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Organizational Culture and Quality Improvement: Differences Across Continents

Previous research shows that organizational factors influence quality improvement programs, and when there is a fit, it is leading to better business performances. Accordingly, the purpose of this paper is an analysis of interdependence between organizational culture and quality improvement via testing the differences between dimensions and types of organizational cultures and applied procedures for quality improvement techniques on companies from 32 countries worldwide. Following detailed exploration of the available literature, data collection is conducted on 200 production enterprises in multinational supply chain. Upon this, further statistical examination is conducted by comparison of the companies in dependence of its locations - continents. Results show that there are significant differences on dimensions of organizational culture and applied quality improvement procedures depending of geographical location of companies. Accordingly, results of this paper prove that contextual approach promoted in ISO 9001:2015 has to be applied and organizations that operate in different countries and continents must decide how much to localize their organizational culture and related management practices to fit within the host country context.

Keywords: *Organizational culture, Quality improvement, Differences, Multinational company, Countries an continents.*

1. INTRODUCTION

In scientific and professional literature there exist few studies which consider subject of interaction of the organizational culture and quality improvement. In the recent years this topic gains more interest following the search for reasons of pitfalls of the large number of quality improvement initiatives. Using simple analysis and following tracks where initiatives come across insurmountable obstacles, leads to definition of organizational cultures and their influence on conducting and reasoning of workers on the places where quality improvement have essential role. Although this field is still is insufficiently researched, influence of organizational culture on selection of the adequate programs for quality improvement is notably significant and there exists important interdependence.

Resulting behavior of the employees is guided by organizational culture and it is a main prerequisite for continuous and systematic quality improvement that include all employees in the company [3,4,7,16,27]. Hence, organizational culture has strong influence on the essential dimension representing basis of every initiative for quality improvement, and therefore must be supported and guided from top executives and CEO's in the company [6,9,10,23,24] with a goal of advancement of the companies' business performances [25]. Accordingly, organizational culture should be compatible with quality improvement programs in the way that supports them [18,22,26]. This leads to the need for additional detailed exploration of the interdependence between dimensions defining organizational culture and quality improvement, since differences between nationalities and their culture and quality improvement additionally raise questions about contextual dependence on the choice of the adequate programs for quality improvement. Also, nowadays, competition has moved from the scale of single companies to the supply chain level and the supply chain members act as "partners" that have to satisfy customers all over the world.

In that context this paper first presents review of existing research in this field, following by an analysis of dimensions of the organizational culture and quality improvement on the sample of 200 companies from 32 countries which are part of supply chain of the large international company. Analysis of two different concepts was conducted and they are compared depending of geographical location of the companies, i.e. of the continent where company is redistricted.

2. REVIEW OF THE EXISTING EMPIRICAL RESEARCHES IN THE FIELD OF ORGANIZATIONAL CULTURE AND QUALITY IMPROVEMENT

In Table 1 the most important empirical researches in the field of influence of the organizational culture on quality management are presented.

Based on analyzed literature review and realized empirical research, it can be concluded that organizational culture has significant, but not enough explored impact on quality improvement processes.

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Table 1. Review and analysis previous research on the influence of organizational culture on quality improvement programs (adapted from [1,2,3,4,5,8,11,12,13,14,15,17,18,19,20,21,28])

#	Research	Method	Organizational culture	Quality improvement	Conclusions
1	Rad (2006)	Survey: Likert scale from 1 to 5 Statistical analysis: χ^2 test, U* and Kruskall-Wallis tests	Strong organizational culture: 1. avoidance of uncertainties 2. long-term orientation (goals) 3. creativity 4. collectivism 5. flexibility 6. collaboration 7. detail oriented 8. anticipation 9. stability 10. innovation 11. learning 12. organic organizational structure 13. risk taking weak organizational culture 1. remote management (control) 2. discrimination 3. uncertainty 4. individualism 5. bureaucratic or mechanical organizational structure 6. short term goals	8 principles of TQM: 1. leadership and management 2. strategic planning 3. orientation toward customers 4. focus on employees 5. orientation toward subcontractors 6. focus on material recourses 7. management of processes 8. results of performances	In order to achieve significant quality improvement, dominant organizational culture must be compatible with values and basic principles of TQM. Managers responsible for TQM implementation can choose between two proposed alternatives: to harmonize TQM implementation process with existing organizational culture or to try to change culture without adjustment of implementation process.
2	Kujala and Lillrank (2004)	Statistical analysis: qualitative data analysis	Schein model of organizational culture	Organizational mission and communicative goals: 1. focus on results 2. orientation toward customers Approach toward management and organizational decision making process: 1. continual improvements 2. facts based management Role of management and employee involvement: 1. leadership 2. employee evaluation Planning, coordination and scheduling: 1. long term perspectives 2. projection of quality 3. system approach 4. development of partnerships 5. fast reactions	TQM can be analyzed as a cultural phenomenon with coherent group basic assumptions forming ideal quality culture. Quality culture can be regarded as the theoretical basis for TQM.
3	Boggs (2004)	Survey: Likert scale from 1 to 7 Statistical analysis: descriptive statistics and quantitative analysis	Quinn and Rohrabaugh typology of organizational culture	7 theoretical concepts that represent strongholds of TQM: 1. visionary leadership 2. internal and external cooperation 3. learning 4. process management 5. continuous improvement 6. satisfaction of employees 7. customer satisfaction	First, emphasis on team work, continual improvement and long-term vision is effective in application of TQM values. Secondly clan culture is stronger than hierarchy, adhocracy and market cultures. Also program of TQM is more based on hierarchy then on adhocracy culture.
4	Luria and Gil (2008)	Survey: Likert scale from 1 to 5	Schein model of organizational culture	Aspects of leadership in quality: 1. quality climate 2. transformative leadership	First, behavioral models of employees are not in coordination with formal principles

		Statistical analysis: quantitative analysis, factor analysis and ANOVA between the groups		3. unwanted behavior regarding the quality	defining desired behavior for achieving quality desired by upper management. Second, behavior of employees is much better in organizations or companies with highly developed quality surroundings and flexible and adaptive type of leadership used for the transformations and adoptions to current environment.
5	Pool (2000)	Statistical analysis: structural equation analysis	5 construct of organizational structure - not specified	6 constructs of TQM - not specified	Result show positive and significant correlation between principles of TQM and organizational culture
6	Cameron and Sine (1999)	Survey: Likert scale from 1 to 6 Statistical analysis: Cronbach α coefficient, χ^2 test, factor analysis and correlation	Schein model of organizational culture	1. lack of emphasis on quality 2. identification of mistakes 3. prevention of mistakes 4. creativity in quality	TQM is primarily cultural phenomenon rather than simple application of the set of quality tools and techniques. Authors claim that successful implementation of the TQM primarily is influenced by compatibility of organizational culture and existing quality climate in the company. Results of the research shows significant correlation between electivity of the quality improvement procedures and advanced level of culture of the quality. Other factors influencing on quality culture are considered such as: national cultures, types of organization and way how they operate etc.
7	Zu et al. (2010)	Survey: Likert scale Statistical analysis: structural equation analysis	Quinn and Rohrabaugh typology of organizational culture	1. support of top level management 2. customer relationships 3. relationship with subcontractors 4. employee management 5. information's relevant to quality 6. product design 7. process management 8. structure of roles in six sigma methodology 9. structural procedure of six sigma 10. focus of measurement phase in six sigma methodology	Main conclusion of this research is that is necessary to determine and recognize existing organizational culture before initializing any quality improvement initiative.
8	Jung et al. (2008)	Survey: Likert scale from 1 to 5	Expanded Hofstade typology of organizational structure (with long term orientation)	1. leadership 2. strategic planning 3. focus on costumers and	Organizational culture based on national culture have

		Statistical analysis: descriptive statistics and factor analysis		market 4. measurements, analysis and knowledge management 5. focus on human resources 6. process management 7. business results	exceptionally important role in process of quality management, with emphasis on power distance as a sub typology with the highest effect on an implementation of quality improvement initiatives.
9	Prajogo and McDermo nt (2005)	Statistical analysis: structural equation analysis and confirmatory factor analysis	Quinn's and Rohrabaugh's typology of organizational culture	1. leadership 2. strategic planning 3. focus on costumers 4. information's and analysis 5. management of employees 6. process management	This research point to most adequate questions or singularly optimal organizational culture, or combination of the organizational cultures that affect quality management process.
10	Man (2005)	Statistical analysis: Kruskall-Wallis and Spearman testing	Quinn's and Rohrabaugh's typology of organizational culture	1. top management commitment and leadership 2. process structure and organization for continual improvements 3. achievement of necessary business performances 4. relations with subcontractors 5. employee trainings 6. understanding, commitment and satisfaction of employees 7. communication 8. team work 9. objective measurements and feedback	Best organizational culture sub-typologies for successful TQM implementation are clan and hierarchy cultures.
11	Butler (2009)	Statistical analysis: Student t-test	1. culture of equality 2. commitment culture 3. culture for development 4. culture for empowerment	1. examination of organizational planning and goals 2. preparation of organization planning for training 3. training preparation 4. training implementation 5. training results	Employee factor is key element in establishing and developing of system of quality management in any enterprise.
12	Ionescu and Bratosin (2009)	Statistical analysis: Student t-test	Handy's typology of organizational culture interacted with 14 dimensions: 1. type of lower managers 2. type of "good" subordinates 3. modus decision of priorities 4. type of employees that company promote 5. the way on which company treats their employees 6. models of the control and the influences in company 7. applied models for tack distribution 8. types of employees motivation for task fulfillment 9. team work 10. competition between teams 11 the ways company confronts and manages conflicts 12. the way of decision making 13. models for internal communications in company 14. the ways on which company reacts on external influences	1. successfully completed tasks 2. stimulation of internal competiveness 3. creation of trust climate 4. optimization of communications 5. barrier elimination 6. collaboration 7. transparency 8. flexibility of rules that enables improvements 9. employee training 10. employee inclusion 11. keeping satisfaction of customers 12. organizational dedication 13. team work 14. role flexibility 15. management of customer satisfaction through continuous improvements	Research shows that dominant sub-typology is task culture for companies gravitating to quality improvement. Following important sub-typologies are culture of power and culture of roles, while at least impact has culture of support.
13	Corbett	Survey:	This research uses methodology	Quality indicators are based	Results of this research

	and Rastrick (2000)	Likert scale from 1 to 5 Statistical analysis: Spearman correlation rank test	based on dividing organizational culture by styles: 1. Passive or defensive style 2. Aggressive or offensive stile 3 Constructive style	on: 1. percentage of defect 2. quality costs 3. percentage of inspection inclusion 4. percentage of delivery 5. guarantee complaints 6. percentage defective materials and parts from subcontractors	indicate that the constructive style is the best management style for achieving good quality performances. Lack of leadership from top managerial structures, adequate training, selection of the employees, work habits and structure of supervising work tasks, initiatives for changes in organizational culture have small chances of success.
14	Mathew (2007)	Statistical analysis: Student t-test	Organizational culture is identified as: 1. empowerment 2. agreement 3. integrity and basic values 4. knowledge distribution and organizational learning 5. care for employees and trust in them 6. company mission 7. customer oriented company 8. high performances with goal in success	quality items included in this research are: 1. focus on quality 2. employee concern for quality 3. prompt reactions on customers complains 4. seriousness and respect of delivery times 5. quality system that enables achievement of customer requested level of quality	There exists strong correlation between organizational culture and achieved level of quality.
15	Noar et al. (2008)	Survey: Likert scale from 1 to 7 Statistical analysis: structural equation analysis	Quinn and Rohrabaugh typology of organizational culture	Infrastructural practice for quality management contains following elements: 1. top management support 2. management of employees 3. supplier inclusion 4. customer inclusion Elements of essential practices for quality management are: 1. information's about quality 2. process management 3. product design	Organizational culture has stronger influence on infrastructures of practice for quality improvement than on core quality improvement, regardless of other factor influences. Furthermore conclusions can be drawn that infrastructural practices of quality management have significant effect on the production performances of the company.
16	Detert et al. (2000)	Statistical analysis: Descriptive statistics	Eight dimensions of organizational culture are in use: 1. foundations for verity and rationalization in company 2. time and time horizons natures 3. motivation 4. stability v.s. changes/innovations/personal development 5. orientation toward work, tasks and mutual cooperation 6. isolation v.s. collaboration/cooperation 7. control, coordination and responsibility 8. internal and external orientations and focus	8 dimensions of the TQM are: 1. decision making based on facts and scientific methods 2. improvement of the requirements for long term orientation and strategic approach 3. quality problems caused by inadequate systems rather than employee structure 4. quality improvement is ongoing process 5. main purpose of existing of organization is achievement of results which are essential for interested groups 6. cooperation and collaboration are necessary for successful functioning of the organization 7. vision and goals must be clearly defined and represent	Dimensions of culture have influence on creation of ideal culture for successful TQM improvement initiatives.

				necessity for company success 8. organization must react on customer requirements resulting in adequate financial gains.	
17	Lagrosen (2003)	Survey: Likert scale from 1 to 5 Statistical analysis: Pearson correlation test	Hofstade's typology of organizational structure	<u>Values of TQM are:</u> 1. orientation toward customers 2. dedication toward leadership 3. overall full participation 4. focus on business process 5. continual improvements 6. focus on measurements	Conclusions of this research indicate that significant correlations exist, primary between avoiding uncertainties and individuality i.e. collectivism from one side and quality management from other. Cultures with high avoidance of uncertainties values are focused on business process and continual improvement can cause significantly harder implementation. In the countries with lower level of avoidance of uncertainties exists great tendency for the focus on several important buyers. Also, countries with individualistic organizational culture and high avoidance of uncertainties tend to treat all buyers equally.
18	Kull and Wacker (2010)	Statistical analysis: linear hierarchical modeling	Modified Hofstade's typology of organizational structure with following dimensions: 1. orientation toward future 2. institutional collectivism 3. employee oriented company 4. avoidance of uncertainties 5. self-assurance 6. hierarchy range from power 7. Group collectivism 8. Performance oriented companies	<u>Values of quality management are:</u> 1. decision making based on facts and science 2. improvement is long term and strategic concept 3. problems are systematic 4. improvement is the endless process which is achieved with existing resources 5. for interested groups results are achieving through internal changes, prevention and customer orientation 6. cooperation and collaboration are necessary 7. transparent vision is the requisite for success with employees included in decision making 8. monitoring customer requirements will be followed with financial results	This research have following conclusions: 1. High self-confidence is correlated with low effectiveness of quality management. 2. High level of the uncertainties avoidance is correlated with high effectiveness of quality management.
19	Kaluarach chi (2010)	Statistical analysis: qualitative data analysis	Hofstade's typology of organizational structure	<u>7 dimensions of TQM in use are:</u> 1. commitment of top management 2. commitment of the staff 3. interested group focuses 4. integration of the continual improvements 5. quality culture 6. measurement and feedback and quality improvement 7. learning organization	Culture of support has positive effects on TQM practice.

3. RESEARCH OF THE ORGANIZATIONAL CULTURE AND QUALITY IMPROVEMENT IN COMPANIES THAT BELONG TO A MULTINATIONAL COMPANY SUPPLY CHAIN

Empirical research presented in this paper includes all production enterprises and the most important company's suppliers and partners, dispersed on six continents (North America, South America, Europe, Asia, Australia and Africa).

Using survey method, an empirical research is conducted on the sample of 200 enterprises, where more than 10000 data about explored variables.

In order to collect needed data for this study, discrete, five-point Likert scale, with end points of "strongly disagree (=1)" and "strongly agree (=5)", with middle of the scale representing neutral answer to measure that construct, was used. The respondents needed to mark value of their levels of agreement or disagreement with statement regarding the application of organizational culture dimensions, quality improvement tool or methodology, as well as business performance indicators. According to general recommendations [16], 25% of question in this survey were recorded and placed in reversed order, for avoiding errors of respondents. To improve survey, five experts and specialists, including university professors and industry professionals were consulted at preliminary phase. Several items in the initial questionnaire were revised as a result of their comments and inputs. The survey was emailed to 500 companies that are parts or subcontractors of the examined large multinational company supply chain.

Responses were received from 200 companies and from 32 different countries widespread on 6 continents.

Descriptive statistic of the researched variables is shown in Table 2.

Correlation analysis of examined variables leads to the following conclusions:

1. Risk management is positively correlated with organizational goals i.e. tasks, formalization level, reward system, conflict management, knowledge and competitiveness. Also, risk management is negatively correlated with the control system. Looking at quality improvement factors, risk management is correlated with all of them except quality techniques and preventive measures. It is also correlated with quality performance and customer satisfaction.

2. Organizational structure is not correlated with conflict management, regarding organizational culture dimension. Also there is no correlation with any of the quality factors as well as with business performances.

3. The speed of organizational reactions is not correlated with any dimension of organizational culture, with any of quality factors as well as with any of business performances. It is interesting to observe that existing correlations are mostly negative.

4. Communication in organization is correlated with organizational goals/objectives, level of formalization, rewarding system and with progress and development. Regarding factors of quality improvement, risk management is correlated with all factors (variables) except quality techniques and preventive measures. Communication in organization is also correlated with marketing and financial performances, performances of employees, quality characteristics and customer satisfaction.

5. Organizational goals/objectives are correlated with level of formalization, reward system, knowledge and competitiveness and with progress and development. Organizational goals/objectives are also in negative correlation with control system. Regarding quality improvement dimension, organizational goals/objectives are in correlation with all factors from quality improvement pool and also with all business performances.

6. The level of formalization is correlated to the reward system, conflict management, with knowledge and competitiveness, as well as with progress and development. Negative correlation exists in case of control system. As for quality improvement dimensions level of formalization is in correlation with all factors of quality improvement as well as with all business performances.

7. Reward system is in correlation with conflict management, knowledge and competitiveness, as well as with progress and development. Negative correlations exist with control system. Reward system is also correlated with all factors for quality improvement and with business performances.

8. Control system, apart from the mentioned negative correlations with risk management, organizational goals/objectives and reward system is not correlated with any other dimension of organizational culture. Negative correlations exist between control system with basic and advanced quality tools, PDCA, TQM and LEAN methodologies, as well as with corrective actions for quality management variables. Regarding the business performance, there are no correlations between them and control system.

9. Conflict management apart mentioned correlation is not correlated with the rest of organizational dimension variables. Regarding quality improvement dimension, conflict management is correlated with almost all factors except basic quality tools, PDCA and preventive actions. It is also correlated with market/financial performances and employee, quality and customer satisfaction performances.

10. Knowledge and competitiveness apart above mentioned correlations is also correlated with progress and development in from the organizational culture variables. It is also correlated with all factors from quality improvement dimension, and all business performances factors except investing and development variable.

11. Progress and development dimensions are correlated only with mentioned variables for organizational dimensions. Regarding quality improvement dimension factors progress and development is correlated with all of them. Also it is in correlation with all business performances except investment/development variable.

12. Primary focus of organization is not correlated with any dimension of organizational culture, neither with any factor of quality improvement dimension or business performances.

13. All factors regarding quality improvement dimensions are mutually correlated.

Table 2. Descriptive statistics of the researched variables

Variable	N	Range	Min	Max	Mean	St.deviation	Variance
Organizational Culture dimensions							
Risk Management	200	3.20	1.40	4.60	3.394	0.579	0.355
Organizational Structure	200	2.40	2.40	4.80	3.413	0.423	0.233
The Speed of Organizational reaction	200	3.00	1.40	4.40	2.920	0.699	0.489
Communication in Organization	200	3.20	1.40	4.60	3.450	0.589	0.347
Organizational Goals/Objectives	200	3.00	1.80	4.80	3.634	0.583	0.340
The Level of Formalization	200	3.20	1.80	5.00	3.603	0.7433	0.553
Reward System	200	3.00	1.80	4.80	3.627	0.517	0.267
Control System	200	3.40	1.40	4.80	2.746	0.605	0.366
Conflict Management	200	2.40	2.00	4.40	3.255	0.489	0.239
Knowledge and Competitiveness	200	2.80	1.80	4.60	3.390	0.556	0.309
Progress and Development	200	4.00	1.00	5.00	3.460	0.879	0.772
Primary Focus of the Organization	200	3.40	1.20	4.60	3.025	0.630	0.398
Quality improvement Dimensions							
Basic Quality Tools	200	3.14	1.86	5.00	3.984	0.650	0.423
Advanced Quality Tools	200	2.28	1.57	4.43	3.308	0.567	0.322
Quality Techniques	200	2.31	1.78	4.08	2.918	0.742	0.223
PDCA	200	3.00	2.00	5.00	4.218	0.462	0.412
Kaizen	200	4.00	1.00	5.00	3.963	0.736	0.542
Six Sigma	200	4.00	1.00	5.00	3.563	0.884	0.781
TQM	200	3.33	1.67	5.00	3.893	0.714	0.510
Lean Manufacturing	200	4.00	1.00	5.00	3.487	0.772	0.596
Corrective Actions	200	3.67	1.33	5.00	3.555	0.840	0.705
Preventive Actions	200	4.00	1.00	5.00	3.578	1.051	1.104
Internal Audit	200	3.33	1.67	5.00	3.608	0.888	0.789
Training	200	3.67	1.33	5.00	3.480	0.844	0.713
Performance Dimensions							
Market and Financial Performance	200	3.00	1.80	4.80	3.41	0.571	0.326
Operations Performance	200	2.60	1.80	4.40	3.33	0.514	0.264
Employees Performance	200	2.80	2.00	4.80	3.42	0.563	0.316
Investment and Development Performance	200	2.60	2.00	4.60	3.26	0.498	0.248
Quality Performance	200	3.40	1.40	4.80	3.65	0.674	0.454
Customer Satisfaction	200	2.80	1.80	4.60	3.40	0.532	0.283

4. COMPARISON OF ORGANIZATIONAL CULTURE AND QUALITY IMPROVEMENT IN COMPANIES THAT BELONG TO A MULTINATIONAL COMPANY SUPPLY CHAIN (GEOGRAPHICALLY DISPERSED COMPANIES)

In order to compare organizational culture and quality improvement practice in the multinational corporation depending on geographical location of its organizational parts (depending of locations by continents) adequate system of hypothesis is introduced. Geographical location of organizations within multinational supply chain in 32 countries and 6 continents is shown at Figure 1.

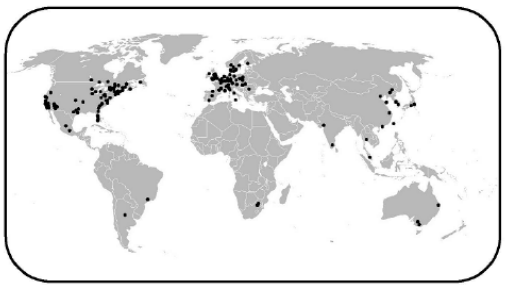

Figure 1. Geographical locations of organizations within the multinational corporation supply chain

The first system of hypothesis considers differences of the mean values of the organizational culture based on the belonging to certain continent.

Null Hypothesis:

$H_0 : \overline{x}_1 = \overline{x}_2 = \overline{x}_3 = \overline{x}_4 = \overline{x}_5 = \overline{x}_6$, i.e. there are no significant differences between mean values of organizational culture regarding continent where survey were conducted.

Alternative hypothesis:

$H_0 : \exists \overline{x}_i \neq \overline{x}_j, i, j = 1,..,6$, i.e. there exists at least one significant difference in mean value of the organizational structure regarding the continent where survey was conducted.

Descriptive statistic is shown at Table 3, while adequate ANOVA analysis is presented at Table 4.

Table 3. Descriptive statistics for the first hypothesis system

Continent	Number of companies	Sum	Average	Variance
North America	109	385.717	3.539	0.0156
Europe	64	205.283	3.208	0.0152
Asia	16	43.467	2.717	0.0061
South America	5	14.567	2.913	0.0005
Australia	4	10	2.5	0.0042
Africa	2	5.75	2.875	0.0001

Table 4. ANOVA table for analysis of influence of organizational culture based on Continental disposition

Source of variation	*SS*	*df*	*MS*	*F*	*p*
Between groups	15.756	5	3.151	222.592	0
Within groups	2.746	194	0.014		
Total	18.502	199			

F_0=2.2606

Legend: SS - sum of squares, df - degrees of freedom, MS mean square for levels, F - calculated value of F-test, F_0 - theoretical value of F-test, p-value

Since p value is 0, null hypothesis cannot be accepted, i.e. there are highly significant differences between average values of organizational culture between contents, for level of significance p<0.001.

The second system of hypothesis tests differences in averages of use of the tools, techniques, methodologies and applications for quality improvement depending on continent which is source of survey.

Null Hypothesis:

$H_0 : \bar{x}_1 = \bar{x}_2 = \bar{x}_3 = \bar{x}_4 = \bar{x}_5 = \bar{x}_6$, i.e. there are no significant differences between continents in application of tools, techniques, methodologies and applications for quality improvements.

Alternative hypothesis:

$H_0 : \exists \bar{x}_i \neq \bar{x}_j, i, j = 1,..,6$, i.e. there exist at least one significant difference between continents in application of tools, techniques, methodologies and applications for quality improvements.

Descriptive statistic is shown at Table 5., while adequate ANOVA analysis is presented at Table 6.

Table 5. Descriptive statistics for second hypothesis system

Continent	Number of comp.	Sum	Average	Variance
North America	109	445.918	4.091	0.0644
Europe	64	215.406	3.366	0.0840
Asia	16	36.498	2.281	0.0343
South America	5	13.135	2.267	0.0068
Australia	4	11.297	2.824	0.0002
Africa	2	3.389	1.844	0.0135

Table 6. ANOVA table for analysis of use of quality improvement depending on continent where company is registered

Source of variation	*SS*	*df*	*MS*	*F*	*p*
Between groups	70.747	5	14.149	214.329	0
Within groups	12.807	194	0.066		
Total	83.554	199			

F_0=2.2606

Legend: SS - sum of squares, df - degrees of freedom, MS mean square for levels, F - calculated value of F-test, F_0 - theoretical value of F-test, p-value

Since p value is 0, null hypothesis cannot be accepted, i.e. there are highly significant differences between quality tools, techniques, methodologies and application in quality improvement that are in use depending of continent of company, for level of significance p<0.001.

5. CONCLUSION

This paper analyses differences between dimensions of organizational culture and procedures for quality improvement on the sample of 200 companies from 32 countries dispersed worldwide, as a part of multinational corporation supply chain. After detailed review of existing literature, dimensions of organizational culture and quality improvement were analyzed on a large sample of data, to check the differences in organizational culture and quality management practice depending of continent where companies are registered.

Results of conducted empirical research indicate the fact that apart from significant correlation between characteristics of organizational culture and application of procedures for quality improvement, there exist significant differences in both culture and quality management practices depending on the continent where companies are registered. Using analysis of variance and following hypothesis testing there are shown statistically highly significant differences (p<0.001) between average values of organizational culture and quality improvement practices depending on the company location, i.e. continent.

Accordingly, this paper proves that contextual approach promoted in ISO 9001:2015 has to be applied and that organizations which operate in multiple countries must decide how much to localize their organizational culture and related management practices to fit within the host country context.

Future research will be aimed toward examining the existence of significant statistical differences from the observed sample between suppliers and manufacturers in the multinational supply chain, between countries etc. Also, this study is based on a cross-sectional survey conducted on the supply chain level in the aerospace and transportation sector, hence a longitudinal study is a possible future research avenue, too.

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NOMENCLATURE

SS	sum of squares
df	degrees of freedom
MS	mean square for levels
F	calculated value of F-test
F_0	theoretical value of F-test
p	value

ОРГАНИЗАЦИОНА КУЛТУРА И УНАПРЕЂЕЊЕ КВАЛИТЕТА: РАЗЛИКЕ ИЗМЕЂУ КОНТИНЕНАТА

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Претходна истраживанај показују да организациони фактори утичу на програме унапређења квалитета, на начин да су перфомансе предузећа боље када постоји усаглашеност између наведених фактора. Стога је циљ овог рада анализа међузависности организационе културе и програма унапређења квалитета кроз тестирање разлика између димензија организационе културе и техника и процедура унапређења квалитета у компанијама које послују у 32 земље света. Након детаљне анализе претходних истраживања, прикупљени су потребни подаци у 200 предузећа која су део ланца снабдевања мултинационалне компаније. Затим је спроведена статистичка анализа поређења предузећа зависно од

локације, односно припадности одређеном континенту. Резултати показују да постоје статистички значајне разлике димензија организационе културе и примењених поступака управљања квалитетом зависно од географске локације предузећа. Тако, резултати овог рада потврђују оправданост примене контекстуалног приступа промовисаног у стандарду ИСО 9001:2015 и указују на чињеницу да мултинационалне компаније треба да одреде степен локализације организационе културе и праксе менаџмента квалитетом ради усагалашавања са контекстом земље у којој послују.