification of key customer groups. Customers should be clustered as employees, customers, suppliers, vendors, volunteers, networks, etc. to understand better their differing needs and expectations.
- e) Solicit feedback from customers. This process should be structured to emphasize that the organization needs to identify areas that are important to them, areas for improvement, and areas or services to be considered or needed to be established.
- f) Development of survey tool. This is to receive feedback from customers

and to balance their differing needs. Surveys to be developed should be based on the clustered customers in item d.

- g) Development of improvement plan. To establish baselines and action plans based on the feedback and surveys received from customers.
- h) Resurvey to see improvements. Establishment of the time interval for resurvey to evaluate improvements in ratings.
- i) Monitoring of CSF. This is to ensure that there is progress in addressing the CSF.
- j) Integrate satisfaction ratings into marketing plans. Once satisfaction by customers is met, incorporate it into marketing strategies.
- k) Be abreast of current technology. This ensures that our processes are aligned with new trends and adopts to the change of modern society.

5.2 Limitations and Suggestion for Future Studies

Due to time constraints to conduct this study, a small sample size was drawn from the population of Branch Managers up to the Board of Directors level only. Thus, it is expected that it resulted in non-normal distribution. This is in parallel to (Bono *et al.*, 2017) affirming the non-normal distribution of most small sample sizes. Sampling could have been extended to the rank-and-file employees or even to members, thus creating a larger sample size carried from a large population to conclude a better perspective of the adoption of the cooperative to TQM. Finally, further studies could be made to enhance the adoption of TQM such as covering the whole organization down to the last liner personnel or another study (cross-sectional) may be conducted after implementing some of the recommendations cited above to evaluate improvement in the operational practices.

REFERENCES

- Aarons, G.A., Hurlburt, M. and Horwitz, S.M.C. (2011) Advancing a conceptual model of evidence-based practice implementation in public service sectors, *Administration and Policy in Mental Health and Mental Health Services Research*, 38(1), 4–23. <https://doi.org/10.1007/s10488-010-0327-7>
- Ahad, N.A. *et al.* (2011) Sensitivity of normality tests to non-normal data, *Sains Malaysiana*, 40(6). 637–641. Available at: https://www.researchgate.net/profile/Teh-Sin-Yin/publication/286998187_Sensitivity_of_Normality_Tests_to_Non-normal_Data/links/5f75a7b7458515b7cf5c726b/Sensitivity-of-Normality-Tests-to-Non-normal-Data.pdf.
- Al-khalaf, A.M. and Ph, D. (1997) Barriers to successful tqm implementation, (33), 1–17.
- Al-Maamari, Q.A. and Raju, V. (2020) Does Organizational Commitment affect Individual Readiness for Total Quality Management (TQM) Implementation? *Test Engineering & Management*, 7(May 2016), 47–62.
- Al-qahtani, N.D., Sa, S. and Aziz, A.A. (2020) The Impact Of Total Quality Management On Organizational Performance In Smes, 119–127. Available at: <https://doi.org/10.24818/imc/2020/03.19>.

- Alghamdi, F. (2018) Total Quality Management and Organizational Performance: A Possible Role of Organizational Culture, *International Journal of Business Administration*, 9(4), 186. <https://doi.org/10.5430/ijba.v9n4p186>
- Amoozegar, A. *et al.* (2019) The Effects of Total Quality Management Practices on Corporate Social Responsibility using Supply Chain Model : A ... The Effects of Total Quality Management Practices on Corporate Social Responsibility using Supply Chain Model : A Review of Malaysian Hot. Available at: <https://d1wqtxts1xzle7.cloudfront.net/76240715/2922-with-cover-page-v2.pdf?Expires=1666057504&Signature=NfeVmJ-BAuQInP8o7e5YsR1w5-f35a0qZn2QW4Q2fKaDAVXEcmul5qNhcuHiE515UcpbKEtBOAwd6fkvM7JfnyqpNX8d84Qe0BqglNlr8XmM0wV2QmFFIIVhAEVVXN~B3~IaTF41Lqpp1Em5mZALWhV>.
- Andrade, C. (2020) ‘Understanding the Difference Between Standard Deviation and Standard Error of the Mean, and Knowing When to Use Which’, *Indian Journal of Psychological Medicine*, 42(4). 409–410. Available at: <https://doi.org/10.1177/0253717620933419>
- Antunes, M.G. *et al.* (2021) ‘Effects of Total Quality Management (TQM) Dimensions on Innovation — Evidence from SMEs’.
- Ayash, A.M., El-Mousawi, P.H. and Younis, D.J. (2020) Impact of Implementing Total Quality Management (TQM) System on Improving Performance at the Cooperative of State Employees (CSE) in Lebanon, *Research in Economics and Management*, 5(3), 114. Available at: <https://doi.org/10.22158/rem.v5n3p114>
- Barbosa, F.M., Gambi, L. do N. and Gerolamo, M.C. (2017) Liderança e gestão da qualidade – um estudo correlacional entre estilos de liderança e princípios da gestão da qualidade TT - Leadership and quality management – a correlational study between leadership models and quality management principles, *Gestão & Produção*, 24(3), 438–449. Available at: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0104-530X2017000300438&lang=pt%0Ahttp://www.scielo.br/pdf/gp/v24n3/en_0104-530X-gp-0104-530X2278-16.pdf%0Ahttp://www.scielo.br/pdf/gp/v24n3/0104-530X-gp-0104-530X2278-16.pdf.
- Bee Wah, Y. and Mohd Razali, N. (2011) Power comparisons of Shapiro-Wilk, Kolmogorov-Smirnov, Lilliefors and Anderson-Darling tests, *Journal of Statistical Modeling and Analytics*, 2(November), 21–33. Available at: https://www.researchgate.net/publication/267205556_Power_Comparisons_of_Shapiro-Wilk_Kolmogorov-Smirnov_Lilliefors_and_Anderson-Darling_Tests.
- Bemelmans, J., Voordijk, H. and Vos, B. (2012) Supplier–contractor collaboration in the construction industry: A taxonomic approach to the literature of the 2000–2009 decade, *Engineering, Construction and Architectural Management*, 19(4), 342–368. Available at: <https://doi.org/10.1108/09699981211237085>
- Berenson, M.L., Levine, D.M. and Krehbiel, T.C. (2010) *Basic Business Statistics: Concepts and Applications*.

- Besterfield, D.H. *et al.* (2012) *Total Quality Management Revised Third Edition For Anna University*.
- Bono, R. *et al.* (2017) Non-normal distributions commonly used in health, education, and social sciences: A systematic review, *Frontiers in Psychology*, 8(SEP),n 1–6. Available at: <https://doi.org/10.3389/fpsyg.2017.01602>
- Bravi, L., Murmura, F. and Santos, G. (2019) The ISO 9001:2015 quality management system standard: Companies drivers, benefits and barriers to its implementation, *Quality Innovation Prosperity*, 23(2), 64–82. Available at: <https://doi.org/10.12776/qip.v23i2.1277>
- Briner, R.B., Denyer, D. and Rousseau, D.M. (2009) Evidence-based management: Concept cleanup time?, *Academy of Management Perspectives*, 23(4), 19–32. Available at: <https://doi.org/10.5465/AMP.2009.45590138>
- British Standard (1992) 'BS 7850-1:1992 Total quality management. Guide to management principles http://www.bspublications.net/downloads/056fe345b71b94_Ch-1_Total%20Quality%20Management_Kiran.
- Castillo, E.T., and Castillo, M.D. (2017) Cooperatives in the Socio-Economic Development of the Philippines. 10 Available at: https://cda.gov.ph/wp-content/uploads/2021/01/2017-07-21-Paper_Adm_Eloy.
- Cetindere, A., Duran, C. and Yetisen, M.S. (2015) The effects of total quality management on the business performance: An application in the province of Kütahya, *Procedia Economics and Finance*, 23(October 2014). 1376–1382. Available at: [https://doi.org/10.1016/S2212-5671\(15\)00366-4](https://doi.org/10.1016/S2212-5671(15)00366-4)
- Derrick, B., White, P. and Toher, D. (2019) Parametric and non-parametric tests for the comparison of two samples which both include paired and unpaired observations, *Journal of Modern Applied Statistical Methods*, 18(1). 1–23. Available at: <https://doi.org/10.22237/jmasm/1556669520>
- Deszczyński, B. (2018) The integrated relationship management framework, *17(1)*, 17–32. Available at: <https://doi.org/10.12775/EiP.2018.002>.
- Firman, A., Mustapa, Z. and Ilyas, G.B. (2020) Relationship of TQM on Managerial Performance : Evidence From Property Sector in Indonesia, *1*. 47–57. Available at: <https://koreascience.kr/article/JAKO202014862061088.pdf>.
- Galbreath, J. and Rogers, T. (1999) Customer relationship leadership: A leadership and motivation model for the twenty-first century business, *TQM Magazine*, 11(3). 161–171. Available at: <https://doi.org/10.1108/09544789910262734>
- Ghani Al-Saffar, N.A. and Obeidat, A.M. (2020) The effect of total quality management practices on employee performance: The moderating role of knowledge sharing', *Management Science Letters*, 10(1). 77–90. Available at: <https://doi.org/10.5267/j.msl.2019.8.014>
- Hafeez, M.H. *et al.* (2018) Exploring the Links between TQM Practices , *Business*

Innovativeness and Firm Performance : An Emerging Market Perspective Abstract , 38(2). 485–500.

Hailu, H., Mengstu, S. and Hailu, T. (2018) An integrated continuous improvement model of TPM, TPS and TQM for boosting profitability of manufacturing industries: An innovative model & guideline, *Management Science Letters*, 8(1), 33–50. Available at: <https://doi.org/10.5267/j.msl.2017.11.002>

Hamid, M. (2018) *The Impact of Communication in Costructuring and Organizing the Teambuilding Process Based on TQM Principles*. Available at: <https://aboutthree.com/blog/five-important-factors-in-total-quality-management/>.

Hasanpoor, E. *et al.* (2018) Barriers, Facilitators, Process and Sources of Evidence for Evidence-Based Management among Health Care Managers: A Qualitative Systematic Review, *Ethiopian journal of health sciences*, 28(5). 665–680. Available at: <https://doi.org/10.4314/ejhs.v28i5.18>

Hatem, G. *et al.* (2022) Normality Testing Methods and the Importance of Skewness and Kurtosis in Statistical Analysis, *BAU Journal - Science and Technology*, 3(2). Available at: <https://doi.org/10.54729/KTPE9512>

Hulpke, J.F. and Fronmueller, M.P. (2022) What's not to like about evidence-based management: a hyper-rational fad?, *International Journal of Organizational Analysis*, 30(7). 95–123. Available at: <https://doi.org/10.1108/IJOA-06-2020-2278>

Jong, C., Sim, A. and Lew, T.Y. (2019) Cogent Business & Management The relationship between TQM and project performance: Empirical evidence from Malaysian construction industry The relationship between TQM and project performance: Empirical evidence from Malaysian construction industry, *Cogent Business & Management*, 6(1). Available at: <https://doi.org/10.1080/23311975.2019.1568655>

Kim, H.-Y. (2013) Statistical notes for clinical researchers: assessing normal distribution (2) using skewness and kurtosis, *Restorative Dentistry & Endodontics*, 38(1). 52. Available at: <https://doi.org/10.5395/rde.2013.38.1.52>

Kowalik, K. and Klimecka-tatar, D. (2018) The process approach to service quality management, 18(2017). 31–34. Available at: <https://doi.org/10.30657/pea.2018.18.05>

Kumar, P. and Mokha, A.K. (2021) Relationship between E-CRM, Customer Experience, Customer Satisfaction and Customer Loyalty in Banking Industry: A Review of Literature, *Research Review International Journal of Multidisciplinary*, 6(2). 127–137. Available at: <https://doi.org/10.31305/rrijm.2021.v06.i02.022>

Kumar, V. and Sharma, R.R.K. (2016) Exploring critical success factors for tqm implementation using interpretive structural modelling approach: Extract from case studies, *Proceedings of the International Conference on Industrial Engineering and Operations Management*, 8-10 March(October 2016), 3077–3078. Available at: <https://doi.org/10.1504/ijpqm.2017.10004637>.

Levine, D.I., Toffel, M.W. and Levine, D.I. (2010) Quality Management and Job Quality :

How the ISO 9001 Standard for Quality Management Systems Affects Employees and Employers Quality Management and Job Quality : How the ISO 9001 Standard for Quality Management Systems Affects Employees and Employers, (October 2022). Available at: <https://doi.org/10.2139/ssrn.1237730>

Levy, F. (2004) *Keeping Patients Safe: Transforming the Work Environment of Nurses, Critical Care Medicine*. Available at: <https://doi.org/10.1097/01.CCM.0000142897.22352.05>

Lotich, P. (2022) Quality Defined : Steps to Implementing a Total Quality Management System. Available at: <https://thethrivingsmallbusiness.com/implementing-a-quality-management-system/>.

M. Kamrul Islam Shaon, S. and Hasebur Rahman, M. (2015) A Theoretical Review of CRM Effects on Customer Satisfaction and Loyalty, *Central European Business Review*, 4(1). 23–36. Available at: <https://doi.org/10.18267/j.cebr.108>

Magd, H., Ansari, M. and Negi, S. (2021) The Relationship between TQM, Knowledge Management, and Innovation: A Framework to Achieve Organizational Excellence in Service Industry. *Global Business & Management Research*, 13(3), 283–296. Available at: [https://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=153380812&site=eds-live%0Afiles/1073/Magd et al. - 2021 - The Relationship between TQM, Knowledge Management.pdf](https://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=153380812&site=eds-live%0Afiles/1073/Magd%20et%20al.%20-%202021%20-%20The%20Relationship%20between%20TQM,%20Knowledge%20Management.pdf).

Masudin, I. and Kamara, M.S. (2018) Impact Of Just-In-Time , *Total Quality Management And Supply Chain Management On Organizational Performance : A Review Perspective*, 19(1), 11–20. Available at : <https://doi.org/10.22219/JTIUMM.Vol19.No1.11-20>

Mawuko, D.W. (2017) The Effect of Total Quality Management Practices on Customer Satisfaction in the Upper West Regional Hospital. Available at: [http://41.66.217.101/bitstream/123456789/3184/1/The Effect Of Total Quality Management Practices On Customer Satisfaction In The Upper West Regional Hospital..pdf](http://41.66.217.101/bitstream/123456789/3184/1/The%20Effect%20Of%20Total%20Quality%20Management%20Practices%20On%20Customer%20Satisfaction%20In%20The%20Upper%20West%20Regional%20Hospital..pdf).

Meek, G.E. (2003) G . Meek , C . Ozgur , A . Toker and L . K . Teong *Levels of Awareness and Usage of Quality Tools / Concepts in Developing Nations : Malaysia and Turkey Bogazici Awareness And Usage Of Quality Tools / Concepts In Emerging Economies : Malaysia And Turk*, 17(2). Available at: <https://www.tandfonline.com/doi/pdf/10.1080/23311975.2019.1568655?needAccess=true>.

Menza, G.K. and Rugami, J.M. (2021) Total Quality Management Practices and Performance of Deposit Taking Savings and Credit Cooperatives in Mombasa County, Kenya, *International Journal of Business Management, Entrepreneurship and Innovation*, 3(1), 65–77. Available at: <https://doi.org/10.35942/jbmed.v3i1.165>

Milosan, I. (2014) Studies about the key elements of total quality management, *European Scientific Journal*, 3(2), 58–62.

- Mishra, P., Pandey, C.M., *et al.* (2019) Descriptive statistics and normality tests for statistical data, *Annals of Cardiac Anaesthesia*, 22(1), 67–72. Available at: https://doi.org/10.4103/aca.ACA_157_18
- Mishra, P., Pandey, C., *et al.* (2019) Selection of appropriate statistical methods for data analysis, *Annals of Cardiac Anaesthesia*, 22(3), 297–301. Available at: https://doi.org/10.4103/aca.ACA_248_18
- Mo, Y. and Borbon, N.M.D. (2022) Interrelationship of Total Quality Management (TQM), job satisfaction and organizational commitment among hotel employees in Zhejiang and Hainan provinces in China towards a sustainable development framework, *International Journal of Research Studies in Management*, 10(3). Available at: <https://doi.org/10.5861/ijrsm.2022.31>
- Mukasa, E.S. *et al.* (2021) ‘The Effects of Parametric, Non-Parametric Tests and Processes in Inferential Statistics for Business Decision Making &—A Case of 7 Selected Small Business Enterprises in Uganda’, *Open Journal of Business and Management*, 9(03), 1510–1526. Available at: <https://doi.org/10.4236/ojbm.2021.93081>
- Mustapha, I. *et al.* (2018) Knowledge quality effect on process based management effectiveness, *International Journal of Engineering and Technology(UAE)*, 7(2), 43–50. Available at: <https://doi.org/10.14419/ijet.v7i2.29.13643>
- Nachar, N. (2008) The Mann-Whitney U: A Test for Assessing Whether Two Independent Samples Come from the Same Distribution, *Tutorials in Quantitative Methods for Psychology*, 4(1), 13–20. Available at: <https://doi.org/10.20982/tqmp.04.1.p013>
- Nuseir, M.T. and Madanat, H. (2015) 4Ps: A Strategy to Secure Customers Loyalty via Customer Satisfaction, *International Journal of Marketing Studies*, 7(4). Available at: <https://doi.org/10.5539/ijms.v7n4p78>
- Oluwatoyin, A. and Oluseun, A. (2014) Total Quality Management: A Test of the Effect of TQM on Performance and Stakeholder Satisfaction, *Journal of Clinical Nursing*, 5(1), 2007–2012.
- Omer, M.S., Rafat, M. and Maseeh, S. (2018) Total Quality Management in Libraries: an Overv, *Journal of Library and Information Communication Technology*, 7(2), 40. Available at: <https://doi.org/10.5958/2456-9399.2018.00015.9>
- Orcan, F. (2020) Parametric or Non-parametric: Skewness to Test Normality for Mean Comparison, *International Journal of Assessment Tools in Education*, 7(2), 236–246. Available at: <https://doi.org/10.21449/ijate.656077>
- Pambreni, Y. *et al.* (2019) The influence of total quality management toward organization performance, *Management Science Letters*, 9(9), 1397–1406. Available at: <https://doi.org/10.5267/j.msl.2019.5.011>
- Pangaribuan, D. (2000) Total Quality Management And Corporate Governance By : David Pangaribuan , david_stieku@yahoo.com Lecturer at Bhayangkara Jakarta Raya University Abstract, 1–15.

- Robere, P. (2015) International Standard ISO Requirements, 2015.
- Rochon, J., Gondan, M. and Kieser, M. (2012) To test or not to test: Preliminary assessment of normality when comparing two independent samples, *BMC Medical Research Methodology*, 12. Available at: <https://doi.org/10.1186/1471-2288-12-81>
- Sader, S., Husti, I. and Daróczy, M. (2019) Industry 4.0 as a Key Enabler toward Successful Implementation of Total Quality Management Practices, 27(2), 131–140.
- Shahin, A. and Dabestani, R. (2011) A feasibility study of the implementation of total quality management based on soft factor, *Journal of Industrial Engineering and Management*, 4(2), 258–280. Available at: <https://doi.org/10.3926/jiem.2011.v4n2.p258-280>
- Shoshan, A.A.A. and Celik, G.T. (2018) Application Of Tqm In The Construction Industry Of Developing, 177–191. Available at: <https://doi.org/10.18038/aubtda.345779>
- Sreenath, S. (2022) An Empirical Study On Tqm Driven Performance With Reference To Telecom Industry At Bengaluru, 19(3), 223–234.
- Sungkawati, E. (2020) Implementation of Total Quality Management (TQM) in Gender-Based Cooperatives, 477(Iccd), 230–234.
- Suwandej, N. (2015) Factors Influencing Total Quality Management, *Procedia - Social and Behavioral Sciences*, 197(February), 2215–2222. Available at: <https://doi.org/10.1016/j.sbspro.2015.07.361>
- Sweis, R. et al. (2019) Reviewing the Literature on Total Quality Management and Organizational Performance, *Journal of Business & Management (COES&RJ-JBM)*, 7(3), 192–215. Available at: <https://doi.org/10.25255/jbm.2019.7.3.192.215>
- Tesfaye, G. and Kitaw, D. (2017) A TQM and JIT Integrated Continuous Improvement Model for Organizational Success: An Innovative Framework, *Journal of Optimization in Industrial Engineering*, 22(May), 15–23. Available at: <https://doi.org/10.22094/joie.2017.265>.
- Topalović, S. (2015) The Implementation of Total Quality Management in Order to Improve Production Performance and Enhancing the Level of Customer Satisfaction, *Procedia Technology*, 19, 1016–1022. Available at: <https://doi.org/10.1016/j.protcy.2015.02.145>
- Vrtodušić Hrgović, A.-M., Črnjar, K. and Škarica, I. (2020) Employee engagement and improvement as important principles of TQM in public health institutes, *Zbornik Veleučilišta u Rijeci*, 8(1). 189–201. Available at: <https://doi.org/10.31784/zvr.8.1.18>
- Walshe, N.D. and Briner, R.B. (2013) Evidence-based Management and Leadership, *The Wiley-Blackwell handbook of the psychology of leadership, change, and organizational development* [Preprint]. Available at: <https://repository.usfca.edu/cgi/viewcontent.cgi?article=1018&context=olc>.
- Wang, Z. and Meckl, R. (2020) Critical success factors of total quality management in

autonomous driving business models, *Cogent Engineering*, 7(1). Available at: <https://doi.org/10.1080/23311916.2020.1767018>

Yin, T.S. *et al.* (2016) Application of mean and standard deviation in questionnaire surveys: Construct validation, *Jurnal Teknologi*, 78(6–4), 99–105. Available at: <https://doi.org/10.11113/jt.v78.8983>

Zanqar, S.M. *et al.* (2019) *European Journal of Human Resource Management Studies, The Relationship Between Total Quality Management and Service Quality in Higher Education of UAE*, 3(1), 95–105. Available at: <https://doi.org/10.5281/zenodo.3351492>.

Zulganef, Z., & Nilasari, I. (2022). Building Service Experience to Attain Customer Repurchase Intention: A Moderated-Mediation Model in the Context of Student Consumer in Indonesia. DeReMa (Development Research of Management). *Jurnal Manajemen*, 17(2), 147. Available at : <https://doi.org/10.19166/derema.v17i2.5867>