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RESEARCH ARTICLE

The Effect of Different Dimensions of Trust on Employee's Performance: Fuzzy Logic Model

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Abstract

This paper investigates the interaction of the dimensions of interrelated trust with the performance of employees, such as trust in the organization, trust in the manager, and trust in colleagues. In the study, a configuration perspective that evaluates social phenomena and structures with a holistic mindset was adopted while examining the effect of trust perception dimensions on the performance of employees. The researchers analyzed the relationship between variables using fuzzy logic qualitative comparison analysis (fsQCA) and collected the data through in-depth interviews and questionnaire forms. The results show that trust in colleagues plays a key role in Turkey's law enforcement officers. According to the results of this study, trusting both the manager and the institution at the same time does not increase performance. Performance improvement is related to trusting either the organization or the manager (only one of them) as well as trusted colleagues.

Keywords

Organizational Trust, Performance, Qualitative Research, Fuzzy Logic Qualitative Comparative Analysis (fsQCA)

Introduction

Transformation in the business administration environment has made trust a sought-after factor for businesses (Arı, 2003). In today's business environments, expectations are higher than ever, changes are faster than ever, and performance pressure is brutal. Many employees are having trouble achieving expected performance. Something missing? What is missing? Maybe collaboration, loyalty, trust? In this study, we present the idea that the performance problem may be a problem of trust in one aspect. As it is known, things are done with the help of people. Human relations form organizations and these relations continue with trust. Therefore, trust is highly effective in people, their work, and their performance. As Singh & Desa (2018) state, organizational trust can be a valuable factor in enhancing individual work performance in the public sector.

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Trust provides several benefits for organizations and their members (Guinot & Chiva, 2019). Trust is a social unifier allowing cooperation and coordination between members of a society or an organization to achieve common goals and high levels of efficiency (Jucevicius & Juceviciene, 2015). The concept of trust is one of the constructive and vital elements of organizational efficiency and competitive advantage (Bidarian & Jafari, 2012). There are several studies in the literature reporting that trust is associated with positive work outcomes such as job satisfaction, organizational commitment, organizational citizenship behavior, and increases task, group, and organizational performance (see: Guinot & Chiva, 2019). Usually emphasized with its psychological aspect, the concept of trust is an element that is desired, however, difficult to achieve and fragile (Seco, 2016), requiring time-consuming (Mishra & Morrissey, 1990) and dedicated efforts to bloom.

Social sciences are based on the assumption that social life is orderly. Configurational models and categories present data that may provide a basis for other social theories and studies. Therefore, it is possible to examine the effects of the dimensions of trust on the employees' performance with a configuration perspective. The concept of configuration includes the accepted structures of the multiple dimensions between the results and development of these structures. For clarity, the configuration is based on the organizational classifications derived from empirical studies on the typologies of the structures (Meyer, Tsutu, & Hinings, 1993). Configuration theory classifies similar structures in groups. Quite different from the quantitative research method, frequently used and defined as the research method for social sciences, configuration theory tries to reveal that organizational phenomena as a whole are interrelated strongly and consistently.

In the study, a configuration perspective that evaluates social phenomena and structures with a holistic mindset was adopted while examining the effect of trust perception dimensions on the performance of employees. In this context, this study investigates the impact of the dimensions of inter-related trusts on the performance of employees, such as trust in the organization, trust in the manager, and trust in colleagues, by adopting a configuration perspective. This research analyses the relationship between variables using fuzzy logic qualitative comparison analysis (fsQCA) and collects the data through in-depth interviews and questionnaire forms. For this purpose, the study first clarifies organizational trust and its dimensions and evaluates organizational trust and its dimensions in the context of the configuration approach.

Theoretical Background

Trust and Dimensions of Trust

There are different definitions of trust in the literature. For example, trust is “a psychological state comprising the intention to accept vulnerability based upon positive expectations of

the intentions or behavior of another” (Cho & Park, 2011). According to Butler (1991), trust represents the desire to be vulnerable to the actions of an individual and acceptance of the risk against uncertainty based on an evaluation of the past behavior of said individual. Organizational trust refers to the feeling of trust that all parties (managers, friends, groups) in the organization, when confronted with uncertain and risky situations, are consistent, honest, and equitable to each other, and that they will fulfill their promises (Duffy & Lilly, 2013). Unlike interpersonal trust, organizational trust is more comprehensive than trust in personal relationships, since employees base their opinions on the collective characteristics of the organization (Alfes, Shantz, & Alahakone, 2015). In this context, an organizational trust includes the employees’ perceptions of the support provided by the organization and belief in the leaders’ integrity and honesty, and keeping their promises, and lays the foundation for all vertical and horizontal relationships within the organization (Mishra & Morrissey, 1990). Trust may be a result of social relations. Since this perception is formed by the mutual interaction of the parties, communication becomes an important determinant in the development of organizational trust. In the formation of an atmosphere of trust, there is an increase in the vulnerability and defenselessness of the trusting person, the behavior of the trusted person is not controlled or less controlled by the trusting person than is expected (Arı, 2003).

Organizational trust, a multi-dimensional concept, is categorized into two aspects; cognitive and emotional, according to McAllister (1995). Mishra (1996) discusses trust in four dimensions: competence, openness, interest, and reliability. There are also studies categorizing trust in terms of organization, account, personality, and cognition (Wu & Tsang, 2008). In this study, the researchers handle trust in three dimensions: trust in colleagues, trust in managers, and trust in the organization concerning the work of İslamoğlu, Birsel, & Börü (2007).

Trust in the organization represents the belief that there will be support from the organization, the promises made by the organization will be kept, and that the organization will be honest (Mishra & Morrissey, 1990). Employees who find their organization reliable will voluntarily be vulnerable to actions and behaviors that they cannot control, believing that their organization will strive in their interests, or at least will not act at their disadvantage (Tüzün, 2007).

Trust in an organization enhances relationships, facilitates negotiations, reduces costs, contributes to the solution of conflicts, increases the efficiency of the organization in its achievements, creates loyalty to the organization, and plays a role in job satisfaction (Albrecht & Travaglione, 2003). When employees feel that their organization treats them correctly and fairly, they can easily accept the decisions taken by the organization because they trust their organization more (Avram, Ionescu, & Mincu, 2015). Situations that increase trust within the organization create open and predictable business environments, where employees feel free to take risks and perform better (Alfes, Shantz, & Alahakone, 2015).

Trust in the organization and trust in the manager are different but related structures (Tan & Tan, 2000). Since managers represent the organization, employees can reflect this feeling to their organizations when they trust their managers (Whitener, Brodt, Korsgaard, & Werner, 1998). In this context, trust in the organization is dependent on the relations of employees with their managers.

Since trust is the result of mutual interactions, managers need to manage this process carefully and spread the feeling of trust to employees (Starnes, Truhan, & Mccarthy, 2010). Therefore, the managers' role is undeniable in creating, sustaining, and eliminating the trust environment with their promises and actions. However, it should be acknowledged that ensuring an environment of trust is quite sophisticated from the perspective of managers. The formation of trust may be affected by various phenomena out of direct control of the parties, like their perceptions of the interacting parties' behavior (Jucevicius & Juceviciene, 2015). Consistency in behavior, honesty, sharing of control, open communication, care and attention to subordinates (Whitener et al., 1998), and providing socio-emotional support (Purba, Oostrom, Born & Molen, 2016) are some of the factors that may affect employees' trust in their managers.

Trust in colleagues may be defined as the individual's belief in the competence, fair and reliable behavior of their colleagues (Ferres, Connell, & Travaglione, 2004). An individual who trusts their colleagues is sure that their colleague will not hide necessary information, misinform, gossip about or abuse them (İslamoğlu et al., 2007). When employees trust each other, they share their ideas and feelings and make more efforts for common goals with a sense of community (Mishra & Morrissey, 1990). It is important to be able to trust colleagues, as employees' dependence on each other to achieve individual and organizational goals requires cooperation and solidarity (Mayer, Davis, & Schoorman, 1995). In a business environment where a sense of trust develops, employees can become excited about their work, focus on their tasks, and become more productive (Seco, 2016). Trust, which is a critical issue for organizations, has the potential to directly or indirectly affect performance (Akkoç & Yılmaz, 2019). Studies focusing on understanding different outcomes related to organizational trust have also confirmed a positive relationship between organizational trust and performance. (e.g. Dirks, 1999; Dirks & Ferrin, 2001; Shen & Chen, 2007; Palonski, Kahai & Yammario, 2011; Büte, 2011; Li & Tan, 2013; Chen, Hsieh & Chen, 2014; Singh & Desa, 2018).

Configurational Approach

Although it addresses the management process as a rational process, the linear model is still widely used in strategic management and organizational management (Sarvan, Arıcı, Özen, Özdemir, & İçiğen, 2003). The configuration approach models organizational elements in different combinations in a system in the context of complexity. The theory provides an

opportunity to grasp the simplified aspects of intuitive typologies (Fiss, 2011) and the historical and intuitive perspective for the practitioners (Mintzberg, 1979). The configuration approach addresses the state of connections between sophisticated and multi-organizational elements, non-linear relationships, and discontinuity. At this point, the linear modelling of the configuration approach cannot be a valid and appropriate modeling approach in the field of management. The methods describing mutual causality, synergistic effect, and non-linear change are necessary to apply the theory.

Evaluation of the Trust Concept with the Perspective of the Configuration Approach

In a complex and dynamic social and technological environment, the performance of the employees is affected by social relations. This also complicates organizational structures. Within the context of the configurational approach, it is necessary to create variations using different logical methods and limitations to determine the ideal types of equifinal outcomes which may affect the organization (Doty, Glick, & Huber, 1993). One of the authors of General Systems Theory, who coined the concept of equifinality, Ludvig Von Bertalanffy (1949) defines equifinality as the principle when in open systems a final state may be reached by different initial states. Another definition of equifinality is as a set of results gathered by using set variables and innovative analyses drawn from wider resources and accounting for strong structural components, while also considering the cause and effect relationship (Lyman, 2004). Widening the horizon of the Weberian ideal type scale, the configuration approach develops mathematical models to evaluate alternative assumptions by the concept of equifinality.

The configuration created by a combination of configurational thought analyses and qualitative research tends to evaluate social phenomena and structures with a holistic point of view (Ragin, 2008: 87). Therefore, the right approach is to evaluate the effect of perceived trust of the employees with a holistic perspective including the organization, supervisor, and colleague.

Fuzzy Logic Method (Fuzzy System)

Fuzzy set and fuzzy logic refer to an approach capable of processing ideas and information outside of classical binary logic. This approach provides mathematical answers using logical analyses to statistical uncertainties. The Fuzzy-Set theory is an effective method where multi-criteria decision-making methods are used to cope with the ambiguity in decision-making mechanisms in an environment with multiple contradictory goals, complex alternatives, and uncertain criteria (Samaddar, Nargundkar, & Daley, 2006). Fuzzy set qualitative com-

parative analyses are an effective way to achieve strong and positive results in configuration (Plewa, Conduit, & Karpen, 2016). Ragin (1987) points out that focusing on assumptions, and independent variables with a significant effect on specific dependent variables should not be limited to fuzzy set comparative analyses. He mentions the presence of different ways of reaching conclusions and asymmetric conditions in his model using equifinality and causal asymmetry rather than limiting independent variables. The models created by elaborating traditional quantitative terms in qualitative terms do not provide definitive results, however, they unravel logical inferences which may be evaluated reasonably. These implications are considered probabilities, and definitive results may be reached with mathematical explanations (Zadeh, Tanaka, & Shimura, 1975: 200).

The name is derived from the theory's focus: ambiguous situations (Smithson & Verkuilen, 2006: 4). It tries to provide a special way through evaluations based on fuzzy set equifinality in organizational configurations. It provides the analysis of equifinality investigating the relative importance of every way in reaching the solution (Fiss, 2011). While this study presents its results using the fuzzy logic method, it bases its criteria of employee performances on complexity, ambiguity, and inconsistency in terms of fuzzy logic. In this context, the theory takes its name from its focus of study. However, contrary to its name, the theory elaborates on and grades fuzzy sets and allows for a clear and explicit understanding with its generalizations of trust sub-dimensions. Fuzzy logic theory designs new and different grading combinations by using ambiguity in the process of setting up data sets and drawing inferences in the relationship between objects.

Since the concept of trust cannot be measured, fuzzy set theory, which focuses on the details of the expressions of trust in daily life, is determined as an effective way as it benefits from the whole set of logical possibilities for solving difficult and complex questions and selects the best option among them.

Research Methodology

Sample and Data Collection

This study examines the influence of organizational trust on job performance by analyzing perceptions of public employees in law enforcement officials. The participants of this study are law enforcement officials working in different levels of hierarchical order

Law enforcement in Turkey (Law enforcement officials of the Turkish Republic) is the classification of law enforcement organizations according to their types.

. Most of the law enforcement forces in Turkey are affiliated with the Ministry of Internal Affairs of the Republic of Turkey. There are two types of law enforcement agencies: judicial

law enforcement and administrative law enforcement. Considering the concept of judicial and administrative law enforcement, there are three different law enforcement forces in Turkey, and these are the General Directorate of Security, the Coast Guard Command, and the Gendarmerie General Command.

The focus of the research was to measure the perception of trust in each organization and to reveal the relationship between individuals' perception of trust and their performance. The researchers carried out qualitative research with twenty people working as law enforcement officers using an in-depth interview technique and semi-structured questionnaire. They asked closed and open-ended questions to the participants.

This study conducted a literature review to determine individuals' perception of trust configurations (trust in the organization, manager, and colleagues). This research applied the organizational trust scale belonging to İslamoğlu, Birsnel, & Börü (2007) while forming the interview questions. During the interviews, the researchers sometimes allowed participants to explain their thoughts and suggestions. The researchers took the cumulative sums of the interview questions to determine variables (the configurations). The researchers assigned the participants' scores related to their performance evaluations as performance variables.

The relationship between the performance of the employees was investigated by a qualitative comparative analysis (fuzzy set-QCA) in three trust perception configurations (trust in the organization, trust in supervisor, and trust in colleagues). The study used the Fuzzy-set Qualitative Comparative Analysis (fsQCA) research method. As a theoretical approach, the Comparative Qualitative Analysis Technique (QCA) examines sets with different qualitative characteristics to test configuration theories. The QCA uses Boolean algebra to obtain simplified expressions generating specific results (Fiss, 2007). Contrary to the regression and correlation method overlapping with the assumption of linearity, QCA considers equifinality and concurrent variables. QCA refers to scenarios that allow a system to achieve the same final state through different initial conditions and different or multiple ways (Beraha, Bingöl, Özkan-Canbolat & Szczygiel, 2018).

Comparative Qualitative Analysis associates the interactions as conditions and outcomes while presenting a framework to compare organizational configurations. It addresses the applicability of equifinality and configurations to investigate the limited diversity between them (Fiss, 2007). This study followed the recommendations of Fiss (2007) and avoided different analytic methods like interaction effects and deviation scores. It adopted the QCA method assumptions when complex causality and non-linear relationships were demanded (Ragin, 2008). This study used fuzzy-set qualitative comparative analysis to determine the relationship between employee performance and trust dimensions, trust in the organization, trust in supervisors, and trust in employees.

Results

This section of the study is intended to evaluate the inter-relatedness between perceived trust and the performance of the individuals. At this point, the study found that the individuals' perceived trust and relevant configurations may have had effects on their performance.

This study used a qualitative comparative analysis technique and determined perceived trust configurations (trust in the organization, supervisor, and colleagues) as conditions/reasons. Individual performance points were defined as outcome variables. This research determined the cause/condition variables and outcome variables concerning the in-depth interviews and surveys technique among 20 officers who work at different levels of the organization. The researchers determined the configurations of the trust variable (to organization, manager, and colleagues) with 26 items concerning trust in the organization, 40 items concerning trust in the manager, and 38 items concerning trust to colleagues (İslamoğlu et al., 2007). Then the researchers took the cumulative totals of each sub-dimension and evaluated them with a scale of 1-5. Performance points of the organization individuals are determined as outcome variables.

Comparative Qualitative Analysis also takes into account situations when there is no relationship between condition and result (negation), rather than confining itself to situations where the condition and result relationship is present. Therefore, similar results, if there are any, are also determined in the cases where the condition-result relationship is present, and when it is not (Ragin, 2006; 2008).

After collecting the data for conditions and results, they were calibrated for use in Qualitative Comparative Analysis (QCA). The calibration makes up the qualitative method of the QCA. During this section of the study, researchers determined minimum and maximum values for cross-over thresholds. These values were completely left to the initiative and priorities of the researchers while considering the theoretical background of the research, and the sample (Fiss, 2007; Ragin, 2006; Schneider & Wagemann, 2010; 2012).

The cross-over threshold value was determined as 2.5 while calibrating the conditions making up the dimensions of the trust variable. The maximum and minimum variables of trust perception configurations were determined as 5 and 1, respectively. Performance points, determined as result variables, were scaled from 0 to 5 by the relevant organization. However, according to information received from the organization, the study found that the employees needed to have at least a base 2 points to comply with the job description. Therefore, while calibrating the result variable minimum value was determined as 2 and the maximum as 5. When the corporate value of the performance score is examined, it is seen that the employees have an average of 4.5 points. The result variable was calibrated by assigning 4.5 points to a cross-over threshold value.

Performance Points Truth Table Analysis: A truth table analysis based on Qualitative Comparative Analysis (QCA). This analysis searches for results that are sufficient causal combinations. Table 1 shows the truth table analysis of the interaction of performance score and trust perception configurations.

Table 1
Performance Variable Truth Table

Trust in Organization	Trust in Employee	Trust in Supervisor	Perf. Points	Order Consistency	PRI consistency	SYM consistency
1	0	1	1	.972	0	0
0	0	0	1	.967	0	0
0	1	1	1	.916	0	0
1	1	1	0	.759	0	0

The truth table analysis lists the combinations of all possible conditions (Schneider & Wagemann, 2010). Since there are 3 configurations, in this case, the number of all possible combinations is 2³. The researchers determined the consistency threshold as 0.8, a value expected to give reliable results according to Fiss, 2011; Rihoux & Ragin, 2009; Schneider & Wagemann, 2012. The analysis only reports case solutions over zero (Table 1).

Solution Term Recommendations for Performance: See Table 2 for solution term recommendations of Comparative Qualitative Analysis (QCA).

Table 2
Solution Term Recommendations for Performance Variable

Solution Term	Scope (raw)	Scope (unique)	Consistency
<i>trstinempl*trstinsprv*~trstinorg</i>	.730	.148	.916
<i>trstinempl*~trstinsprv*trstinorg</i>	.635	.026	.972
<i>~trstinempl*~trstinsprv*~trstinorg</i>	.467	.004	.967
Full Solution	.788		.915

Ragin (2006) recommends the use of raw coverage and unique coverage to assess the empirical importance of the studies. Schneider & Wagemann (2010) state that raw coverage determines the overlap between causal/conditional sets and result sets. Unique coverage, on the other hand, shows the overlapping descriptions by dividing raw coverage into categories.

Total coverage, referred to as the importance of all causal pathways, is determined as 0.788 in this study. This result shows that the causal pathways encompasses most of the results. Raw coverage of single causal/conditional pathways is 0.73 for the *trstinempl*trstinsprv*~trstinorg* result pathway. Unique coverage for this pathway is 0.148. For the second solution pathway recommendation, raw coverage and unique coverage results for *trstinempl*trstinorg*~trstinsprv* were determined as 0.635 and 0.026, respectively. Both have acceptable results. Raw coverage for value for the third pathway *~trstinempl*~trstinsprv*~trstinorg* was 0.467 while the unique coverage value was 0.004. This solution was eliminated by the researchers since the unique coverage value is below 0.01.

Table 2 shows that the two solutions can explain the relationship between the trust perception configurations of the employees and the performance scores of the employees. The first result shows that trusting their colleagues and managers can increase their performance when the employees *do not trust* their organizations.

The Truth Table Analysis in the cases where there is no Performance Increase (Negation): The lack of a result or negation is a recommended solution pathway even if it is not a part of the hypotheses (Ragin, 2006). This section investigates the interaction of employees’ trust perception configurations between the cases where there is no increase in performance. Analyses of negation cases may help in understanding the causal logic that guides positive cases, and/or produces interesting and important information by itself (Ragin & Rihoux, 2004).

Table 3
Truth Table in cases where there is no Performance Increase (Negation)

Trust in Organization	Trust in Employee	Trust in Supervisor	~Perf. points	Order Consistency	PRI consistency	SYM consistency
0	0	0	1	.995	.857	1
1	0	1	1	.993	.75	1
0	1	1	1	.963	.559	1
1	1	1	1	.849	.374	1

We determined the consistency threshold as 0.8, a value expected to give reliable results (Table 3). The analysis only reports case solutions over zero.

Solution Term Recommendations for the cases where there is no increase in performance (negation): QCA uses a “control variable” to test the reliability of the relationship between the performance variable and trust perception configurations in cases where there is no increase in performance. Three solution recommendations were found in cases where there is no increase in performance (Table 4). While the raw coverage result is 0.946 and the unique coverage result is 0.046 for one of them (trstinempl*trstinsprv), the raw coverage result is 0.938 and the unique coverage result is 0.015 for trstinempl*cnfdinsprv. The solutions in Table 2, about the relationship between performance and perceived trust, were re-checked since the two aforementioned solutions are not the same as the solutions in Table 2. The raw coverage and unique coverage results were determined as 0.419 and 0.004, respectively, for the third solution (~trstinempl*~trstinsprv*~trstinorg) in Table 4. This result is not acceptable as a solution for the relationship between performance and perceived trust since its unique coverage value is lower than 0.01 and is the same solution as the third solution in Table 2.

Table 4
Solution term for cases where there is no performance increase (negation)

Solution Term	Scope (raw)	Scope (unique)	Consistency
trstinempl*trstinsprv	.946	.046	.786
trstinempl*cnfdinsprv	.938	.015	.845
~trstinempl*~trstinsprv*~trstinorg	.419	.004	.995
Full Solution	.988		.784

Conclusion and Limitations

This work shows that trust in colleagues played a key role in the Turkish Law Enforcement Agency when the performance and trust perceptions were associated. The study revealed employee trust is associated with the employees' performance in cases where there is no trust in the organization or trust in the manager (Table 2). Furthermore, both solutions include employee trust when the relationship between trust dimensions is examined in cases where there is no performance increase (Table 4). However, in cases where no performance increase is reported, employees either have trust in the organization or trust in the manager, along with trust in the employee (Table 4). In cases where performance and perceived trust are associated, it has been observed that the employees do not trust in one of these dimensions (trust in the organization or trust in the manager, excluding trust in colleagues) even when they have trust in the organization or trust in the manager along with employee trust.

Employees generally perceive trust in either an organization or managers. But they necessarily trust co-workers when the interaction between performance increases interrelates the perception of trust based on those working in law enforcement agencies in Turkey.. In other words, the researchers determined that the three dimensions of perception of trust have a holistic effect on the performance of the employees. Accordingly, this study concludes that the perception of trust in their colleagues has a positive effect on the performance of employees in the absence of one of the perceptions of trust in the manager or the organization. The study found out that if either trust in the organization or trust in the manager is lacking but the other is satisfied, employee trust is also included. In the cases where trust in the manager or trust in the organization is lacking, employee trust increased the employees' performance. This point distinguishes the study from other trust perception studies. This study gives an idea about the relationship between trust and job performance and shows that the job performance of those working in law enforcement may depend on the perceptions of organizational trust.

This study provides insights into the relationship between organizational trust and job performance and indicates that job performance may be dependent on organizational trust in law enforcement officials. Increasing the performance of the employees is both the duty of the manager and also one of the most needed factors. In this sense, it is obligatory to create environments that will enable employees to perform better. Trust is an important determinant in the creation of the environment in question. The findings show that combinations of different organizational trust dimensions can have different effects on the performance of employees. It seems important that managers are aware of the strength of trust and the distinction between different trust references because it has the potential to affect employees' performance.

This study uses the fsQCA method; an alternative method to linear modeling. In addition, this study, unlike other trust studies, gives importance to the knowledge of trust types and

their interaction as well as the perception of trust in organizations and managers in increasing the performance of Turkish law enforcement officers. Researching the effects of three types of trust concurrently contributes to the trust literature and provides a better understanding of how organizational trust affects employee performance.

Focusing on different types of trust instead of focusing on one type of trust in the study provides some tips on organizational trust for managers who are interested in improving employee performance. It also helps to develop realistic expectations about the effects of trust. As far as the literature, no study addresses trust and performance with the fsQCA method. Therefore, the field is open to the contribution of the studies to be carried out with the comparative qualitative analysis technique.

The current study has limitations. This study uses a sample taken from only one industry and country. Future research may expand the model to other countries and industries. Replicating the study with a more heterogeneous sample in different organizations might increase the generalizability.

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