

Does Organizational Agility Affect Sustainable Quality Perception? The Mediating Role of Innovation Orientation

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ABSTRACT

The aim of this study is to examine the relationships between organizational agility (OA), sustainable quality perception (SQP) and innovation orientation (IO) and to test whether innovation orientation has a mediator role between the other two variables. Especially with the covid-19 epidemic, it is thought that businesses should be agile and attach importance to sustainable quality in order to adapt to changing conditions, while unforeseen change and transformation processes are experienced today. It can be stated that there is a necessity to always follow the innovations and apply them on time in order to maintain the quality. The research was conducted with a sample of 438 white-collar employees from different sectors in Türkiye. According to the findings obtained; a statistically significant positive correlation was found between OA and SQP, OA and IO, and IO and SQP. In addition, according to the mediation test, it was determined that innovation orientation had a partial and strong mediating role between OA and SQP.

JEL Classification: M10, M14, O32

Keywords: innovation orientation, organizational agility, strategic management, sustainable quality perception

I. INTRODUCTION

Due to globalization, technology and outsourcing that contribute to uncertainty and unpredictability in all sectors, an organization's ability to adapt to unexpected changes is critical to gaining competitive advantage, capturing new business opportunities, ensuring sustainability (Liu et al., 2018; Lu and Ramamurthy, 2011; Russell and Swanson, 2019).

The idea of adapting organizations to unforeseen changes in businesses has led to the development of one of the important concepts in business strategies, and this is referred to as the concept of organizational agility. It is seen that organizational agility provides a great benefit in competitive advantage with its speed, flexibility, responsiveness and competence dimensions (Zhang and Sharifi, 2000). In order to keep resistance to change at the lowest level, businesses should attach importance to agility, as well as adapt agility to the structure and culture of the employees and the organization (Akkaya, 2018). According to the contingency theory (Fiedler, 1964), organizations will become more successful and effective after the adaptation of their structure to environmental changes. Considering that the speed of technological and environmental changes is more intense and fluid than before; it is predicted that the life span of non-agile businesses will shorten or even end. The possibility of eliminating businesses that are delayed in responding to changes, as in population ecology and adaptation theories, is supported by research from past to present (Ülgen and Mirze, 2020). In line with these theories, it can be stated that organizational agility is an important milestone for business organizations.

For this research, which consists of variables that complement each other, innovation tracking, which is the return of agility, has to be the focus of business and business senior management. The top management, who follows the innovation-oriented approach as closely as possible, should take a holistic view of the decisions and processes by spreading them to the operational and technical management. The 21st century, in which the speed of innovation is felt at the maximum level, is a period of companies that want to achieve a structure where the processes are set up correctly and the outputs are perfect. Quality, which is among the specific issues that consumers and customers pay attention to in the acquisition of goods and services, is interrupted by speed, which is the most important element of agility and innovation-orientation. It is of great importance that the quality increases in parallel with the speed and reaches the customers and consumers without deterioration. The ones that will make the quality sustainable are the top management and then the operational and technical management steps. Quality, which is a manageable and sustainable concept, has a vital importance in businesses.

Sustainability aims to leave the world to future generations in a more beautiful and livable way as a good environmental, social and economic legacy (Şahin and Çankır, 2019). It is stated that the United Nations sustainable development goals (SGDs) adopted in 2015 have been interrupted due to the covid19 pandemic in 2020. A clear intersection has emerged between sustainability challenges and health. Unequal access to knowledge, demand for access to technological infrastructure, reduced mobility due to travelling restrictions, inability to work due to health effect economic conditions, job loss, reduced working hours, unequal usage of resources are some key implications which affected sustainable quality offered by businesses (Shulla, 2021). Businesses that

provide sustainable quality can achieve rapid growth by making a difference in the market compared to others.

In this study, the mediating role of innovation orientation in the effect of organizational agility on sustainable quality perception is examined. Since there is no other study in which two or three variables were used together, it is thought that this study is important in terms of its contribution to the literature. It is predicted that these concepts, which can ensure survival against all the developments, changes and transformations experienced, will provide great success to businesses if they are perceived and applied correctly. It is thought that the data collected in the enterprises where the study is planned to be implemented will bring a different perspective to both the business and the academy. This perspective is to evaluate these three concepts, which are the subject of the study, within the framework of organizational learning theory and total quality management which are postmodern management approaches for future researches. It is believed that this research, which can provide self-evaluation and determination of the step it is in, will shed light on researchers in order to test it in different sectors according to that perspective.

The rest of the paper is structured as follows: It first introduces the theoretical background on organizational agility, sustainable quality perception and innovation-orientation and develop the research hypotheses. Next in the methodology part, sample, research model and the findings and results of the questionnaire application were presented. Structural equation modeling was used in the research and Likert scale was used in the questionnaire. As a result of the findings obtained from the research; Whether or not innovation-orientation has an intermediary role in the effect of white-collar employees' organizational agility on sustainable quality perceptions has been determined.

II. THEORETICAL BACKGROUND AND RESEARCH HYPOTHESES

A. Organizational Agility

Before defining organizational agility, examining the concepts of organization and agility, which are the two basic building blocks, contributes to the understanding of the model.

There are various difficulties in defining the concept of organization in a simple way. Throughout their lives, people are in contact with many organizations such as schools, associations, clubs, companies, various public institutions, political parties, and hospitals. However, it is not easy to determine the elements that make up an organization (Schein, 1976). In short, organizations are structures that consist of more than one person, whose authorities and responsibilities are determined down to the smallest building blocks, and that act in coordination for a common purpose.

Sharifi and Zhang (1999) defines agility as the ability to cope with the unprecedented new and different challenges of the modern and perhaps post-modern business environment and to gain advantage and profit by turning these challenges into opportunities. Agility is considered as a strategic approach because of this definition.

Agility includes all the abilities of the enterprise that interact with its customers, regulate its internal operations, enable it to use the ecosystem of external business

partners, identify innovation opportunities, quickly gather assets and information it needs (Sambamurthy et al., 2003). With regards to agility, the basic rule of keeping up with changing competitive conditions is to be able to see and seize opportunities as well as dangers.

Organizational agility, much more than a single process or methodology, is a skill that empowers employees to make important decisions in challenging projects, makes them flexible and responsive to uncertainties, gains the ability to continuously adjust strategies, and allows them to see unexpected change as an opportunity for transformation (Moreno, 2017).

As Munteanu (2019) cites from the business dictionary, organizational agility indicates that an organization can successfully cope with changes in the business through its characteristics. It is defined as the ability of an enterprise to change or adapt rapidly in order to respond to changes in the market. A high degree of organizational agility can help the enterprise to successfully respond to unexpected changes in general market conditions, to the emergence of new competitors in that industry and to the development of new industry-changing technologies.

The building blocks of organizational agility are examined in four dimensions gathered as responsiveness, flexibility, speed and competence in the literature. Some researchers show as examples of the ability to respond, reacting to changes and integrating with the business, improving changes, strategically determining vision, perception and predicting changes (Sharifi and Zhang, 1999: 17; Zhang and Sharifi, 2000: 506; Sharifi et al., 2001: 862). In addition to these, it is also very important to respond to social and environmental issues and to adapt the goals and objectives of the business to alterations (Sherehiy et al., 2007).

According to Bozkurt and Baştürk (2009), while flexibility is expressed as the ability to adapt to changing conditions and their unexpected and unforeseen consequences, it is also considered an organizational form. Organizational flexibility is defined as the flexibility in the production volume of an enterprise, flexibility in the structure of the product model, flexibility in organizational behavior, and the flexibility of employees to adapt to new possibilities and changes (Sharifi et al., 2001). Adaptability ensures that organizational operations are suitable for their environment; flexibility, on the other hand, emphasizes the readiness of organizational resources at all times and the ease of mobilizing resources.

According to Zhang and Sharifi (2000), speed is the ability of businesses to carry out their tasks and responsibilities as soon as possible. It is acknowledged that factors such as rapidity in the time of launch of new products, timeliness in the provision of products and services, and quick action with shortening operation times are directly related to the ability to speed. In addition to the ability to respond, which is the basic skill of an organization that needs to be agile, the ability to speed is actually considered as an additional element required to ensure sensitivity.

It may be deemed necessary for the organization to have an innovation-oriented approach in order to shorten the applied business processes and to save time while ensuring the realization of products and services of the same quality. The fact that some processes become efficient only with the innovation method makes this approach obligatory. In order to ensure innovation orientation, certain competencies must be found or gained within the organization. In addition to the basic skills of the employees, organizational competencies are also considered as assets in businesses. These entities

are not homogeneous and cannot be easily seen from the outside. Therefore, organizational competencies cannot be easily copied or transferred by competitors. The organization's culture and ways of doing business can be considered as an example (Çetinkaya and Özutku, 2012).

In a nutshell, competence is recognized as a comprehensive list of abilities that provide productivity, efficiency and effectiveness in achieving a company's goals and objectives. The following items make up the majority of this skill list (Zhang and Sharifi, 2000): Strategic vision, appropriate or sufficient technological ability, product or service quality, cost effectiveness, high rate of new product promotion, change management, knowledgeable, competent and empowered people, process efficiency and effectiveness, internal and external collaborations, integration.

Owing to their organizational competencies, businesses can quickly respond to changing conditions in the market by using their competitive abilities. Thus, it can be said that competence, the fourth and last dimension of organizational agility, is in a direct relationship with the ability to respond.

B. Sustainable Quality Perception

The term sustainability is understood as a concept that expresses the balance between production and natural resources. The broad use of the sustainability is equated with the use of the vital functions of our biophysical environment in a way that will remain accessible forever (Huetting and Reijnders, 1998).

In today's world, the deterioration of our environment and natural resources is increasing, and therefore, it will be more difficult for future generations to meet their needs due to the problems that may occur on economic and social development. For this reason, the development programs of the states should be reorganized in a way to ensure sustainability. While the importance of sustainability is rapidly increasing in the world, companies as well as governments are rapidly adopting this concept. In the context of social responsibility, companies are more willing to use resources efficiently not only for environmental concerns, but also to survive in the competitive market and be financially successful. As a consequence, it becomes necessary for companies to measure and evaluate their sustainability. However, since sustainability is considered as an abstract issue that is difficult to measure, researchers focused on developing indicators to monitor and evaluate the environmental impacts of production activities (Acar et al., 2015).

Quality, as an instinctive point of view, is a term that appeals to us at a very basic level. It is very difficult to make a complete definition of quality in a way that will suit every sector, every product and service, and therefore everyone. Everyone can feel what the quality of the product or service they receive means, but when asked, they cannot make the definition exactly as they wish. This is due to the fact that quality is an abstract concept and subjective (Balci, 2005).

Quality in the broadest sense is anything that can be improved. It is not only related to products and services, but also to the way people work, the way systems and procedures are handled, and the way machines are operated. It includes all aspects of human behavior. This definition is close to those of The European Organization for Quality Control (EOQC) and of the American Association for Quality Control who define quality as the sum of the characteristics of a product or service based on its

ability to meet the given needs (Kim, 1997). Similarly, we can express quality as the most economical provision of products and services produced to meet the expectations and needs of people in a complete and continuous manner.

Ensuring the sustainability of the company can also be expressed in direct proportion to the sustainability of quality. While carrying out the necessary studies to ensure sustainable quality in enterprises, it is necessary to measure how this is perceived from the perspective of employees and customers and take action according to the results. This can also be seen as an activity of continuous improvement and development, which is a vital need for the business in order to keep up with constantly and rapidly changing conditions.

Perception is the interpretation of sensory information (Güney, 2017) created by the interpretation of data reaching the brain through the sensory organs with a high level of cognitive process. The first detection of stimulants in our sense organs is sensations. Perception is the interpretation of what we feel in the continuation of the sensations. The sensations reaching us are reacted as a result of perception. The quality perception is defined as the consumer's assessment of the excellence of the product or the superiority of objective quality (Zeithaml, 1988). For Parasuraman et al. (1988), quality perception is expressed as an attitude resulting from the comparison of consumer expectation and actual performance. Ultimately, the sustainable quality perception can be defined as the attitude that quality goods and services which are formed without damaging the continuity of resources despite changing difficult conditions, created in people as a result of the relationship between the consumer's expectation and actual fulfilment.

Organizational agility is seen as a dynamic capability that positively affects the competitiveness and performance of companies (Sambamurthy et al., 2003). In this context, this dynamic talent that enables to get rid of crises and changing conditions is one of the building blocks of sustainability for businesses (Nijssen and Paauwe, 2012). Organizational agility and sustainability need to be combined as it is a paradigm that enables companies to survive in the current hyper-competitive and dynamic business environment (Vinodh, 2010). Businesses that promote sustainability are also more respectful of the environment and try to minimize their environmental impact (Felipe et al., 2017). For this reason, businesses that attach importance to sustainable quality tend to develop environmentally friendly products and services and try to put into use more eco-efficient processes. Concretely, the ability of the business to adapt rapidly to changing difficult conditions will also positively affect the sustainable quality perception. For this reason, organizational agility is considered as a basic way to achieve the goal of sustainable quality perception. Thus, we propose

H1: Organizational agility is positively related to sustainable quality perception.

C. Innovation Orientation

The term innovation encompasses four fundamental factors as new ideas, people, operations and corporate context. Innovation can broadly be defined as the development and implementation of new ideas by people who relate with others over time within a corporate system (Van de Ven, 1986). Similarly, Simmie et al. (2002) define innovation as an attempt to create competitive advantage by perceiving or discovering new and

better ways to compete in an industry and bringing them to market successfully commercially. This concept has emerged primarily as a product and service innovation in order for businesses to ensure their sustainability and to gain competitive advantage and survive in harsh market conditions. Afterwards, with the developments encountered in every field, it has been exposed to diversification as product, process, managerial, marketing, organizational, technological and re-innovation.

Accordingly, surviving in harsh market conditions with the help of innovations is related to organizational agility. Firms that can respond quickly and with innovative actions to changes in business environments are also seen to improve their performance (Ferrier, 2001). Innovation-oriented companies such as Amazon and Yahoo are constantly changing many aspects of their business models in order to be agile. (Rindova and Kotha, 2001). Innovative firms are more involved in practices such as managerial innovations and the transformation of operating systems, and it is therefore argued that innovation orientation is an important complementary capability that can explain the variance in organizational agility (Ravichandran, 2018). The theoretical justifications lead us to the second hypothesis:

H2: Organizational agility is positively related to innovation orientation.

Manu (1992), who is one of the first people to define the term innovation orientation, states that innovation orientation covers all of the company's total innovation programs, and is inherently a strategic concept because it provides direction to the business while dealing with the markets. Berthon et al. (1999) consider the innovation orientation in terms of technological superiority and define it as companies "devoted to inventing and refining superior products". Superior products can be described with sustainable quality which can be considered positively related to innovation orientation. On the other hand, businesses integrate social and environmental concerns into their commercial activities and interactions with stakeholders through corporate sustainability and social responsibility projects in order to contribute to the quality of society at local and international level (Zwetsloot and Van Marrewijk, 2004). It is stated that when diverse stakeholders of organizations become aware of environmental sustainability, innovation becomes more important for sustainability in terms of corporate legitimacy, reputation and performance (Varadarajan, 2017). In addition to environmental activities mandated by regulations, customers are also checking whether businesses are adapting to new environmental trends like waste separation and internal recycling systems, energy saving projects and products, green energy supply, reducing packaging materials, intake system for used products from customers, emissions to air - water – soil (Bos-Brouwers, 2010). The realization of these environmental activities can be considered directly related to the use of technology and innovation. Thus, the following is hypothesized:

H3: Innovation orientation is positively related to sustainable quality perception.

After understanding the continuous changes in the market, the knowledge structure required to develop the necessary processes in the business and to create dynamic capabilities is expressed as innovation-oriented. It has been conceptualized with three components: learning philosophy, strategic directive, and functional

adaptation (Siguaw et al., 2006). As first component, learning philosophy is defined as a common set of understandings about acquiring, learning, thinking, transferring and using knowledge across the organization to realize innovation (Siguaw et al., 2006). Strategies can be made in a state of uncertainty where information is extremely insufficient, just like the inherent uncertainty in innovation. With this similarity, it can be said that the inference can be reached that the nature of strategy and innovation coincides. As second component, innovation-oriented enterprises should have the strategic guideline that “includes strategic beliefs and insights that define who the firm is and how the activities of the organization are combined to ensure that innovation takes place on time”. This component is the way of thinking and leadership that drives the firm forward in the long run and keeps it constantly innovative. Although the strategic directive includes the clarity of the thought and purpose, it is usually expressed through vision and mission statements and goals (Siguaw et al., 2006). The third component that constitutes the structure of innovation orientation is accepted as functional adaptation. Functional adaptation here is often seen by Worren et al. (2002) as a set of collective understandings and beliefs that permeate the innovation-oriented firm, creating a unifying companionship, enthusiasm, and commitment among employees.

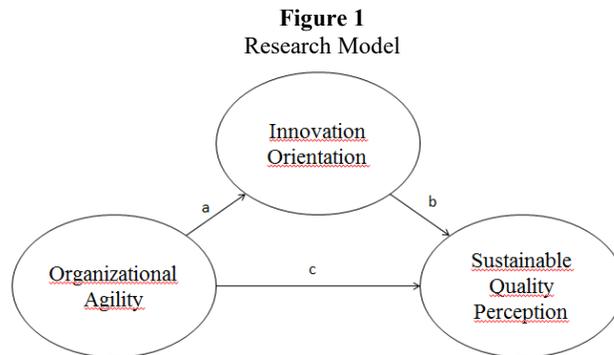
Innovation orientation not only influences sustainable quality perception but is also considered as a crucial factor to achieve organizational agility, so considering innovation orientation as a mediator when exploring the relationship between OA and SQP will provide more accurate results and explanation to this relationship. Thus, we propose

H4: Innovation orientation mediates the relationship between OA and SQP.

III. METHODOLOGY

A. Research Model

Based on the above discussion and hypothesis formation, the model developed to determine the mediating role of innovation orientation in the effect of organizational agility on sustainable quality perception, which is the purpose of the research, is as shown in Figure 1.



In order to determine the explanatory nature of this model, which was built in accordance with the purpose of the research, the four main hypotheses previously mentioned will be used. Our model predicts that OA can improve sustainable quality perception whereas innovation orientation has a mediating role in the underlying relationship between OA and SQP. In addition, we examine and explain separately the direct relationships of OA and IO with SQP.

B. Sample, Data Collection and Measurements

This research serving the field of management has been carried out practically. The survey method, which is a quantitative data collection method, was chosen for the research. To collect our data, a survey instrument was created which consists of 3 scales and demographic information (6 statements): The organizational agility scale (17 statements) adapted to Turkish by Akkaya and Tabak (2018), the scale in Çankır's (2019) study on the Perception of Sustainable Quality of Academicians (13 statements), including the innovation orientation scale (6 statements) which Şenerol (2020) used in her doctoral study in hospitality businesses. To summarize, a questionnaire with a total of 42 statements was used and collected data online. The universe of the research consists of white-collar employees in various sectors in Türkiye. Accordingly, the research was conducted with 438 white-collar employees who participated in the survey. Each employee was contacted from online social networking platforms for professionals by message to gain acceptance for participation in the survey. 1320 employees have been messaged and 438 unique and usable completed surveys were obtained for a response rate of 33%.

C. Mediating Role Test

This study uses the conditions defined by Sarkis et al. (2010) for the mediation role test: (1) A significant relationship between the independent variable and the dependent variable, (2) a significant relationship between the independent variable and the mediator, (3) a significant relationship between the mediator and the dependent variable, and (4) after controlling for the mediator's effect, the relationship between the independent variable and the dependent variable should become insignificant. If all the predicted conditions are met, the effects of the independent variable are said to be "fully" mediated. If the path between independent variable and dependent variable is significant, this indicates the operation of multiple mediating factors (Baron and Kenny, 1986). Structural equation modeling (SEM) is recommended as the preferred approach for mediation testing (Sarkis et al., 2010).

IV. RESULTS AND ANALYSIS

A. Reliability and Validity of Measures

Exploratory factor analysis was applied to test the construct validity of the scales. The suitability of the data for factor analysis was examined with the Kaiser-Meyer-Olkin (KMO) coefficient and Bartlett's test of sphericity (BTS). In the analysis made on the data of the organizational agility scale, since the factor load of the fourth statement was

below 0.50, it was excluded from the structure and re-analyzed.

The KMO value of the organizational agility scale is 0.954 and BTS is 5624.67 ($p < 0.05$), the KMO value of the sustainable quality perception scale is 0.948 and BTS is 5257.01 ($p < 0.05$), the KMO value of the innovation-orientation scale is 0.905 and BTS is 2795.29 ($p < 0.05$). Since the KMO value is over 0.80, the data obtained from the sample is considered to be sufficient. The fact that BTS result is less than 0.05 indicates that the relationship between the items of the scales is suitable for factor analysis.

The original organizational agility scale consists of four factors: competence, flexibility, responsiveness, and speed. However, as a result of the analysis made in line with the data collected in the research, a single factor is reached and it explains 62.10% of the total variance. The reason for this is due to the sample's responses to the questionnaires. Next, as in the original of the sustainable quality perception scale, a single factor is reached and it explains 66.16% of the total variance. At the end, as in the original of the innovation-oriented scale, a single factor is reached and it explains 80.34% of the total variance.

Cronbach Alpha coefficients were calculated to determine the reliability of the scales used in this study.

As seen in the Table 1, the reliability value of the organizational agility variable was given as 0.959, the sustainable quality perception variable as 0.956, and the innovation orientation variable as 0.949. It is seen that the internal consistency values of the items in these scales are at a significantly higher level than the generally accepted value of 0.70.

Table 1
Reliability Analysis Results

	Items	Cronbach's α	Mean	Standard Deviation	Min.-Max.
Organizational Agility	16	0.959	3.86	0.85	1-5
Sustainable Quality Perception	13	0.956	3.84	0.89	1-5
Innovation Orientation	6	0.949	3.86	0.99	1-5

B. Analyzes on Demographic Features

The demographic characteristics of the employees participating in the survey of the research are given in Table 2 and Table 3 in detail.

When Table 2 is examined, there is a statistically significant difference between male and female participants in terms of the mean scores of the innovation orientation scale. Male participants' innovation orientation score average is higher than female participants. According to this result, it can be stated that sexuality has an effect on innovation-orientedness.

There is a statistically significant difference between married and unmarried individuals in terms of sustainable quality perception and innovation orientation scales. Perception of sustainable quality and innovation orientation mean scores of married employees participating in the survey are higher than those of singles. According to this result, it can be said that marital status has an effect on sustainable quality perception and innovation-orientedness.

Table 2
Comparison of the Scales According to Demographic Features – 1

Groups	Organizational Agility				Sustainable Quality Perception				Innovation Orientation				
	N	\bar{x}	Ss	t	p	\bar{x}	Ss	t	p	\bar{x}	Ss	t	p
Sex													
1)Female	162	3.81	0.87	0.997	0.320	3.73	0.92	1.865	0.063	3.68	1.15	2.744	0.006*
2)Male	276	3.90	0.81			3.90	0.87			3.97	0.87		
Marital Status													
1)Married	265	3.93	0.85	1.878	0.061	3.91	0.88	2.200	0.028*	3.95	0.92	2.356	0.019*
2)Single	173	3.77	0.83			3.72	0.89			3.73	1.08		
Education Status													
1)Continues	180	3.83	0.86	0.659	0.510	3.76	0.89	1.472	0.142	3.78	1.04	1.51	0.132
2)Does not continue	258	3.89	0.84			3.89	0.89			3.92	0.95		

*t: Independent Sample T Test, Comparison: Bonferroni, *: $p < 0.05$ (Significant)*

When the educational status is examined, there is no statistically significant difference between those who continue their education and those who do not in terms of the mean scores of all scales.

Table 3
Comparison of the Scales According to Demographic Features – 2

Groups	Organizational Agility				Sustainable Quality Perception				Innovation Orientation							
	N	\bar{x}	Ss	F	p	\bar{x}	Ss	F	p	\bar{x}	Ss	F	p			
Education Level																
1) Associate Degree	51	3.90	1.02	2.091	0.101	3.89	1.05	5.011	0.002*	3.96	0.91	1.657	0.176			
2) Undergraduate	194	3.95	0.79			3.99	0.83			3.95	0.96					
3) Post Graduate	142	3.83	0.82			3.74	0.87			3.73	1.02					
4) Doctorate Degree	51	3.63	0.92			3.51	0.89			3.79	1.08					
Work Experience																
1) Less than 1 year	20	4.31	0.57	5.649	1-2	4.20	0.61	3.994	1-2	4.23	0.6	5.745	1-2			
2) 1 - 3 years	47	3.40	0.88			Cp:	3.42			0.96	Cp:			3.37	1.3	Cp:
3) 4 - 6 years	32	3.76	0.99			3.85	1.04			3.64	1.31					
4) 7 - 9 years	43	3.82	0.77			and	3.74			0.86	and			3.64	0.83	and
5) 9 +	296	3.92	0.82			2-5	3.89			0.86	2-5			3.97	0.9	2-5

*F: One-way analysis of variance (ANOVA), Comparison (Cp): Bonferroni, *: $p < 0.05$ (Significant)*

When Table 3 is examined, there is a statistically significant difference between the educational levels of the respondents in terms of sustainable quality perception mean score. Participants with an undergraduate degree have significantly higher perception of sustainable quality score average than those at the doctoral level. According to this result, it can be said that education level has an effect on sustainable quality perception.

In terms of work experience, there is a statistically significant difference in terms of mean scores in all scales. The average score of the respondents with less than 1 year work experience is significantly higher than those between 1-3 years. Those with 1-3 years of work experience have significantly less average points than those with more than 9 years. According to these results, it can be said that work experience has an effect on organizational agility, sustainable quality perception and innovation-

orientation.

C. Relations between Variables

Correlation analysis was applied in order to determine the relationships between the variables examined in order to determine whether the structural equation model to be applied within the scope of the research model is suitable or not. Correlation analysis results applied to show the relationships between variables are included in the Table 4:

Table 4
Correlation Statistics between Variables

Variables	N	r	p
Organizational Agility Sustainable Quality Perception	438	0.877**	0.000
Organizational Agility Innovation Orientation	438	0.840**	0.000
Sustainable Quality Perception Innovation Orientation	438	0.872**	0.000

** : $p < 0.01$ r: Pearson Correlation Coefficient

r	Relationship Level	Relationship Direction
0.00	None	r = - (negative relation) r = + (positive relation)
0.01 – 0.29	Low	
0.30 – 0.69	Middle	
0.70 – 0.99	High	
1.00	Perfect	

When Table 4 is examined, at first, it is seen that there is a high level of positive relationship between organizational agility and sustainable quality perception scores ($r = 0.877$; $p < 0.05$). Secondly, it is understood that there is a high level of positive correlation between organizational agility and innovation-oriented scores ($r = 0.840$; $p < 0.05$). At the end, there is also a high level of positive correlation between sustainable quality perception and innovation-oriented scores ($r = 0.872$; $p < 0.05$).

D. Structural Equation Model

In this section, we are testing the model and examining these relations with structural equation modeling. The purpose of establishing the structural equation modeling is to find the model that best fits the available data. The structural equation model is established and analyzed. As a result of the analysis, it was seen that the model did not fit well, and therefore a model improvement study was carried out. After examination of the modification index values, covariances were created between the error terms which have high level of correlation and the model was re-analyzed. The verified measurement model is presented below:

For the compatibility of the created research model, the values of the fit criteria found below were examined and the following Table 5 was created.

Figure 2
Structural Equation Model of the Study

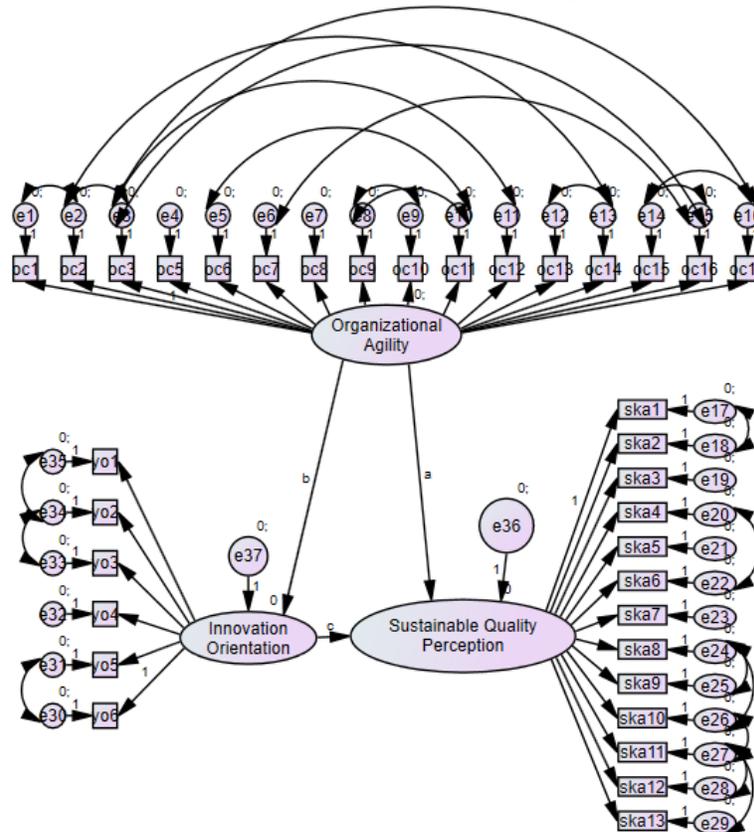


Table 5
Structural Equation Model Fit Criteria Evaluation Chart

Model Fit Summary					
CMIN					
Model	NPAR	CMIN	DF	P	CMIN/DF
Default Model	131	2045.465	534	0	3.83
Saturated Model	665	0	0		
Independence Model	70	16676.63	595	0	28.028
NFI-Baseline Comparisons					
Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default Model	0.901	0.863	0.906	0.895	0.906
Saturated Model	1		1		1
Independence Model	0	0	0	0	0
RMSEA					
Model	RMSEA	LO 90	HI 90	PCLOSE	
Default Model	0.08	0.077	0.084	0	
Independence Model	0.249	0.245	0.252	0	

The CMIN / DF value showing the Chi-square goodness of fit value was less than 5 (3.83). It is seen that CFI and NFI values are very close to 1. The fact that both values are close to 90% indicates that the model is compatible. While the RMSEA criterion is 0.08, it can be stated that there is a sufficient fit since it is equal to the limit value of 0.08. When regression coefficients are examined, it is understood that all parameters are statistically significant. Since the values of these coefficients are above 0.65, they are in line with the results in the exploratory factor analysis (over 0.50).

The predictive results of the causality relationships between organizational agility, sustainable quality perception and innovation orientation are shown in the structural equation model. In order to test the hypotheses created according to theoretical knowledge, standardized β coefficients of the paths specified in the model are examined. When the research model including the findings related to the analysis is examined; a statistically significant positive correlation was found between organizational agility and sustainable quality perception ($c = 0.53$). One-unit increase in organizational agility will increase the perception of sustainable quality by 0.53 units (H1: Accepted). Next, a statistically significant positive correlation was found between organizational agility and innovation orientation ($a = 0.89$). One unit increase in organizational agility will increase innovation orientation 0.89 units (H2: Accepted). Finally, a statistically significant positive correlation was found between innovation orientation and sustainable quality perception ($b = 0.43$). It means that a one-unit increase in innovation orientation will increase the sustainable quality perception by 0.43 units (H3: Accepted).

As Baron and Kenny (1986) stated, the path c between independent variable and dependent variable have to be insignificant in order to talk about a single and dominant mediator. The fact that the path from organizational agility variable to sustainable quality perception is significant ($c = 0.53$) indicates that the innovation-orientation variable does not have a full mediating effect. In this case, the partial mediating effect of the innovation-oriented variable can be mentioned. A bootstrap confidence interval for the indirect effect estimation is constructed using PROCESS which is a convenient computational add on for SPSS documented by Hayes (2013). When we analyze the mediating effect of variables, the mediating role of innovation orientation in the effect of organizational agility on sustainable quality perception is seen as 39%, and this mediating role is expressed strongly because it is greater than 25% (H4: Accepted). The bootstrap confidence for the indirect effect of organizational agility on sustainable quality perception is 0.268 to 0.487. As this does not straddle zero, this is accepted as an evidence of a statistically significant indirect effect (Hayes and Rockwood, 2017).

V. CONCLUSION

The purpose of the current study was to determine the mediating role of innovation orientation between organizational agility and sustainable quality perception. This research extends the literature on these three concepts in two specific ways. Firstly, this study addresses a gap in the literature and hence clarifies the interaction between the three concepts. Secondly, the perfect fit of the research model and the support for our hypotheses are theoretically important findings because they show that businesses should consider innovation orientation in addition to actively develop organizational agility to enhance sustainable quality. Overall, this study finds support for a partial

mediation of innovation orientation. According to this finding, it can be stated that in total quality management, which is one of the post-modern management approaches, sustainability and innovation should be given great importance due to new trends affecting the internal and external environment. From a postmodern perspective, “organizational learning is defined as a process of improving organizational actions through acquiring and developing new knowledge and capabilities” (Bohmer and Edmondson, 2001) to adapt easily to internal and external environmental changes. This process is also related to organizational agility which can be a major driver for innovation orientation. Future studies on the framework of total quality management and organizational learning should take into account organizational agility, innovation orientation and sustainable quality perception to verify validity of the findings.

Since the existence of humanity, as in the process that passed from primitive society to information society, the ability to adapt to changing conditions in humans is also valid for businesses. It is not accidental that attributes for people are also for businesses, as the core of the business is the people who run it. As summarized by the concept of organizational agility, the ability to adapt to changing conditions is seen to positively affect the sustainable quality perception of the products and services offered in the enterprise. The positive effect of sustainable quality perception reveals that agility should be given importance for quality managers and senior management.

From the perspective of strategic management, it can be deduced that managers should consider agility while determining their strategies in order to realize the goals and objectives of the business. Strategic management includes analytical processes in which planning, organizing, executing and controlling functions are used effectively and efficiently, and speed and competence, which are dimensions of organizational agility, are of great importance in these processes. It will ensure the effective implementation of the strategies and focus on the improvement processes required by the rapid evaluation of the results.

The concept of organizational agility is a concept that closely concerns project managers in businesses. The adoption of agile project management rather than the waterfall method in project management, in which the test phase is applied to the whole at the end of production, has been rapidly becoming widespread recently. In agile management, the project is produced and tested by dividing it into meaningful small parts called iterations, so that new parts can be adapted to changing conditions during the project. The project is constantly tested throughout the production, and the process is more effective and efficient, providing benefits to the managers and the business. Therefore, it is necessary to attach importance to the necessary regulations in order to increase organizational agility in institutions and organizations for efficiency and productivity-oriented approaches.

In order for managers to realize their long-term plans, they should make a strategic plan, and in order to implement these plans, the business should have expert and authorized human resources. According to the research findings, the level of education has a significant effect on the perception of sustainable quality. Especially those at the doctoral level have lower perception of sustainable quality scores in which they evaluate their businesses, since they have access to conceptually deeper and broader knowledge. This shows that they expect more in terms of quality and they can

see more areas or processes that can be improved. Therefore, managers should attach importance to the training processes of the employees in the enterprises, always support the philosophy of development and lifelong learning, and provide the necessary incentives in this regard. Additionally, the marital status has also a significant effect on the perception of sustainable quality. Single employees have lower scores on the perception of sustainable quality in which they evaluate their businesses than those who are married. This shows us that single employees have higher expectations of sustainable quality from their businesses.

Furthermore, it is seen that work experience has a significant effect on innovation orientation. When this effect is examined, it is seen that the innovation orientation scores of the new employees are high and this decreases over time. The fact that newcomers to business life cannot see their innovation needs due to their lack of professional experience can be considered as an important reason for this. As experience is gained over time, it is seen that the innovation orientation score decreases up to 9 years, so it is understood that people with these experience levels feel the need to innovate more. However, it is understood that innovation orientation scores increase in people with more than 9 years of experience. Thus, it can be interpreted that after 9 years, the desire of employees to go out of routine, their willingness to open up to innovations and research may decrease.

According to the other result obtained from the findings, organizational agility also has a positive effect on innovation orientation. Agile businesses are also open to innovations and can wait for the right time to implement these innovations. This study contributes to the managers' knowledge that if they can increase organizational agility in the business, they will also increase their innovation orientation. In terms of quality managers, it can be stated that the agility of quality employees should be taken care of, since ensuring sustainable quality will be ensured by following innovations and applying new technologies to their processes. It is necessary to provide the necessary environment for the development of innovative ideas and to encourage employees to find and implement new ideas.

When we look at the result of the problem that constitutes the research model of this study, it is seen that innovation orientation has a partial and strong mediating role in the effect of organizational agility on the perception of sustainable quality. It is understood that in order to ensure sustainable quality and keep this perception strong, it is necessary to attach importance to innovation orientation as well as organizational agility. Sustainable quality can only be achieved by applying current innovations. In particular, quality managers need to constantly follow all innovations in their fields, including artificial intelligence, which has been mentioned frequently recently, and work to integrate them into their processes. In addition, the top management should strive for continuous improvement and clearly show support and encouragement to middle and lower level managers and employees. It should not be forgotten that meeting the expectations and needs of customers completely and completely and ensuring sustainable quality can only be achieved by agile and following innovations in changing market and environmental conditions. It can be recommended to managers that the business can ensure sustainable quality by managing the three basic components of social, economic and environmental, which form the basis of the

concept of sustainability in a balanced way. It should not be forgotten that every economic activity will have environmental and social consequences, and it should be taken into account that the managers of an institution or organization that will be handed over to future generations should primarily work on increasing the sustainability awareness of employees for sustainable quality.

This study has its own limitations, which in turn provide an opportunity for future research. Since the term sustainable quality perception has been developed as a relatively new concept, there are a limited number of studies on this subject. In addition, there was no study in which two or three variables among the variables used in this study were seen together, so no comparison could be made. It is among the suggestions that this research should be conducted with a more specific sample and more respondents. In addition, it is predicted that repeating the research by adding the performance variable to the researchers in addition to these variables will yield different results. Evaluating from the perspective of the Covid-19 pandemic, which is an ongoing process at the end of 2019, it is among the recommendations for researchers to find new results. Research to be conducted with the variables of organizational agility, sustainable quality perception and innovation-orientation will support the literature gap and provide a facilitating basis to prove the accuracy of this study.

REFERENCES

- Acar, E., Kılıç, M., and Güner, M., 2015, "Measurement of Sustainability Performance in Textile Industry By Using a Multi-Criteria Decision Making Method," *Tekstil ve Konfeksiyon*, 25, 3-10.
- Akkaya, B., 2018, "The Effect of Leadership Style in Techno-Enterprise Firms On Firms' Organizational Agility: A Research On Technoparks Companies" (Unpublished doctoral thesis), Izmir Kâtip Çelebi University, Izmir, Türkiye.
- Akkaya, B., and Tabak, A., 2018, "Örgütsel Çeviklik Ölçeğinin Türkçeye Uyarlanması: Geçerlik ve Güvenirlik Çalışması." *İş ve İnsan Dergisi*, 29, 185-206. <https://doi.org/10.18394/iid.439184>.
- Balcı, A., 2005, "Kamu Örgütlerinde Toplam Kalite Yönetimi Uygulanması: Olumlu Perspektifler ve Olası Zorluklar," *Karamanoğlu Mehmetbey Üniversitesi Sosyal Ve Ekonomik Araştırmalar Dergisi*, 2, 196-211, Available at: <https://dergipark.org.tr/tr/pub/kmusekad/issue/10228/125790>.
- Baron, R.M., and Kenny, D.A., 1986, "The Moderator - Mediator Variable Distinction In Social Psychological Research: Conceptual, Strategic, And Statistical Considerations," *Journal of Personality and Social Psychology*, 51, 1173-1182. <https://doi.org/10.1037/0022-3514.51.6.1173>.
- Berthon, P., Hulbert, J.M. and Pitt, L.F., 1999, "To Serve or Create? Strategic Orientations toward Customers and Innovation," *California Management Review*, 42, 37-58. <https://doi.org/10.2307/41166018>.
- Bohmer, R.M., and Edmondson, A.C., 2001, "Organizational Learning In Health Care," *In Health Forum Journal*, 44, 32-32, Proquest ABI/INFORM.
- Bos-Brouwers, H.E.J., 2010, "Corporate Sustainability and Innovation in SMEs: Evidence of Themes and Activities in Practice," *Business Strategy and the*

- Environment*, 19, 417-435, <https://doi.org/10.1002/bse.652>
- Bozkurt, V., and Baştürk, Ş., 2009, “Kobi Girişimcilerinde Risk ve Belirsizlik Algıları: Bursa Örneği,” *Ankara Üniversitesi SBF Dergisi*, 64, 43-74. https://doi.org/10.1501/sbfter_0000002103.
- Çankır, B., 2019, “Akademisyenlerin Sürdürülebilir Kalite Algısının Performans Üzerindeki Etkisinde Öz-Yeterliliğin Aracılık Etkisi Üzerine Bir Araştırma,” *Çukurova Araştırmaları*, 5, 108-122.
- Çetinkaya, M., and Özutku, H., 2012, “Yönetimsel Performansa Yetkinlik Temelli Yaklaşım: Türk Otomotiv Sektöründe Bir Araştırma.” *İstanbul Üniversitesi İşletme Fakültesi Dergisi*, 41, 142-161. Available at: <https://dergipark.org.tr/en/pub/iuiletme/issue/9252/115745> (Accessed: 2 November 2020).
- Felipe, C.M., Roldán, J.L., and Leal-Rodríguez, A.L., 2017, “Impact of Organizational Culture Values on Organizational Agility,” *Sustainability*, 9, 2354. <https://doi.org/10.3390/su9122354>.
- Ferrier, W.J., 2001, “Navigating the Competitive Landscape: The Drivers and Consequences of Competitive Aggressiveness,” *Academy of Management Journal*, 44, 858-877. <https://doi.org/10.2307/3069419>
- Fiedler, F.E., 1964, “A Contingency Model of Leadership Effectiveness,” *In Advances in experimental social psychology*, 1, 149-190. Academic Press. [https://doi.org/10.1016/S0065-2601\(08\)60051-9](https://doi.org/10.1016/S0065-2601(08)60051-9).
- Güney, S., 2017, *Örgütsel Davranış*, 4th Edition, Istanbul: Nobel Publishing.
- Hayes, A.F., 2013, “Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach,” Guilford publications.
- Hayes, A.F., and Rockwood, N.J., 2017, “Regression-Based Statistical Mediation and Moderation Analysis in Clinical Research: Observations, Recommendations, and Implementation,” *Behaviour research and therapy*, 98, 39-57.
- Huetting, R., and Reijnders, L., 1998, “Sustainability Is an Objective Concept,” *Ecological Economics*, 27, 139–148.
- Kim, S.K., 1997, “Total Quality Management and the South Korean Ministry of Defense,” Faculty of The Graduate School, University Of Southern California.
- Liu, S., Chan, F.T.S., Yang, J., and Niu, B., 2018, “Understanding The effect of Cloud Computing on Organizational Agility: an Empirical Examination,” *International Journal of Information Management*, 43, 98-111. <https://doi.org/10.1016/j.ijinfomgt.2018.07.010>.
- Liu, H.-M., and Yang, H.-F., 2020, “Network Resource Meets Organizational Agility: Creating an Idiosyncratic Competitive Advantage for SMEs,” *Management Decision*, 58, 58-75. <https://doi.org/10.1108/MD-10-2017-1061>.
- Lu, Y., and Ramamurthy, K., 2011, “Understanding the Link between Information Technology Capability and Organizational Agility: An Empirical Examination,” *MIS Quarterly*, 35, 931-954. <https://doi.org/10.2307/41409967>.
- Manu, F.A., 1992, “Innovation Orientation, Environment and Performance: A Comparison of U.S. and European Markets,” *Journal of International Business Studies*, 23, 333-359. Available at: <http://www.jstor.org/stable/154904>.
- Moreno, H., 2017, “5 Steps to Greater Agility in Your Organization.” Available at: <https://www.forbes.com/sites/forbesinsights/2017/11/30/5-steps-to-greater-agility-in-your-organization/>.

- Munteanu, A.-I., 2019. "A Review of Organizational Agility Concept and Characteristics," *Annals of Faculty of Economics*, 1, 335–341, Available at: <https://econpapers.repec.org/RePEc:ora:journl:v:1:y:2019:i:1:p:335-341>.
- Nijssen, M., and Paauwe, J., 2012, "HRM in Turbulent Times: How to Achieve Organizational Agility?" *The International Journal of Human Resource Management*, 23, 3315-3335, <https://doi.org/10.1080/09585192.2012.689160>
- Parasuraman, A., Zeithaml, V., and Berry, L., 1988, "SERVQUAL: A Multiple-Item Scale For Measuring Consumer Perceptions Of Service Quality." *Journal of Retailing*, 64, Spring, 12-40.
- Ravichandran, T., 2018, "Exploring the Relationships between IT Competence, Innovation Capacity and Organizational Agility," *The Journal of Strategic Information Systems*, 27, 22-42. <https://doi.org/10.1016/j.jsis.2017.07.002>.
- Rindova, V.P., and Kotha, S., 2001, "Continuous "Morphing": Competing Through Dynamic Capabilities, Form, And Function," *Academy of management journal*, 44, 1263-1280.
- Russel, D.M., and Swanson, D., 2019, "Transforming Information into Supply Chain Agility: An Agility Adaptation Typology," *International Journal of Logistics Management*, 30, 329-355. <https://doi.org/10.1108/IJLM-09-2017-0237>.
- Sambamurthy, V., Bharadwaj, A. and Grover, V., 2003, "Shaping Agility through Digital Options: Reconceptualizing the Role of Information Technology in Contemporary Firms," *MIS Quarterly*, 27, 237–263. <https://doi.org/10.2307/30036530>.
- Sarkis, J., Gonzalez-Torre, P., and Adenso-Diaz, B., 2010, "Stakeholder Pressure and the Adoption of Environmental Practices: The Mediating Effect of Training," *Journal of Operations Management*, 28, 163-176. <https://doi.org/10.1016/j.jom.2009.10.001>.
- Schein, H.E., 1976, *Örgütsel Psikoloji*. Eskişehir: İ.T.İ.A. Yayınları.
- Sharifi, H., Colquhoun, G., Barclay, I., and Dann, Z., 2001, "Agile Manufacturing: a Management and Operational Framework," *Proceedings of the Institution of Mechanical engineers, Part B: Journal of engineering Manufacture*, 215, 857-869. <https://doi.org/10.1243/0954405011518647>.
- Sharifi, H., and Zhang, Z., 1999, "A Methodology For Achieving Agility In Manufacturing Organisations: An Introduction," *International Journal of Production Economics*, 62, 7-22. [https://doi.org/10.1016/S0925-5273\(98\)00217-5](https://doi.org/10.1016/S0925-5273(98)00217-5).
- Sherehiy, B., Karwowski, W., and Layer, J.K., 2007, "A Review of Enterprise Agility: Concepts, Frameworks, and Attributes." *International Journal of Industrial Ergonomics*, 37, 445-460. <https://doi.org/10.1016/j.ergon.2007.01.007>.
- Shulla, K., 2021, "Accelerating Global Actions for a World without Poverty," *UN Report: Virtual Inter-agency Expert Group Meeting on Implementation of the Third United Nations Decade for the Eradication of Poverty (2018-2027)*
- Siguaw, J.A., Simpson, P.M. and Enz, C.A., 2006, "Conceptualizing Innovation Orientation: A Framework for Study and Integration of Innovation Research." *Journal of Product Innovation Management*, 23, 556-574. <https://doi.org/10.1111/j.1540-5885.2006.00224.x>.
- Simmie, J., Sennett, J., Wood, P., and Hart, D., 2002, "Innovation in Europe: A Tale

- of Networks, Knowledge and Trade in Five Cities.” *Regional Studies*, 36, 47-64. <https://doi.org/10.1080/00343400120099852>.
- Şahin, S., and Çankır, B., 2019, “Sürdürülebilir Kalite Algısı ve İş Performansı: Çalışmaya Tutkunluğun Aracı Rolü,” *Çukurova Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 28, 196-211.
- The Lancet Public Health. 2020, “Will The COVID-19 Pandemic Threaten The SDGs?” *The Lancet. Public health*, 5, e460. [https://doi.org/10.1016/S2468-2667\(20\)30189-4](https://doi.org/10.1016/S2468-2667(20)30189-4)
- Ülgen, H., and Mirze, S.K., 2020, “*İşletmelerde Stratejik Yönetim*,” 10. Baskı. Beta Basım Yayın.
- Van de Ven, A.H., 1986, “Central Problems in the Management of Innovation,” *Management Science*, 32, 590-607. <https://doi.org/10.1287/mnsc.32.5.590>.
- Varadarajan, R., 2017, “Innovating for Sustainability: A Framework for Sustainable Innovations and A Model of Sustainable Innovations Orientation,” *Journal of the Academy of Marketing Science*, 45, 14-36. <https://doi.org/10.1007/s11747-015-0461-6>
- Vinodh, S., 2010, “Improvement Of Agility And Sustainability: A Case Study in an Indian Rotary Switches Manufacturing Organisation,” *Journal of Cleaner Production*, 18, 1015-1020, <https://doi.org/10.1016/j.jclepro.2010.02.018>.
- Worren, N., Moore, K., and Cardona, P., 2002, “Modularity, Strategic Flexibility, And Firm Performance: A Study of the Home Appliance Industry,” *Strategic Management Journal*, 23, 1123-1140. <https://doi.org/10.1002/smj.276>.
- Zeithaml, V.A., 1988, “Consumer Perceptions of Price , Quality , and Value : A Means-End Model and Synthesis of Evidence,” *Journal of Marketing*, 52, 2-22.
- Zhang, Z., and Sharifi, H., 2000, “A Methodology for Achieving Agility in Manufacturing Organisations,” *International Journal of Operations & Production Management*, 20, 496-513. <https://doi.org/10.1108/01443570010314818>.
- Zwetsloot, G.I.J.M., and Van Marrewijk, M.N.A., 2004, “From Quality to Sustainability,” *Journal of Business Ethics*, 55, 79-82. <http://www.jstor.org/stable/25123373>