

Identifying, structuring, ranking and implementing factors affecting organizational citizenship behavior and investigating its impact on organizational productivity using ISM and TOPSIS methods (Case study: Iran Cable Manufacturing Company)

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Abstract

In organizations, organizational behavior management plays a significant role in employee performance, and paying attention to organizational ethics is a tool for improving organizational performance. The purpose of this article is to identify, structure and rank the factors affecting organizational citizenship behavior in the context of a manufacturing plant (Iran Cable Manufacturing Company). The current research is applied in terms of purpose and descriptive survey in terms of method. In this research, firstly, the effective factors on organizational citizen behavior were identified and finalized. For this purpose, by conducting library studies, 6 factors have been identified and for the purpose of finalization, a questionnaire has been designed and it has reached the opinion of all

the people of the organization. These six factors include: 1- Job satisfaction 2- Organizational commitment 3- Job identity 4- Organizational justice 5- Leadership style 6- Individual personality traits. All six factors were confirmed by designing and using a Delphi questionnaire based on Lavshe. And also, the productivity of the organization includes 1- increasing the amount of production 2- reducing the production time 3- reducing the amount of waste 4- reducing the breakdowns of production devices 5- consumption of raw materials 6- rework was identified and designed and according to the opinion and approval of the experts of the organization which includes the managers of the organization. After confirming the factors, the ISM questionnaire was designed and submitted to experts, and the relationships between the factors were measured. Finally, factors were ranked by TOPSIS method. The ranking of the factors in order is: 1- Leadership style 2- Job satisfaction 3- Individual personality traits 4- Organizational justice 5- Organizational identity 6- Organizational commitment. And in the end, the results show the effective role of organizational citizenship behavior in the productivity of the organization and the main hypothesis of the research, "organizational citizenship behavior is effective on the productivity of the organization" is confirmed.

Keywords: organizational citizenship behavior, ISM method, TOPSIS method, OPA method.

Introduction

With organizations entering the information age and facing profound changes within their environments, the instability, variability, and unpredictability of these transformations have made sustaining competitive advantage, enhancing productivity, and achieving growth and development contingent upon leveraging opportunities in competition with

other organizations (Torkzadeh et al., 2020). Human resource management scholars argue that leading organizations in the new millennium can only meet their needs effectively through implementing advanced human resource development models, fostering organizational learning, and deploying strategies to develop and enhance employee capabilities with greater agility and flexibility (Kakaeinezhad et al., 2023). Consequently, human resource development has become one of the most critical strategic goals for leading organizations in today's era (Mahdiar, 2023). However, a topic that has emerged over the past two decades, attracting the attention of not only behavioral scientists but also psychologists and sociologists, is known as organizational citizenship behavior (Noruzi et al., 2013). Organizations cannot cultivate their collective effectiveness without individuals' voluntary willingness to cooperate; the distinction between voluntary and mandatory cooperation holds significant importance (Tabarsa et al., 2010). In mandatory cooperation, an individual performs tasks according to the organization's regulations, laws, and acceptable standards, merely to fulfill required obligations. In contrast, voluntary cooperation extends beyond assigned duties, as individuals apply their efforts, energy, and insight for the organization's benefit by striving to maximize their potential. In such cases, people often prioritize others' interests over personal gains, embracing responsibility for the benefit of others (Vigoda, 2000). This voluntary cooperation not only facilitates the organization's path to achieving its objectives but is also essential in today's dynamic world, where it serves as a key factor in

effectively implementing strategic decisions (Tabarsa et al., 2010). Organizational citizenship behavior is thus characterized as a voluntary, extra-role behavior. This study is applied in nature and falls within descriptive-analytical research. The statistical sample comprises 150 employees of Iran Cable Manufacturing Factory, located in Shiraz, Fars Province, representing all employees of the factory.

Literature Review

Research by Erturk (2007), Watt (1998), and Aryee (2002) has demonstrated that trust serves as a full mediator in the relationship between organizational justice and organizational citizenship behaviors. Naami (2006) showed that all three dimensions of organizational justice have a positive and direct effect on citizenship behavior. Similarly, Mardani (2008) concluded in his article that organizational justice has a direct and positive impact on citizenship behavior. In Bulent's 2005 study, trust in the supervisor emerged as a predictor variable for citizenship behaviors. Lowell (2008) found that organizational commitment plays a mediating role in the relationship between organizational procedural justice and citizenship behaviors. Goris' 2000 empirical study demonstrated that job satisfaction mediates the relationship between citizenship behaviors and organizational justice. The research by Laschinger and Finegan (2001) revealed that fair management practices positively influence job satisfaction and organizational commitment. Kramer and Dick (2006) found that implementing procedural justice in organizational practices not only strengthens organizational identity

but also increases trust between management and employees.

In a 2010 study, Gholamali Tabarsa concluded that distributive justice and organizational trust influence organizational citizenship behavior. Mohammad Norouzi's 2013 research also identified job satisfaction, organizational commitment, leadership style, organizational justice, and individual personality traits as factors affecting organizational citizenship behavior. However, this paper will focus on structuring, ranking, and implementing organizational citizenship behaviors and examining the impact of this implementation on organizational productivity.

Methodology

This study is quantitative in nature and, given its objectives, is an applied research. Theoretical information was collected through a library-based approach, while other data were gathered through field research. Data collection involved the distribution of questionnaires to all employees of the factory. To validate the initial questionnaire, which was designed to identify factors influencing organizational citizenship behavior, the Lavshe method was employed.

In the second phase of this research, three types of questionnaires were used to validate the identified factors at the Iran Cable Manufacturing Factory and to examine the relationships among these factors. The ISM questionnaire, designed to analyze relationships between the factors, consisted of an $(N \times N)$ matrix, which was completed by experts using a specified scale. Lastly, the OPA and TOPSIS questionnaires,

developed for ranking the factors, were completed by experts using the given scale. The validity of the measurement tool (the questionnaire) was assessed using the Lavshe method, in which expert opinions guide the review, refinement, and validation process. Cronbach's alpha, calculated in SPSS, was employed to assess the reliability of the questionnaire, yielding a reliability coefficient of 0.915.

The goal of this study is to clarify the factors that influence organizational citizenship behavior and enhance organizational productivity, as well as to explore the interrelationships and mutual impacts of these factors. The study aims to help organizations identify which factors to prioritize and strengthen.

Main Research Question: Which factor of organizational citizenship behavior has the greatest impact on organizational productivity?

Problem Statement

1-4 Organizational Citizenship Behavior

The concept of organizational citizenship behavior (OCB) was first introduced by Organ and colleagues in 1983. The development of this idea is rooted in Barnard's 1938 work on the "willingness to cooperate" and Katz's studies on spontaneous and innovative behaviors in 1964, 1966, and 1978. Since OCB does not form part of individuals' formal roles, it serves as a behavioral indicator in responding to peer relationships. OCB includes actions that, while not formally required by the organization, contribute positively to its performance. This form of behavior, known

as "extra-role" behavior, contrasts with "in-role" behaviors. In-role behaviors refer to those work-related actions that are explicitly defined within job descriptions and recognized by the organization's formal system, often leading to official rewards. Extra-role behaviors, on the other hand, encompass actions that exceed these formal roles. These behaviors are voluntary, typically unrewarded by the organization's formal reward system, and go beyond usual job responsibilities (Tabarsa et al., 2010).

Therefore, OCB can be described as voluntary, extra-role behavior that enhances effective organizational performance. It is seen as a voluntary practice among employees that neither receives rewards nor is enforced by the organization (Parivash, 2023). Given that enhancing effectiveness is a constant concern for managers, understanding OCB and the factors that influence it can be a valuable step toward addressing this challenge (Morkoczy and Xin, 2005). In organizations, managing organizational behavior and human resources plays a critical role in employee performance, as human resources are considered a strategic asset for organizational success. Proper management of human resources and organizational teams is one of the most significant factors influencing productivity (Ramazani et al., 2020). OCB fosters employees' attitudes and capacity for empowerment and greater flexibility, aligning with organizational goals and adapting to various environmental conditions (Afsari & Zamani, 2023).

Consequently, attention to organizational citizenship behavior (OCB) is on the rise, as

it is regarded as a highly valuable organizational asset. Based on a review of 50 Iranian and international articles published between 2000 and the present, and through expert validation via a questionnaire, six motivational factors influencing OCB were identified: (1) job satisfaction, (2) organizational commitment, (3) organizational justice, (4) leadership style, (5) individual personality traits, and (6) organizational identity. To enhance OCB, efforts were made to improve these six components, as detailed below.

4-1-1 Personality Assessment Tests

One reason for employee underperformance is improper job placement, which reduces workforce efficiency and ultimately leads to job dissatisfaction. To prevent this, all employees underwent personality assessments, including the NEO, MBTI, and DISC tests, as well as the Baron test to assess emotional intelligence. To minimize resistance, these four tests were conducted in a sequence beginning with the factory manager, followed by department managers, and finally the employees. These tests helped identify each employee's preferences for certain duties and responsibilities, allowing them to be engaged in roles better aligned with their interests.

4-1-2 Creation of a Performance Agreement Form

It is impractical to rely solely on employees to progress smoothly without any supervision. Job dissatisfaction is also caused by unclear employee responsibilities and a lack of clear feedback on management's satisfaction with employee

performance. In order to tackle these problems, a performance agreement is created with specific tasks for employees to complete, which are frequently done poorly, negligently, or not at all.

1. Objectives must be clear.
2. Objectives must be measurable (quantitative).
3. Objectives should be challenging (not too easy to achieve).
4. Objectives must be time-bound.
5. Objectives should align with the organization's goals.
6. Objectives must be attainable (realistic).
7. Objectives should be mutually agreed upon by managers and employees.

The following three points were emphasized in the performance agreement process:

1. Tasks that employees are required or prohibited from doing were clearly stated in the agreement.
2. For negative feedback, employees were informed of the consequences of their actions, and they were asked to propose solutions for improvement, while management also provided suggestions.
3. Employee input was incorporated, which fostered a sense of ownership over their work. Feeling that they had contributed to the terms, employees were more likely to adhere to the agreement.

Feedback allows employees to develop self-awareness by highlighting their positive actions and motivating them to improve and

address negative behaviors. Feedback information should identify strengths for employees to continue and areas for improvement to address. Employees and their department heads met weekly to give and receive feedback.

4-1-3 Utilizing a Psychology Team

In order to improve employee productivity, the factory brought in an industrial psychologist and two family psychologists to address family issues impacting employees.

4-1-4 Establishing an Employee Group on Social Media

A social media group was established for all employees and managers to join. This offered employees a convenient area for open communication. Exciting content, like contests with prizes and activities like guessing a movie or song clip's name, was also posted.

4-1-5 Training

A key responsibility of managers within organizations is recognizing the potential talents of employees and providing opportunities for their growth and development, thus improving productivity.

- 4-1-5-1 Employees were sent, at the factory's expense, to classes aligned with their needs to improve both their job-related skills and personal life skills.
- 4-1-5-2 Every two weeks, an instructional film was shown in the auditorium for all employees.
- 4-1-5-3 Employees were organized into groups and sent on visits to other factories to observe and learn.

4-1-6 Organizational Identity

- 4-1-6-1 A document detailing the organization's values was created and shared with employees. This document was presented to employees in both written and video formats to ensure understanding. It outlined 5 to 10 key values, along with examples of positive and negative behaviors associated with each value.

4-1-6-2 Designing the Factory's Vision with Employee Involvement

Employees were actively involved in designing the factory's vision, discussing the strategies for achieving its future goals, and understanding the factory's projected position five years from now, as well as their role in this journey.

4-1-6-3 Emphasizing the Significance of Employee Roles

Employees were informed about the importance of their jobs and the impact of their work on the country's development, particularly in light of the factory's production of specialized heavy electrical cables and fiber optics.

4-1-7 Employee Recognition

- 4-1-7-1 Praise Board: Certain employees were assigned to capture examples of commendable behavior. After managerial approval, these photos were displayed on the praise board with a supportive statement.

- 4-1-7-2 Rewarding Positive Behaviors: Behaviors that align with organizational values and culture were rewarded to encourage their adoption across the workforce.

- 4-1-7-3 Personalized Slogans: Each week or month, employees received disposable cups with a personal motto or slogan of their choice printed on them.

- 4-1-7-4 Delegation Using the Eisenhower Model: Tasks were delegated to employees following the Eisenhower decision matrix, ensuring clear and purposeful delegation.

- 4-1-7-5 Group Recreational Activities: Organized group activities, such as hiking or football games, promoted camaraderie and team spirit.

- 4-1-7-6 Providing Recreation Vouchers: Free vouchers were distributed for recreational facilities like pools and gardens.

- 4-1-7-7 Employee of the Year: An outstanding employee was selected annually, and an award ceremony was held in the presence of their families.

- 4-1-7-8 Public Recognition Among Peers: Managers publicly acknowledged employees in group settings, enhancing collective morale.

- 4-1-7-9 Awarding Badges: Exemplary employees received badges as symbols of recognition.

- 4-1-7-10 Digital Recognition by Managers: Managers acknowledged employees' efforts in the social media group, providing visibility and appreciation.

- 4-1-7-11 Mentorship Opportunities: Employees were offered mentoring opportunities, allowing them to develop leadership and coaching skills.

- 4-1-7-12 Featured Employee on Website:
The top-performing employee's photo was displayed on the factory's website.

- 4-1-7-13 Cash Rewards: Performance-based financial incentives were given to employees as part of the factory's reward system.

4-1-7-14 Suggestion Box with Monetary Rewards

A suggestion box was created to encourage innovative ideas. A structured system was put in place to evaluate the suggestions, and cash rewards were granted to the top three proposals.

4-1-7-15 Gifts for Significant Personal Milestones

Employees received special gifts on important personal occasions, such as birthdays, wedding anniversaries, and their work anniversary with the factory.

4-1-8 Transparency

4-1-8-1 Meetings with Managers

Managers were encouraged to hold regular meetings with employees to discuss the factory's current activities and future plans (Abu Al-Alayi, 1391). By openly sharing updates on goals, organizational changes, and upcoming initiatives, employees felt a greater sense of belonging, like family members, and more motivated to contribute to the organization's success.

4-1-8-2 Reward Distribution Process

The following guidelines were set for reward distribution:

1. Rewards were reserved for those who performed beyond their standard duties.
2. Rewards were scaled according to the level of effort or achievement.
3. Rewards were performance-based, focusing on achieving specific targets rather than mere attendance.
4. Rewards were given publicly with transparent reasoning.
5. All employees had equal opportunities to earn rewards.
6. A clear and structured reward mechanism was established, ensuring fair and consistent distribution.

4-1-9 Maslow's Hierarchy of Needs

Another technique used to improve human resource performance is the application of Maslow's hierarchy of needs. One of the most repeated statements we hear from our employees is, "I have been working here for several years, but I haven't experienced any growth or advancement." The reason for this is that we have only addressed the first level of Maslow's hierarchy within our organization and have remained at that level. We have not provided the tools for growth and movement toward the higher levels of Maslow's hierarchy, which is why they feel they have not grown or progressed.



Figure 1. Maslow's Hierarchy

Physiological Needs: These include basics such as money, food, and clothing, which are provided through factory wages. Additionally, the factory has implemented the following actions to meet these needs:

- Increasing wages
- Providing bonuses for specific occasions (e.g., Yalda, Ghadir)
- Issuing vouchers for goods
- Distributing essential items such as oil, rice, pasta, soy, legumes, dishwashing liquid, and hand soap for free

Safety Needs: This need is fulfilled through job security.

Social Needs: This includes support for marriage, friendship, and being part of groups. To support this, the factory has implemented the following:

- Training outside the organization, allowing employees to be recognized by those outside
- Opportunities to visit other factories and exhibitions as company representatives
- Holding coffee breaks

Esteem Needs: Employees want to feel valued and appreciated. The factory has taken the following actions to fulfill this need:

- Holding an annual “Best Worker” ceremony, awarding certificates of appreciation in front of families

- Organizing visits to other factories

Self-Actualization Needs: Employees aspire to reach their fullest potential and contribute to others. To support this, the factory has implemented:

- Creating a clear vision so employees understand the importance of their work
- Sending employees to classes that enhance their career and personal development
- Organizing seasonal meetings to acknowledge employees' role in the company's achievements

4-2 Organizational Productivity

The term “productivity,” meaning the power and capability to produce. In the Encyclopedia Britannica, productivity in economics is defined as the ratio of what is produced to what is required for production. According to the Oxford Dictionary, productivity refers to efficiency, measured in industry by comparing production volume to the time or resources used to produce it (Nasiri, 2019). Drucker also notes that examining leading organizations highlights the capabilities of their human resources (both employees and management) and their

ongoing ability to improve overall achievements. Since ancient times, humanity has sought to use resources, capabilities, and available means effectively and efficiently (Kakaiezhad et al., 2023). Efficiency, effectiveness, and productivity are fundamental elements that can sustain organizations and provide a pathway to achieving competitive advantage (Mahdiar, 2023). In today's era, productivity has received more attention than ever. Limited resources, population growth, and the rise in human needs and desires have made productivity enhancement a top priority for those in economics, politics, and management (Taheri, 2014).

5-Data Analysis

All six identified factors from the literature review and prior studies were incorporated into a questionnaire and presented to all employees. The employees confirmed that all six factors were complete and adequate, with no additional factors required. The relationships between the factors, including their influence and interdependence, were identified, and the data was then modeled using the ISM methodology. Interpretive Structural Modeling (ISM) is a methodology used to organize and understand relationships among elements within a complex system (Huang, 2005).

The ISM methodology significantly aids in organizing complex relationships between system elements (Agarwal and Tiwari, 2005). ISM helps identify the internal relationships among variables and is an effective technique for analyzing the influence of one variable on others. The ISM process is conducted as follows:

1. Identifying the contributing variables
2. Creating the Structural Self-Interaction Matrix (SSIM)
3. Developing the initial Reachability Matrix (RM)

4. Forming the final reachability matrix
5. Determining the levels of indicators
6. Drawing the final interpretive structural model.

Finally, two methods, TOPSIS and OPA, were used for ranking motivational factors, both yielding the same results. First, we applied the TOPSIS method, a multi-criteria decision-making approach. The core idea behind TOPSIS is to identify an ideal solution and a negative ideal solution. The ideal solution maximizes benefit criteria and minimizes cost criteria. Overall, the ideal solution consists of the best available values, while the negative ideal solution combines the worst values. The optimal solution is the one with the shortest distance from the ideal solution and the greatest distance from the negative ideal solution. The TOPSIS procedure is as follows:

1. Constructing the decision matrix
2. Normalizing the decision matrix
3. Creating the weighted normalized decision matrix
4. Calculating positive and negative ideals
5. Measuring the distance from positive and negative ideals to determine the ideal solution.

In ranking motivational factors using the OPA method, all seven factors identified from the literature review and prior studies were presented in the questionnaire and approved by all employees as complete and sufficient, with no additions needed. The Ordinal Priority Approach (OPA) is designed with a linear programming approach, eliminating the need for data normalization, averaging methods to consolidate expert opinions, pairwise

comparison matrices, and similar processes (Ataei et al., 2020).

The steps of the OPA method are as follows:

Step 1: Identify the expert(s) and assign a rank to each based on criteria such as work experience, level of expertise, and other relevant factors.

Step 2: Identify the criteria. Each expert then ranks these criteria in order of importance.

Step 3: Identify the options. Each expert then prioritizes the options according to each criterion.

Step 4: Formulate and solve the following linear programming model to achieve the final rankings.

$$\begin{aligned}
 & \text{Max } Z \\
 & \text{S.t:} \\
 & Z \leq i(j(r(W_{ijk}^r - W_{ijk}^{r+1}))) \quad \forall i, j, k \text{ and } r \\
 & Z \leq ij m W_{ijk}^m \quad \forall i, j \text{ and } k \\
 & \sum_{i=1}^p \sum_{j=1}^n \sum_{k=1}^m W_{ijk} = 1 \\
 & W_{ijk} \geq 0 \quad \forall i, j \text{ and } k \\
 & \text{where } Z: \text{ Unrestricted in sign}
 \end{aligned}$$

In this model, the parameters and variables are defined as follows:

		Sets
I	$\forall i \in I$	Experts set
J	$\forall j \in J$	Criteria set
K	$\forall k \in K$	Options set
		Index
i	$(1, \dots, p)$	Index of experts
j	$(1, \dots, n)$	Index of criteria
k	$(1, \dots, m)$	Options Index
		Variables
Z	Target date	
W_{ijk}^r	"The role weight of option $\setminus(k \setminus)$ with color $\setminus(r \setminus)$ in criterion $\setminus(j \setminus)$ by expert $\setminus(i \setminus)$ "	Parameters
		Parameters
i	i	Expert Color
j	j	Criteria Color
r	k	Option Color

Step 5: After solving the model, the weights of the options, criteria, and experts are calculated sequentially using the following equations.

$$W_k = \sum_{i=1}^p \sum_{j=1}^n W_{ik} \quad \forall k$$

$$W_j = \sum_{i=1}^p \sum_{k=1}^m W_{ijk} \quad \forall j$$

$$W_i = \sum_{j=1}^p \sum_{k=1}^m W_{ijk} \quad \forall i$$

Conclusion:

After identifying seven motivational factors through library research and confirming six of these factors by all employees, we moved on to extracting the ISM model to examine the impact of factors influencing organizational citizenship behavior. In this study, leadership style was placed at level one, while job satisfaction, organizational commitment, organizational justice, individual personality traits, and organizational identity were placed at level two. This indicates that the leadership style factor enables the other factors at level two. If level one factors are not established, level two factors will not be observed. In other words, if level one is not fulfilled, even if level two is implemented, the activities in level two will be ineffective and will not impact the organizational citizenship behavior of employees.

After identifying and structuring motivational factors, the ranking of motivational factors was conducted using the

OPA and TOPSIS methods, both of which yielded the same ranking as follows:

1. Leadership style
2. Job satisfaction
3. Individual personality traits
4. Organizational justice
5. Organizational identity
6. Organizational commitment

Ultimately, if an organization wants to increase its productivity, it must pay attention to the factors influencing organizational citizenship behavior, according to the ranking above.

Six months after the implementation of this project, the impact on organizational productivity—which includes 1. Increased production volume, 2. Reduced production time, 3. Reduced waste, 4. Reduced equipment breakdowns, 5. Raw material consumption, and 6. Rework—was analyzed. The results showed that organizational citizenship behavior positively impacts

organizational productivity, confirming the research hypothesis.

This research acts as a significant illustration for other manufacturing facilities in Iran, showing how and which elements can improve organizational citizenship behavior in their institutions. It is important to note that this study focuses on only some factors in the field of organizational behavior that enhance its development within an organization. In upcoming research, additional elements that enhance organizational citizenship behavior or obstacles that decrease it within organizations could similarly be examined and explored.

This study specifically examines the elements that foster organizational citizenship behavior and their order of importance. Future research might investigate further effects of organizational citizenship behavior on organizations. Carried out at a manufacturing facility (Iran Cable Manufacturing Factory), this research could also be utilized in various organizations, including service-oriented entities or governmental manufacturing bodies, for additional investigation and analysis.

Table 1: The Amount of Produced Cables Based on a Multiple of Length

The amount of cables produced as a multiple of length			
difference	After implementation A multiple of length	before implementation A multiple of) (length	Week
+11%	٤,٤	٣,٩	Week1
+1٣%	٤,٦	٤	Week2
+1٢%	٥,١	٤,٥	Week3
+1٤%	٤,٩	٤,٢	Week4
+1٣%	٤,٧	٤,١	Week 5
+1٦%	٥,١	٤,٣	Week6
+1٧%	٥,٣	٤,٤	Week7
+1٦%	٤,٥	٣,٨	Week8
+1٦%	٥	٤,٢	Week9
+1٣%	٤,٨	٤,٢	Week10
+1٧%	٥,٤	٤,٥	Week11
+1٥%	٤,٨	٤,١	Week12

Figure 1: The Amount of Produced Cables Based on a Multiple of Length

Table 2: Production Speed of 1000 Meters of Cable Based on a Multiple of Time Units

The production speed of 1000 meters of cable			
difference	After implementation (unit of time)	before implementation (unit of time)	Cable
+16%	4,3	3,6	Cable1
+12%	3,3	2,9	Cable2
+10%	3,9	3,3	Cable3
+17%	4,2	3,0	Cable4
+10%	4	3,4	Cable5
+10%	4,1	3,0	Cable6
+14%	4,4	3,8	Cable7
+10%	3,4	2,9	Cable8
+14%	3,0	3	Cable9
+14%	3,6	3,1	Cable10
+10%	4,1	3,0	Cable11
+13%	3,8	3,3	Cable12

Figure2: production Speed of 1000 Meters of Cable Based on a Multiple of Time Units

Table 3: The amount of waste generated as a multiple of kg

The amount of waste generated			
difference	After implementation a multiple of) (KG	Before implementation A multiple of) (KG	cable
+16%	0,9	7	cable ¹
+19%	0	6,2	cable ²
+20%	0,2	6,0	cable ³
+10%	0,9	6,9	cable ⁴
+20%	4,7	0,9	cable ⁵
+17%	0,3	6,4	cable ⁶
+19%	4,7	0,8	cable ⁷
+18%	0,2	6,3	cable ⁸
+19%	0	6,2	cable ⁹
+19%	0,2	6,4	cable ¹⁰
+19%	0,6	6,9	cable ¹¹
+18%	0,0	6,7	cable ¹²

Figure3:The amount of waste generated as a multiple of kg

Table 4: The number of equipment breakdowns in the entire factory Based on a Multiple of Occurrence

The number of equipment breakdowns in the entire factory.			
difference	After implementation Multiple of Occurrence	before implementation Multiple of Occurrence	نجمcable
+0.0%	2	4	week ¹
+0.0%	3	6	week ²
+33%	4	6	week ³
+60%	2	0	week ⁴
+0.0%	3	6	week ⁰
+60%	2	0	week ⁶
+0.0%	2	4	week ⁷
+40%	3	0	week ⁸
+0.0%	3	6	week ⁹
+0.0%	2	4	week ¹⁰
+60%	2	0	week ¹¹
+70%	1	4	week ¹²

Figure 4: The number of equipment breakdowns in the entire factory Based on a Multiple of Occurrence

Table 5: Raw Material Consumption Based on a Multiple of Kilograms (KG)

The amount of raw material consumption as a multiple of kilograms.			
difference	After implementation A multiple of KG	before implementation A multiple of KG	cable
+22%	18	23	cable 1
+19%	17	21	cable 2
+20%	20	20	cable 3
+21%	19	24	cable 4
+21%	10	19	cable 5
+23%	17	22	cable 6
+17%	10	18	cable 7
+20%	20	20	cable 8
+17%	20	24	cable 9
+18%	18	22	cable 10
+17%	19	23	cable 11
+16%	21	20	cable 12

Figure 5: Raw Material Consumption Based on a Multiple of Kilograms (KG)

Table6: The Rate of Rework in Similar Projects

Comparison of rework rates in similar projects.			
difference	After implementation (A multiple of occurrences.)	before implementation (A multiple of occurrences.)	project
+۳۸%	۵	۸	project ^۱
+۴۵%	۵	۹	project ^۲
+۵۰%	۶	۱۲	project ^۳
+۳۰%	۷	۱۰	project ^۴
+۴۵%	۶	۱۱	project ^۵
+۴۰%	۶	۱۰	project ^۶
+۵۰%	۶	۱۲	project ^۷
+۵۴%	۵	۱۱	project ^۸
+۴۲%	۷	۱۲	project ^۹
+۵۰%	۴	۸	project ^{۱۰}
+۴۶%	۶	۱۱	project ^{۱۱}
+۴۲%	۷	۱۲	project ^{۱۲}

Figure6: The Rate of Rework in Similar Projects

References

ترک زاده، جعفر، فریدونی، فائزه، محمدی، مهدی، شفیع سروستانی، مریم، ۱۳۹۹، چارچوب عوامل محیطی مؤثر بر رفتار سازمانی دانشگاه، فصلنامه مطالعات رفتار سازمانی. ۹۱، ۱۷۵-۱۴۳.

کاکایی نژاد، آرمین، رضایی، قاسم، غلامی، حامد، امینی مقدم نرگس. موجی، کامبیز، ۱۴۰۲، بررسی تاثیر مهندسی سیستم منابع انسانی بر بهره وری سازمان، سومین کنفرانس بین المللی تفکر سیستمی در عمل، مشهد. ایران.

مهدیاری، شهرزاد، ۱۴۰۲، تاثیر مدیریت منابع انسانی بر بهره وری با توجه به نقش حمایت سازمانی، هفدهمین کنفرانس بین المللی مدیریت، اقتصاد و توسعه در لهستان، خرداد.

نوروزی، محمد، صالحیان فرد، رقیه، قربانی فاراب، محمدتقی، ۱۳۹۲، شناسایی و رتبه بندی عوامل مؤثر بر رفتار شهروندی سازمانی در پژوهشگاه صنعت نفت تهران، مجله مدیریت و منابع انسانی در صنعت نفت، ۲۳، ۶۷-۹۸.

طبرسا، غلامعلی، هادیزاده، اکرم، کشته گر، عبدالعلی، ۱۳۸۹، ارائه مدلی برای تبیین عوامل مؤثر بر رفتار شهروندی سازمانی، مجله چشم انداز مدیریت دولتی، ۱، ۱۱۴-۱۰۱.

Vigoda, 2000, " Internal Politics in Public Administration Systems: An Empirical Examination of its Relationship with Job Congruence, Organizational Citizenship Behavior, and in-role Performance", *Public Personnel Management*, 29, (2), 185-200.

پریوش، احمدرضا، ۱۴۰۲، بررسی ارتباط مسئولیت اجتماعی مدیریت منابع انسانی با رفتار شهروندی سازمانی کارمندان و رهبری مسئولیت پذیر شرکتهای خصوصی استان فارس. فصلنامه رویکردهای پژوهشی نوین در مدیریت، اقتصاد و حسابداری، ۳، ۶، ۴۳-۵۸.

Morkoczy L. & Xin K, 2005, "The Virtues of Omission in Organizational Citizenship Behavior" _ <http://goldmark.org/livia.pdf>.

رضائی راد، فرزاد، رضایی زاده، محمود، کیا کجوری، داود، مختاری، مهران، ۱۳۹۹، اولویت بندی عوامل مؤثر بر مدیریت رفتار سازمانی با تاکید بر اصول و ارزشهای اخلاقی در صنعت بانکداری، فصلنامه اخلاق در علوم و فناوری، ۱۵، ۲، ۱۸۴-۱۸۰.

افسری، زهرا، زمانی، مینا، ۱۴۰۲، بررسی ارتباط بین طرد شدگی در محیط کار با عملکرد وظیفه ای و رفتار شهروندی سازمانی در کارکنان شعب بانک سپه استان گلستان، فصلنامه

رویکردهای پژوهشی نوین در مدیریت و حسابداری ، ۹۰ ،
۱۰۲۳-۱۰۰۳.

ابوالعالی، بهزاد ، ۱۳۹۱ ، چگونه کارکنانی با انگیزه و عاشق
کار و سازمان داشته باشیم. انتشارات سازمان مدیریت صنعتی
، چاپ اول .

Huang J. T. G. Ong Ch.2005, Multidimensional data
in multidimensional scaling using the analytic
network process". Pattern Recognition Letters, Vol.26.

Agarwal A. Shankar R. Tiwari M.K.,2005, Modeling
agility of supply chain. Industrial Marketing
Management .Vol.36.

Ataei, Y. Mahmoudi, A. Feylizadeh, MR. Deng-F. L.
2020." Ordinal Priority Approach (OPA) in Multiple
Attribute Decision-Making", Applied Soft Computing
Journal.VOL.86.