

# **ORGANIZATIONAL CHANGE AND THE NEW ORGANIZATIONAL PRACTICES: A STUDY ON THE COMPANIES WITH ISO 9001 AND 9002 IN TEN SECTORS<sup>1</sup>**

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## **Key Words:**

Organizational change, new organizational practices, layering, use of authority, team working, management style, new practices in human resources, information technology, business processes, boundaries.

## **ABSTRACT**

During the last decade, the rapid economical changes in the business life had a great impact on the organizations. The factors like globalization, technological innovations, prevailing importance of human resources and competitive conditions have immensely influenced the organizations in Turkey like elsewhere all over the world. It is a must for all organizations to adapt to environmental changes to be competitive in today's volatile environment. Therefore the organizations should reconsider the new management concepts and techniques and apply them in their structural design and practices.

Some of the changes due to these organizational practices are “layering, downsizing, team working, management styles, outsourcing, empowerment and improvements in information technology”. Factors that persuade the Turkish companies to have ISO 9001 and 9002 certificates are; to gain competitive advantage, increase market share and eventually meet the requisites of Customs Union regulations between Turkey and the European Community. Organizations found themselves obliged to follow the change processes.

The objective of the study is to examine various dimensions of organizational change in companies with ISO 9001 and 9002 certificates over the past 5 years.

The study is conducted on the manufacturing companies, registered in the Turkish Standards Institution by 1996 and following years, with ISO 9001 and 9002 certificates. The variables and their dimensions in the above-mentioned companies are examined through the period of 1996-1999, and the relevant changes –if any– are measured. The data collected from companies through questionnaires are statistically analyzed and the outcomes are assessed in the light of the variables which lead to changes.

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<sup>1</sup> Researchers have made equal contributions.

## **1. PURPOSE OF THE RESEARCH**

The purpose of this research is to examine the “Organizational Change” during the period of 1995-1999, affected by the application of new management techniques in the manufacturing companies with ISO 9001-9002 certificates received from the Turkish Standards Institution (TSI) between 1996-1999 in 10 sectors.

This study is based on two main purposes. First, it aims to determine whether relationships exist between the variables; “organizational change, layering, organization structure, use of authority, team working, management style, new practices in human resources, information technology, business processes, and boundaries”. The second purpose is to find out how these variables affect the “organizational change” in the above mentioned manufacturing companies.

## **2. SCOPE, LIMITATIONS and METHODOLOGY of the RESEARCH**

The first ten sectors of which the manufacturing companies registered at the TSI since 1992 with ISO 9001-9002 certificates were determined. These sectors were chosen since they were the forerunners of all.

A list of companies with ISO 9001-9002 was provided from TSI. The first ten sectors, based on the TSI List were “Construction, Rubber-Plastics, Electronics, Transportation, Metallurgy, Glass, Tele-Communication, Textile, Packaging and Machinery”.

In order to examine the organizational change from the perspective of new management techniques application during the period of 1995-1999, the companies with ISO 9001-9002 certificates received between 1996 and 1999 were determined. Hence, the manufacturing companies, existing in the above mentioned sectors and with ISO 9001-9002 certificates received between 1996-1999 were determined. As a conclusion, 253 manufacturing companies were included in the research.

The questionnaires were mailed to the general managers of these 253 firms. In each firm, either the general manager or one of his/her assistant directors was asked to respond and to mail back. 10 of the questionnaires were received back due to addresses unknown. 2 of the companies didn't answer the survey since they were out of the above-mentioned sectors. 51 companies responded to the survey, generating a 21.1 % response rate.

## **3. VARIABLES, DIMENSIONS and the SCALE USED**

Variables in this study can be grouped into 10 categories. The dimensions of each variable were also defined<sup>1</sup>. “Likert-type of Scale, of 1 through 5” were prepared in the questionnaire. The responses were classified as “Extremely Disagree”, “Disagree”, “No Opinion”, “Agree”, “Extremely Agree”, 1 through 5.

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<sup>1</sup> Richard Whittington, et al. “New Forms of Organization in Europe: Complementarities and Performance” Organization Science, Special Issue on New Forms of Organising, (July, 1999); Huseyin Ozgen, Ferit Olcer, “İşletmelerde Orgutsel degisime Direnme ve Bu Sorunun Cozumlenmesi Uzerine Bir Arastirma”, IV. National Management and Organization Congress, (Ankara: Department of Management, Middle East University, 1997), 125-150.

The variable groups, their respective dimensions and number of questions in each group are as follows:

1. **Organizational Change (CHANGE):** is defined as the adoption of a new idea or behaviour by an organization<sup>1</sup>. The dimensions: Corporate culture, management philosophy, technological change, scope of activity, use of new management concepts and techniques, manager's sensitivity towards external environment. 17 questions were prepared within this group.
2. **Delaying (DELAYRNG):** The removal of managerial levels is known as delaying. Delaying also removes the positions for promotion where people obtain experience of making decisions, use of information and how to manage people and resources.<sup>2</sup> Delaying the organization means elimination of one or more horizontal slices of the organization<sup>3</sup>. The dimensions: Number of organizational levels, span of management, Zero-Hierarchy. 5 questions were prepared within this group.
3. **Organization Structure (STRUCTR):** is the framework in which the organization defines how tasks are divided, resources are deployed, and departments are coordinated<sup>4</sup>. The dimensions: Organization chart and organization handbook, lean organization, reorganization, and flexible structure. 5 questions were prepared within this group.
4. **Use of Authority (AUTHRTY):** Authority is the right to make decisions, carry out actions, and direct others in matters related to the duties and goals of a position<sup>5</sup>. It also can be defined as the formal and legitimate right of a manager to make decisions, orders, and allocate resources to achieve organizationally desired outcomes<sup>6</sup>. The dimensions: Delegation, empowerment, and participation in decision making. 7 questions were prepared within this group.
5. **Team Working (TEAM):** A team is either a temporary or an ongoing task group whose members are charged with working together to identify problems, form a consensus about what should be done, and implement necessary actions in relation to a particular task or organizational area<sup>7</sup>. By working collectively, teams of employees produce higher performance levels, respond more quickly, and work more flexibly to meet customer needs<sup>8</sup>. The dimensions: Project-based working, team working in different departments and organizational levels, making use of temporary and permanent teams. 10 questions were prepared within this group.
6. **Management Style (MANGSTYLE):** Types of philosophy and behavior exercised by the managers in managing the company. The dimensions: Coaching, enabling company towards the "learning organization", creating an environment in which the subordinates may freely exchange ideas and opinions. 7 questions were prepared within this group.

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<sup>1</sup> Richard L. Daft, Management, 5th. ed. (Orlando, FL: The Dryden Press, 2000), 364.

<sup>2</sup> Lawson K. Savery and J. Alan Luks, "Organizational Change: the Australian Experience", The Journal of Management Development, 19: 4 (2000); 309-317.

<sup>3</sup> Steven H. Appelbaum, Suzanne Lavigne-Schmidt, Mihail Peytchev, Barbara Shapiro, "Downsizing: Measuring the Costs of Failure", Journal of Management Development, 18: 5 (1999); 436-463.

<sup>4</sup> Richard L. Daft, Management, 5th. ed. (Orlando, FL: The Dryden Press, 2000), 307.

<sup>5</sup> Kathryn M. Bartol, David Martin, Management, 2nd ed. (London: McGraw-Hill, 1994), 298.

<sup>6</sup> Richard L. Daft, Organization Theory and Design, 4th. ed. (St. Paul, Minn.: West, 1992), 387.

<sup>7</sup> Bartol and Martin, 487.

<sup>8</sup> Louis Boone, David Kurtz, Contemporary Business, 8th ed. (Fort Worth: The Dryden Press, 1996), 172.

7. **New Practices in Human Resources (HR):** Human resources is responsible for attracting and retaining organization members and enhancing their effectiveness<sup>1</sup>. Human resource function recruits, selects, trains, transfers, promotes, and lay off employees to achieve strategic goals<sup>2</sup>. The dimensions: Using new techniques in recruiting, training, new practices in motivation and communication. 13 questions were prepared within this group.
8. **Information Technology (IT):** An organization's information technology consists of the hardware, software, telecommunications, database management, and other technologies it uses to store data and make them available in the form of information for organizational decision making<sup>3</sup>. The dimensions: Sharing information (technical information, financial information, marketing information, information about human, sharing information between departments and organizational levels) and technological system (system enables information flow) 9 questions were prepared within this group.
9. **Business Processes (BPROCESS):** A business process is a collection of activities that takes one or more kinds of input and creates an output that is of value to the customer<sup>4</sup>. The dimensions: Customer satisfaction process, design process, manufacturing process, process control, and continuous improvement. 11 questions were prepared within this group.
10. **Boundaries (BOUNDARY):** The new types of competition, and the new forms of organization designed to cope with it, are reshaping the scope of the firm as well. Firms appear to drawing in their boundaries around narrower spheres of activity whether by alliances, outsourcing or downscoping.<sup>5</sup> The dimensions: Outsourcing, networks, downscoping, alliances. 6 questions were prepared within this group.

#### 4. HYPOTHESES:

The hypotheses developed and tested in the study are as follows:

1. H<sub>1</sub>: Delaying accelerates the organizational change.
2. H<sub>1</sub>: Changes in organization structure accelerates the organizational change.
3. H<sub>1</sub>: Increasing employee's use of authority accelerates the organizational change.
4. H<sub>1</sub>: Deployment of the team working accelerates the organizational change.
5. H<sub>1</sub>: Changing management styles accelerates the organizational change.
6. H<sub>1</sub>: Enhancing new practices for human resources accelerates the organizational change.
7. H<sub>1</sub>: Utilizing information technologies accelerates the organizational change.
8. H<sub>1</sub>: Redesigning the business processes accelerates the organizational change.
9. H<sub>1</sub>: Changing boundaries of companies accelerates the organizational change.
10. H<sub>1</sub>: Coaching increases the use of authority.
11. H<sub>1</sub>: Coaching enhances team working.
12. H<sub>1</sub>: Utilizing information technologies facilitates business process redesign.

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<sup>1</sup> Bartol and Martin, 313.

<sup>2</sup> Daft, Management, 258.

<sup>3</sup> Daft, Management, 670.

<sup>4</sup> Michael Hammer, James Champy, Reengineering the Corporation, (New York: HarperCollins, 1993), 35.

<sup>5</sup> Whittington et al., 15.

## 5. STATISTICAL TECHNIQUES USED in the RESEARCH

Reliability is the requirement for a measure to be consistent and reproducible. For a method of measurement to pass the test of reliability, the measurements must be consistent.<sup>1</sup> Alpha Model<sup>2</sup> which is the most popular reliability analysis, was conducted in order to insure the reliability of the questionnaire and the alpha value that is the reliability coefficient was calculated. Cronbach's alpha that is the measured value of overall reliability of the survey is 0.9476. The questionnaire is considered to be a reliable one, since Cronbach's alpha is quite close to 1.

"SPSS 10.0 for Windows" was used to process the data gathered by the research. Arithmetic mean and standard deviation<sup>3</sup> of each variable were calculated. Table 1 provides some descriptive statistics for each variable. "Correlation analysis" that is the degree to which one variable is linearly related to another<sup>4</sup> was used. Moreover, a "regression analysis" that shows how to determine both nature and the strength of a relationship between two variables<sup>5</sup> was used to measure the effect of the independent variables on the dependent variable that is the organizational change.

As  $n > 30$ , "z-test"<sup>6</sup> was applied to determine the level of significance of the relations expressed by the calculated correlation coefficients. Furthermore, in order to insure the significance of the calculated regression coefficients, F-tests<sup>7</sup> conducted with Anova tables were also used.

Table-1. Descriptive Measures for the Variables

	<b>n</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std. Deviation</b>
<b>Organizational Change</b>	51	3.00	5.00	4.04	.53
<b>Delaying</b>	51	2.00	5.00	2.96	.69
<b>Organization Structure</b>	51	2.00	5.00	3.92	.80
<b>Use of Authority</b>	51	1.00	5.00	3.80	.83
<b>Team Working</b>	51	2.00	5.00	3.90	.78
<b>Management Style</b>	51	2.00	5.00	3.88	.82
<b>Human Resources</b>	51	1.00	5.00	3.35	.87
<b>Information Technology</b>	51	1.00	5.00	3.14	.98
<b>Business Processes</b>	51	2.00	5.00	3.94	.54
<b>Boundaries</b>	51	2.00	5.00	3.35	.80
<b>Valid N (listwise)</b>	51				

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<sup>1</sup> William J. Ray, *Methods: Toward a Science of Behavior and Experience*, 4th. ed. (California: Brooks-Cole Publishing, 1993), 66.

<sup>2</sup> Umit Firat, *Marmara Universitesi Sosyal Bilimler Ogrencilerinin Fakulte ve Bolumler Bazinda Farkliliklerinin Cok Degiskenli Istatistik Teknikler ile Analizi*, (Istanbul: Marmara University, 1996), 33.

<sup>3</sup> William L. Carlson, Betty Thorne, *Applied Statistical Methods*, (New Jersey: Prentice Hall, 1997), 39 and 49.

<sup>4</sup> Richard I. Levin, David S. Rubin, *Statistics for Management*, 7th ed. (New Jersey: Prentice Hall, 1998), 677.

<sup>5</sup> Levin, Rubin, 648.

<sup>6</sup> Neyran Orhunbilge, *Uygulamalı Regresyon ve Korelasyon Analizi*, (Istanbul: Avcıol Basım Yayın, 1996), 29.

<sup>7</sup> John Neter, William Wasserman and Michael H. Kunter, *Applied Linear Statistical Models*, (New York: Irwin Inc., 1990), 271-287.

## **6. AVERAGE VALUES FOR THE VARIABLES**

### **6.1. ORGANIZATIONAL CHANGE**

As seen on Table 1, the average value for the organizational change variable is 4.04. This figure is quite over 3, which is the median value of the Likert-type of scale of 1 through 5. Therefore, this outcome figures out that the manufacturing companies incorporated the research show organizational change in terms of corporate culture, management philosophy, technological change, changes in scope of activity, use of new management concepts and techniques, manager's sensitivity towards external environment at a specific level.

### **6.2. DELAYERING**

The average value regarding this variable is 2.96 (Table 1). This figure is slightly smaller than 3, which is the median value of the Likert-type of scale of 1 through 5. This implies that the incorporated companies almost never implemented delayering practices in terms of number of organizational levels, span of management, adopting zero-hierarchy at a specific level.

### **6.3 ORGANIZATION STRUCTURE**

Table 1 shows that the average value for this variable is 3.92 which remains just over the median value of 3. This figures out that the firms have been practising reorganization, lean organization, flexible structure applications, and using organization chart and organization handbook at a moderate level.

### **6.4. USE of AUTHORITY**

The calculated average value for this variable is 3.80 as seen on Table 1. This figure, which remains just over the median value of 3, implies that level of using delegation, empowerment, and employees' participation in decision making at the incorporated firms is moderate.

### **6.5. TEAM WORKING**

The average value regarding this variable is 3.90 (Table 1). This figure is just over 3, which is the median value of the Likert-type of scale of 1 through 5. Therefore, project-based working, team working in different departments and organizational levels, making use of temporary and permanent teams are at a certain level.

### **6.6. MANAGEMENT STYLE**

Table 1 shows that the average value for this variable is 3.88 which remains just over the median value of 3. Hence, coaching, enabling company towards the "learning organization", creating an environment in which the subordinates may freely exchange ideas and opinions are at a moderate level.

## 6.7. NEW PRACTICES in HUMAN RESOURCES

As seen on Table 1, the average value for this variable is 3.35 which remains close to 3, implies that applications of new techniques in recruiting, training, new practices in motivation and communication at the incorporated firms are at a moderate level.

## 6.8. INFORMATION TECHNOLOGIES

The average value regarding this variable is 3.14 (Table 1). This value is just over the median value of 3. This figures out that the level of sharing information, which consists of technical information, financial information, marketing information, information about human and sharing information between departments and organizational levels is moderate.

## 6.9. BUSINESS PROCESSES

As seen on Table 1, the average value for this variable is 3.94. This figure is just over the median value of 3. This implies that customer satisfaction processes, design processes, manufacturing processes, process control, and continuous improvement at the incorporated firms are at a moderate level.

## 6.10. BOUNDARIES

The average value regarding this variable is 3.35 (Table 1). This figure remains close to the median value of 3. This implies that the level of outsourcing, networking, downscoping, and alliances at the incorporated firms is moderate.

## 7. RELATIONS BETWEEN VARIABLES

Following is the correlation analysis findings to examine the relationships among organizational change, delayering, organization structure, use of authority, team working, management style, new practices in human resources, information technology, business processes, and boundaries variables (Table 2):

- No significant relationship between delayering and organizational change was found in the incorporated firms ( $r=.004$ ,  $p=.49$ ). Thus, the **first** hypothesis was **rejected**.
- A significant relationship between organization structure and organizational change was found ( $r=.25$ ,  $p=.04$ , significant at the .05 level). This relationship is positive, but weak. Therefore, the **second** hypothesis was accepted.
- A significant relationship between employee's use of authority and organizational change was found ( $r=.39$ ,  $p=.003$ , significant at the .01 level). This relationship is positive, but weak. Therefore, the **third** hypothesis was **accepted**.
- A significant relationship between team working and organizational change was found ( $r=.40$ ,  $p=.002$ , significant at the .01 level). This relationship is positive, but weak. Therefore, the **fourth** hypothesis was **accepted**.

- Positive and significant relationship between management style and organizational change was found at a moderate level ( $r=.43$ ,  $p=.001$ , significant the .01 level) As a result, the **fifth** hypothesis was **accepted**.
- A significant relationship between new practices in human resources and organizational change was found ( $r=.32$ ,  $p=.011$ , significant at the .05 level). This relationship is positive, but weak. Thus, the **sixth** hypothesis was **accepted**.
- A significant relationship between utilizing information technologies and organizational change was found ( $r=.30$ ,  $p=.017$ , significant at the .05 level). This relationship is positive, but weak. As a result, the **seventh** hypothesis was **accepted**.
- A significant relationship between business processes and organizational change was found ( $r=.32$ ,  $p=.011$ , significant at the .05 level). This relationship is positive, but weak. Thus, the **eighth** hypothesis was **accepted**.
- No significant relationship between boundaries and organizational change was found at the incorporated firms ( $r=.16$ ,  $p=.14$ ). As a result, the **ninth** hypothesis was **rejected**.
- Positive and significant relationship between management style and use of authority was found at a low level ( $r=.53$ ,  $p=.00$ , significant at the .01 level). The **tenth** hypothesis was, therefore, **accepted**. In other words, coaching enhances employees' use of authority moderately.
- Positive and significant relationship between management style and team working was found at a low level ( $r=.48$ ,  $p=.00$ , significant at the .01 level). Thus, the **eleventh** hypothesis was **accepted**. In other words, coaching enhances team working moderately.
- No significant relationship between information technologies and business processes was found ( $r=.05$ ,  $p=.35$ ). As a result, the **twelfth** hypothesis was **rejected**.

Table-2. Correlation Analysis (n=51)

	Organiza- tional Change	Delay- ing	Organization Structure	Use of Authority	Team Working	Manage- ment Style	New Practices in Human Resources	Information Technology	Bounda- ries
Delayering	.004 $p=.49$								
Organization Structure	.25* $p=.04$	.285* $p=.021$							
Use of Authority	.39** $p=.003$	.161 $p=.129$	.372** $p=.004$						
Team Working	.40** $p=.002$	.141 $p=.162$	.470** $p=.000$	.652** $p=.000$					
Management Style	.43** $p=.001$	.133 $p=.175$	.170 $p=.116$	.529** $p=.000$	.484** $p=.000$				
New Practices In Human Res.	.32* $p=.011$	.223 $p=.057$	.504** $p=.000$	.518** $p=.000$	.436** $p=.001$	.455** $p=.000$			
Information Technology	.30* $p=.017$	-.021 $p=.441$	.219 $p=.061$	.182 $p=.100$	.096 $p=.251$	.121 $p=.200$	.412** $p=.001$		
Business Processes	.36** $p=.005$	.047 $p=.372$	.220 $p=.061$	.241* $p=.044$	.315* $p=.012$	.389** $p=.002$	.214 $p=.066$	.053 $p=.356$	
Boundaries	.16 $p=.14$	.171 $p=.115$	.234* $p=.049$	.321* $p=.011$	.121 $p=.199$	.127 $p=.188$	.453** $p=.000$	.501** $p=.000$	.187 $p=.094$

\* Correlation is significant at the 0.05 level (1-tailed).

\*\* Correlation is significant at the 0.01 level (1-tailed).



The other findings regarding to significant relationships between the variables are as follows:

**Variable pairs which have significant and positive relationships at a moderate level:**

- Team working and organization structure ( $r=.47$ ,  $p=.000$ , significant at the .01 level).
- New practices in human resources and organization structure ( $r=.50$ ,  $p=.000$ , significant at the .01 level).
- Team working and use of authority ( $r=.65$ ,  $p=.000$ , significant at the .01 level).
- New practices in human resources and use of authority ( $r=.52$ ,  $p=.000$ , significant at the .01 level).
- New practices in human resources and team working ( $r=.44$ ,  $p=.001$ , significant at the .01 level).
- Management style and new practices in human resources ( $r=.46$ ,  $p=.000$ , significant at the .01 level).
- Utilizing information technology and new practices in human resources ( $r=.41$ ,  $p=.001$ , significant at the .01 level).
- Boundaries and new practices in human resources ( $r=.45$ ,  $p=.000$ , significant at the .01 level).
- Boundaries and information technology ( $r=.50$ ,  $p=.000$ , significant at the .01 level).

**Variable pairs which have significant and positive relationships at a low level:**

- Use of authority and organization structure ( $r=.37$ ,  $p=.004$ , significant at the .01 level).
- Business processes and use of authority ( $r=.24$ ,  $p=.044$ , significant at the .05 level).
- Boundaries and use of authority ( $r=.32$ ,  $p=.011$ , significant at the .05 level).
- Business processes and team working ( $r=.32$ ,  $p=.012$ , significant at the .05 level).
- Management style and business processes ( $r=.39$ ,  $p=.02$ , significant at the .01 level).
- Boundaries and organization structure ( $r=.23$ ,  $p=.04$ , significant at the .05 level).
- Delaying and organization structure ( $r=.29$ ,  $p=.021$ , significant at the .05 level).

## **8. EFFECT of INDEPENDENT VARIABLES on the DEPENDENT VARIABLE: STEPWISE REGRESSION ANALYSIS RESULTS**

Table 3 shows that once organizational change is referred to as the dependent variable while others (delaying, organization structure, use of authority, team working, management style, new practices in human resources, information technology, business processes, and boundaries) are considered to be independent, there exists a moderate effect of independent variables on the dependent variable ( $r^2_{1.2345678910}=.577$ ). In order to insure that this relation is significant, F-tests ( $p=.036$ ) were applied by using Anova seen on Table 4 and the result appeared to be significant at the 5% level.

Table-3. Regression Analysis (n=51, p=.05)

Model	R	R Square	Adjusted R Square	Standard Error of the Estimate
1	0.577 <sup>a</sup>	0.333	0.187	0.48
2	0.577 <sup>b</sup>	0.333	0.206	0.47
3	0.576 <sup>c</sup>	0.332	0.223	0.47
4	0.574 <sup>d</sup>	0.329	0.238	0.46
5	0.568 <sup>e</sup>	0.323	0.247	0.46
6	0.565 <sup>f</sup>	0.319	0.259	0.45
7	0.537 <sup>g</sup>	0.289	0.243	0.46

- a. Predictors: (Constant), BOUNDRY, TEAM, DELAYRNG, BPROCESS, IT, MANGSTYLE, STRUCTR, HR, AUTHRTY  
b. Predictors: (Constant), BOUNDRY, TEAM, DELAYRNG, BPROCESS, IT, MANGSTYLE, STRUCTR, AUTHRTY  
c. Predictors: (Constant), BOUNDRY, TEAM, DELAYRNG, BPROCESS, IT, MANGSTYLE, AUTHRTY  
d. Predictors: (Constant), BOUNDRY, TEAM, BPROCESS, IT, MANGSTYLE, AUTHRTY  
e. Predictors: (Constant), BOUNDRY, TEAM, BPROCESS, IT, MANGSTYLE  
f. Predictors: (Constant), TEAM, BPROCESS, IT, MANGSTYLE  
g. Predictors: (Constant), TEAM, IT, MANGSTYLE  
h. Dependent variable: CHANGE

Table-4. ANOVA: Variance Analysis and F-Tests Results

Model	Sum of Square	Df	Mean Square	F	Sig.
<b>1 Regression</b>	4.637	9	.515	2.275	.036 <sup>a</sup>
<b>Residual</b>	9.285	41	.226		
<b>Total</b>	13.922	50			
<b>2 Regression</b>	4.633	8	.579	2.619	.020 <sup>b</sup>
<b>Residual</b>	9.288	42	.221		
<b>Total</b>	13.922	50			
<b>3 Regression</b>	4.618	7	.660	3.049	.011 <sup>c</sup>
<b>Residual</b>	9.303	43	.216		
<b>Total</b>	13.922	50			
<b>4 Regression</b>	4.585	6	.764	3.601	.005 <sup>d</sup>
<b>Residual</b>	9.337	44	.212		
<b>Total</b>	13.922	50			
<b>5 Regression</b>	4.492	5	.898	4.288	.003 <sup>e</sup>
<b>Residual</b>	9.429	45	.210		
<b>Total</b>	13.922	50			
<b>6 Regression</b>	4.437	4	1.109	5.380	.001 <sup>f</sup>
<b>Residual</b>	9.484	46	.206		
<b>Total</b>	13.922	50			
<b>7 Regression</b>	4.018	3	1.339	6.357	.001 <sup>g</sup>
<b>Residual</b>	9.903	47	.211		
<b>Total</b>	13.922	50			

When the organizational change was taken as dependent variable while others, with the **exception** of *new practices in human resources*, are referred to as independent; it was found that the variables of delayering, organization structure, use of authority, team working, management style, information technology, business processes, and boundaries have a moderate effect on the variable of organizational change ( $r^2_{1.234568910}=.577$ ). Anova on Table 4

insures that this result is significant at the 5% level ( $p=.020$ ). Since regression coefficient is equal to the one calculated in the previous step ( $r^2_{1.2345678910}=.577$ ), new practices in human resources have no effect on the dependent variable of organizational change.

When the organizational change was taken as dependent variable while others, with the **exception** of *new practices in human resource* and *organization structure*, are referred to as independent; it was found that the variables of layering, use of authority, team working, management style, information technology, business processes and boundaries have a moderate effect on the variable of organizational change ( $r^2_{1.24568910}=.576$ ) The significance of this result at 5% level is also insured by Anova on Table 4 ( $p=.011$ ). Since the regression coefficient is slightly less than the one calculated in the previous step, organization structure has a very slight effect on organizational change.

When the organizational change was taken as dependent variable while others, **excluding** *new practices in human resource*, *organization structure* and *delaying*, are referred to as independent; it was found that the variables of use of authority, team working, management style, information technology, business processes and boundaries have a moderate effect on the variable of organizational change ( $r^2_{1.4568910}=.574$ ) The significance of this result at 5% level is also insured by Anova on Table 4 ( $p=.005$ ). Since the regression coefficient is slightly smaller than the one calculated in the previous step, delaying has a very slight effect on organizational change.

When organizational change was taken as dependent variable while others, **excluding** *new practices in human resource*, *organization structure*, *delaying* and *use of authority*, are referred to as independent; it was found that the variables of team working, management style, information technology, business processes and boundaries have a moderate effect on the variable of organizational change ( $r^2_{1.568910}=.568$ ) The significance of this result at 5% level is also insured by Anova on Table 4 ( $p=.003$ ). Since the regression coefficient is slightly less than the one calculated in the previous step, use of authority has a very slight effect on organizational change.

When the organizational change was taken as dependent variable while others, **excluding** *new practices in human resource*, *organization structure*, *delaying*, *use of authority* and *boundaries*, are referred to as independent; it was found that the variables of team working, management style, information technology, and business processes have a moderate effect on the variable of organizational change ( $r^2_{1.5689}=.565$ ) The significance of this result at 5% level is also insured by Anova on Table 4 ( $p=.001$ ). Since the regression coefficient is slightly less than the one calculated in the previous step, boundaries has a very slight effect on organizational change.

When the organizational change was taken as dependent variable while others, **excluding** *new practices in human resource*, *organization structure*, *delaying*, *use of authority*, *boundaries* and *business processes* are referred to as independent; it was found that the variables of team working, management style, and information technology have a moderate effect on the variable of organizational change ( $r^2_{1.568}=.537$ ) The significance of this result at 5% level is also insured by Anova on Table 4 ( $p=.001$ ). Since the regression coefficient is slightly less than the one calculated in the previous step, business processes have a very slight effect on organizational change.

Table-5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.429 <sup>a</sup>	.184	.167	.48

a. Predictors: (Constant), MANGSTYLE

Table-6: ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
<b>1 Regression</b>	2.562	1	2.562	11.05	.002 <sup>a</sup>
<b>Residual</b>	11.360	49	.232	0	
<b>Total</b>	13.922	50			

a. Predictors: (Constant), MANGSTYLE

b. Dependent Variable: CHANGE

As seen on Table 5 and Table 6, team working and information technology have a very slight effect on organizational change according to the next step of the multi-regression analysis (stepwise method). Management style, on its own, has a significant effect (42.9%) on the dependent variable of the organizational change ( $r^2_{1,6}=0.429$ ,  $p=0.002$ ).

As a result, based on the multi-regression analysis, it was found that:

- All the independent variables have a moderate effect on the dependent variable of the organizational change,
- New practices in human resources have no effect on the organizational change,
- Organization structure, layering, use of authority, business processes, boundaries, team working, and information technology have a very slight effect on the organizational change,
- Management style, on its own, has an effect (42.9%) on the dependent variable.

## 9. CONCLUSION

Results that are found through this study, concerning the manufacturing companies with ISO 9001-9002 certificates received from the Turkish Standards Institution (TSI) between 1996-1999 in 10 sectors, are as follows:

- Depending on the results of the correlation analysis; a positive, low level and significant relationship was found between new practices in human resources and the organizational change. However, it was also found that new practices in human resources have no effect on the organizational change based on the results of the stepwise method of multi-regression.
- Taking the correlation analysis results into consideration; positive, low level and significant relationships were found between organization structure, use of authority, business processes, team working, and information technology. Moreover, it was found that these variables have a very slight effect on the organizational change based on the results of the multi-regression analysis.
- When the correlation analysis results were taken into consideration; no significant relationship was found between layering, boundaries, and organizational change. Furthermore, it was found that these two variables have a very slight effect on the organizational change based on the results of the multi-regression analysis.
- Depending on the results of the correlation analysis; a positive, moderate level and significant relationship was found between management style and organizational change. Furthermore, it was found that management style has a moderate effect on the organizational change based on the results of the multi-regression analysis.

Through the regression analysis which was conducted in order to view the effect of nine independent variables on the dependent variable, it was found that management style has an effect (42.9%) on the organizational change, on its own, and that new practices in human resources have no effect while the rest has a very slight effect on the organizational change. **This result implies that variables other than the determined ones also have effect on the organizational change. Therefore, a future study to determine other variables that effect the organizational change must be taken into consideration.**

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