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STAKEHOLDER, GOVERNMENTAL AND CUSTOMERS ORIENTED DETERMINANTS OF QUALITY DRUG MAKING PERFORMANCE IN THAILAND: MEDIATING ROLE OF SUSTAINABILITY EFFORTS OF PHARMACEUTICAL FIRMS

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ABSTRACT

Stakeholder's pressure, customer's willingness to pay and government regulations are the factors that might have direct or indirect impact on quality performance. Therefore, this study has been designed in order to find out the impact of stakeholder's pressure, customer's willingness to pay and government regulation on the quality performance of an organization in the mediating role of environmental and social sustainability factors. In order to achieve this objective, the researcher has collected data from 284 employees of the pharmaceutical companies. The data was collected by administering a carefully designed questionnaire. When the analysis techniques were applied to the collected data, it was found out that the impact of stakeholder's pressure and government on the quality performance of the organization is significant but the impact of customer's willingness to pay on quality performance has been found as insignificant. On the other hand, the mediating impact of environmental and social sustainability factors between all the independent variables i.e. stakeholder's pressure, customer's willingness to pay and government regulations and the dependent variable, quality performance has been found as significant. These results of the study are having various theoretical, practical and policy making implications as discussed by the author.

INTRODUCTION

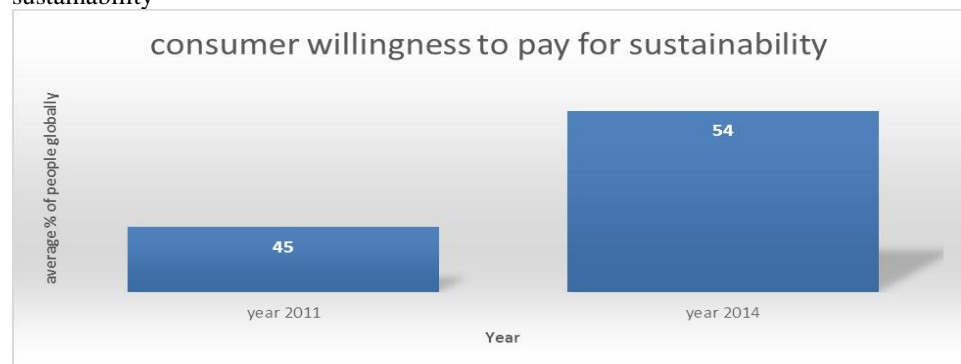
The quality drug making has been a challenging task to do because of the changing mindset of the society regarding the workplace safety, abusive labor practices and the unfair working conditions provided to the workers (Anbarasan, 2018; Bamgbade, Kamaruddeen, & Nawi, 2017; Duran & Rodrigo, 2018; Ferro et al., 2017). In the past few years, the regulations regarding these aspects have been developed so that safe and friendly working conditions could be provided to the workers where they can perform well and show a quality performance (Awang & Iranmanesh, 2017; Loreda, Lopez-Mielgo, Pineiro-Villaverde, & García-Álvarez, 2019; Tatoglu et al., 2020). The use of non-hazardous and environmental friendly chemicals is one of the steps that have been taken to improve the business environment. The use of harmful hazardous chemical shave posed a threat risk to the lives of workers working around/ with them. Therefore, necessary actions have been taken at different levels including stakeholders, governmental and also consumers (Awang & Iranmanesh, 2017; Loreda et al., 2019; Tatoglu et al., 2020). The stakeholders pressure is very important for changing the working conditions and raw material, the consumer acceptance to any brand is therefore, determined by the point of view of the stakeholders (Anbarasan, 2018; Bamgbade et al., 2017; Duran & Rodrigo, 2018; Ferro et al., 2017). Moreover, the governmental regulations are also very important for determining the working conditions, use of chemical materials and the workplace safety. If the governmental does not take effective measures for the safety of the workers at a working site, there would not be a company that would pay more for the safety of the workers. However, the consumer acceptance is most important among them (Awang & Iranmanesh, 2017; Loreda et al., 2019; Tatoglu et al., 2020). If the consumers decide not to buy any product form a specific company because of the unsafe and hazardous chemical use, the company will have to face a huge loss. Thus, all the three determinants affect the willingness of companies to pay for the safety of the workers and to bring environmental sustainability by reducing the use of hazardous chemical materials (de Jesus Pacheco, ten Caten, Jung, Navas, & Cruz-Machado, 2018; Papagiannakis, Voudouris, Lioukas, & Kassinis, 2019; Testa, Boiral, & Iraldo, 2018).

Table 1: Global sustainability leaders of 2012

Rank	Company
1	Unilever
2	Interface
3	GE
4	Patagonia
5	Walmart

Source: (Greenbiz).

Figure 1. Global average of people who are willing to pay the price for environmental sustainability



Source: (WEforum)

Following are the objectives of the study are:

1. To determine the effect of stakeholder pressure on the environmental and social sustainability efforts.
2. To determine the effect of willingness of customers to pay on the environmental and social sustainability efforts.
3. To determine the effect of governmental regulations on the environmental and social sustainability efforts.
4. To determine the effect of the environmental and social sustainability efforts on the quality performance of the businesses.

The research study will address the contrary findings of the previous literature studies regarding the role of stakeholders and governmental organizations and the consumers regarding the sustainable and environmental friendly manufacturing practices. Moreover, the study will provide empirical evidence for the role of individual determinant in changing the manufacturing practices in the industrial sector. Thus, the study will contribute in the theoretical development in this sector.

REVIEW OF THE LITERATURE

Theoretical background

The investments made by the industries in the manufacturing practices and processes are driven by both internal and external forces. The external pressure is from the stakeholders, consumers and governmental organizations (de Jesus Pacheco et al., 2018; Papagiannakis et al., 2019; Testa et al., 2018). The role of external factors is more as compared to the others and this is because of the loss that the industry might have to face if it goes against the likability of the stakeholders, consumers or the governmental agencies (Mani & Gunasekaran, 2018; Mena, Hult, Ferrell, & Zhang, 2019; Quan, Wu, Li, & Ying, 2018; Yadav, Saini, & Yadav, 2019). That is why the use of hazardous chemicals in the manufacturing processes has been reduced over the years and the production of quality drugs is being considered. This is all because of the incased awareness among the consumers that have pushed the governmental agencies to construct effective regulations and the stakeholders to pressurize the industrial sector to invest more in the quality production (Khurana, Haleem, & Mannan, 2019; Saunders, Tate, Zsidisin, & Miemczyk, 2019; Varadarajan, 2017).

To determine the effect of stakeholder pressure on the environmental and social sustainability efforts

According to the stakeholder theory, the individuals having share in the company have the ability to influence the decision making and get their desired benefits (Mani & Gunasekaran, 2018; Mena et al., 2019; Quan et al., 2018; Yadav et al., 2019). The efforts of the manufacturing industries to comply with the environmental and social sustainability practices can be easily affected with the pressure from the stakeholders. This is because of the interest of stakeholders in getting benefit which will be affected if the company does not have precise safety regulations and does not comply with the sustainability practices (Kerdpitak, 2020a; Khurana et al., 2019; Saunders et al., 2019; Varadarajan, 2017). As a result of this non-compliance with the sustainability practices, the consumers will eventually cut off the buying of products from the company and it will face a back lash. Therefore, the following hypothesis has been generated from the literature studies:

H1: There is a significant relationship between the stakeholder pressure and the environmental and social sustainability efforts.

To determine the effect of willingness of customers to pay on the environmental and social sustainability efforts

Consumers are the target group of every manufacturing industry and without the consumers, there would not be a need to have manufactured products. If the consumers are unwilling to pay for a specific product, that product will eventually be replaced in the market. That is why the consumer's perspective is the focus point of the manufacturing companies. With the environmental awareness and the sense of social responsibility among the consumers, research studies shows that the manufacturing plants have also changed their practices and processes and shifted towards better alternatives only to gain consumer trust (Brulhart, Gherra, & Quelin, 2019; Saunders et al., 2019; Soundararajan, Brown, & Wicks, 2019; Varadarajan, 2017). Therefore, the following hypothesis has been generated from the literature studies:

H2: There is a significant relationship between the willingness of consumers to pay and the environmental and social sustainability efforts of the manufacturing industry.

To determine the effect of governmental regulations on the environmental and social sustainability efforts

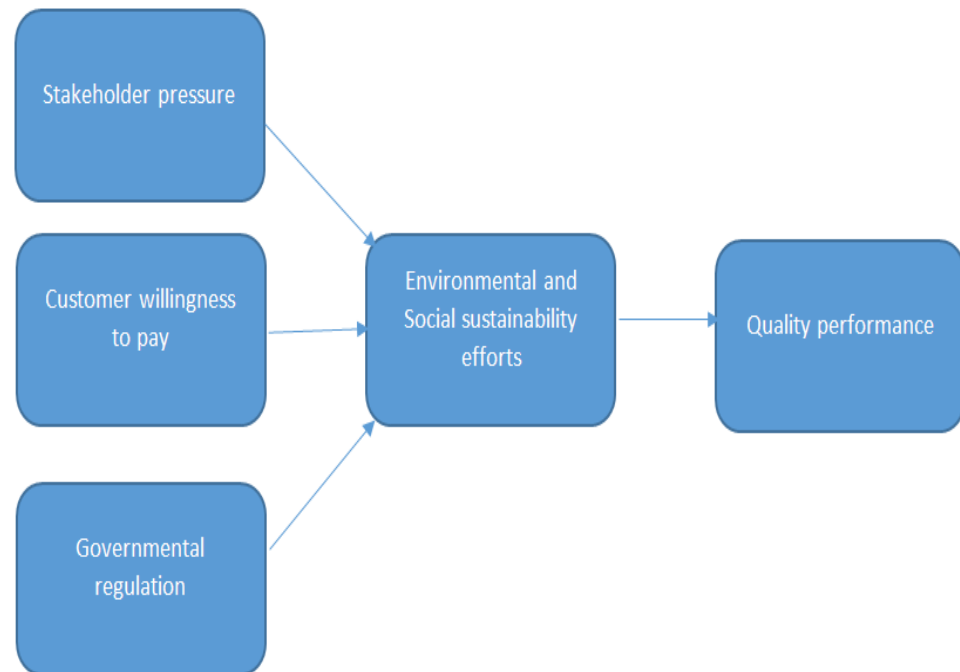
The global patterns of manufacturing have been changed and the industries have shifted towards more environmental friendly and socially sustainable practices (Brulhart et al., 2019; Saunders et al., 2019; Soundararajan et al., 2019; Varadarajan, 2017). Therefore, the pressure is upon the governmental agencies to construct, develop and implement necessary regulations for the sustainable practices so that their manufactured goods could be exported to the international markets. Researchers (Khurana et al., 2019; Mani & Gunasekaran, 2018; Mena et al., 2019; Quan et al., 2018; Yadav et al., 2019) have argued that the governments have to ensure that their manufacturing industries comply with the international standards and this is also good for the government not only for the manufacturing companies. Therefore, the following hypothesis has been generated from the literature studies:

H3: There is a significant relationship between the governmental regulation and the environmental and social sustainability efforts of the manufacturing industry.

To determine the effect of the environmental and social sustainability efforts on the quality performance

Literature studies (Khurana et al., 2019; Mani & Gunasekaran, 2018; Mena et al., 2019; Quan et al., 2018; Yadav et al., 2019) shows that the increase in the environmental sustainability practices results in increasing the environmental performance and social sustainability of the firms. Researchers have found empirical evidence for the quality performance of the industries by doing social and environmental sustainability efforts. The reduction in water pollution and waste emission and increasing practices of reusing and recycling have decreased the costs to an extent and have also resulted in the production of products having better quality (de Jesus Pacheco et al., 2018; Loreda et al., 2019; Papagiannakis et al., 2019; Testa et al., 2018). Through the environmental management system, the manufacturing firms become able to have life cycle assessment and environmental friendly product designs that attract consumers (Awang & Iranmanesh, 2017; Duran & Rodrigo, 2018; Tatoglu et al., 2020; Kerdpitak, 2020). Therefore, the following hypothesis has been generated from the literature studies:

H4: There is a significant relationship between the environmental and social sustainability efforts and the quality performance of the manufacturing industries.

Theoretical model**METHODOLOGY*****Sampling and data collection***

Data collected for this study is actually the input obtained from different pharmaceutical firms of Thailand and all the data collected from these firms was then accumulated together. The data has been collected from 284 employees working in these pharmaceutical firms. The purposive sampling technique has been employed by the researcher so that an appropriate sample may be selected for research and questionnaire filling. The indicators that have been used by the researcher in this study are obtained from the past studies and thus the validity of the measures can be made sure. The employees from which the questionnaire was filled include the senior management of the pharmaceutical firms that are involved in the production and operation department. In addition, the officials from higher positions such as directors were also involved in questionnaire filling. All of them were selected on the basis of their enough and appropriate knowledge about the concerned topic of the study. The questionnaire used for the research process was carefully designed by using appropriate order of questions and the content easily understood by the respondents.

Measurement

The variables have been measured by using appropriate measurement items, which have been discussed in this section vividly. Stakeholder pressure, customer willingness to pay, governmental regulation, environmental and social sustainability factors and quality performance are different variables that have been used in the study. The first one is quality performance, which is the dependent variable of the study and may be measured by using two items named as “Conformance quality” and “Product quality and reliability”. These items are developed based on the past study (Garvin, 1987). Stakeholder pressure is the independent variable of the study and is measured by 2 items in total. These include “environmental pressure” and “social pressure”. These items have been taken from the past study by a researcher (Longo, Mura, & Bonoli, 2005). “Governmental regulations” is another independent variable and has been measured by 3

measurement items, developed by a researcher in the past study (Sitkin, Sutcliffe, & Schroeder, 1994). Customer willingness to pay is the last independent variable and has been measured by 3 items, developed by a researcher in the past study (Russo, 2009). One of these items is “Higher contribution to the development and welfare of the society”. The mediating variable of the study is environmental and social sustainability factors and it has been measured by 6 items, developed by a researcher in the past study (Krause, Scannell, & Calantone, 2000; Sarkis, Gonzalez-Torre, & Adenso-Diaz, 2010). One of these items is “Pollution emission reduction and waste recycling programmes”.

Statistical analysis

In order to analyze the collected data, SPSS and AMOS have been used by the researcher. Different tests and techniques have been employed through these software and the analysis results have been obtained by the researcher. Demographic analysis, descriptive analysis and factor analysis have been obtained from SPSS. In the similar way, confirmatory factor analysis and structure equation modeling have been obtained by using AMOS.

DATA ANALYSIS

Demographics

The total number of respondents from which the data was collected was 284, among which 154 males and 130 females were included. Other than this, according to the age of the respondents, 87 respondents are having age less than 25 years, 121 are having age from 25 to 35 years, 65 people are having age from 35 to 45 years and in the last, just 11 respondents are having age more than 45 years. Apart from age, experience of the employees has also been considered and the researcher has found out that 44 respondents were having the experience of less than 2 years in the organization. Moreover, 124 respondents are having the experience of 2 to 5 years, 90 respondents are having the experience of 5 to 8 years while the remaining 26 employees have the working experience of more than 8 years in that particular organization.

Descriptive Statistics

As per the obtained results related to the descriptive statistics of the collected data, it has been confirmed that there is no outlier in the data. This result is supported by the values of minimum and maximum statistics, which are lying in the range of five point Likert scale. On the other hand, as the skewness values from the table are seen to be within the appropriate range i.e. in between -1 and +1. Thus the data is considered to be normal and fit to enter the next step.

Table 1: Descriptive Statistics.

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
EnvSocSE	284	1.00	5.00	3.3879	1.05811	-.414	.145
StakeProc	284	1.00	5.00	3.6954	1.18352	-.649	.145
CustWiPay	284	1.00	5.00	3.6479	1.18575	-.681	.145
GovtRegu	284	1.00	5.00	3.5751	1.18831	-.706	.145
QualityPerf	284	1.00	5.00	3.4718	1.03264	-.435	.145
Valid N (listwise)	284						

KMO and Bartlett's Test

KMO and Bartlett's test are used in order to find out if the factor analysis of a particular study is useful or not. In this regard, it is estimated that if the value of KMO test is very close to 1.00, it will be beneficial for the study. In addition, it has also been estimated that if the value of Bartlett's test is less than 0.05, it will also be beneficial for the study. The fulfillment of both conditions can be seen in the table 2.

Table 2: KMO and Bartlett's Test.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.898
Bartlett's Test of Sphericity	Approx. Chi-Square	5533.373
	Df	120
	Sig.	.000

Rotated Component Matrix

The results of rotated component matrix have been given in table 3. As per these results, the values of factor loading have been observed to be greater than 70% thus indicating that the data collected is eligible to be applied different tests and techniques. Moreover, cross loading error is absent in the data.

Table 3: Rotated Component Matrix^a

	Component				
	1	2	3	4	5
ES1	.854				
ES2	.895				
ES3	.831				
ES4	.796				
ES5	.838				
ES6	.866				
SP1				.871	
SP2				.901	
CW1		.898			
CW2		.905			
CW3		.891			
GR1			.892		
GR2			.892		
GR3			.884		
QP1					.842
QP2					.861

Convergent and discriminant validity

In table 4, the results of convergent and discriminant validity can be seen evidently. According to the results presented in the table, the composite reliability CR values for all variables are more than 0.7 while average variance extracted AVE values are more than 0.5. The researcher has also found out that the variables are having loadings different from each other. This confirms the authenticity of the collected data.

Table 4: Convergent and Discriminant Validity

	CR	AVE	MSV	SP	ES	QP	GR	CW
SP	0.934	0.876	0.286	0.936				
ES	0.953	0.773	0.299	0.474	0.879			
QP	0.873	0.774	0.299	0.535	0.547	0.880		
GR	0.921	0.817	0.325	0.436	0.503	0.514	0.957	
CW	0.915	0.856	0.325	0.490	0.502	0.443	0.570	0.978

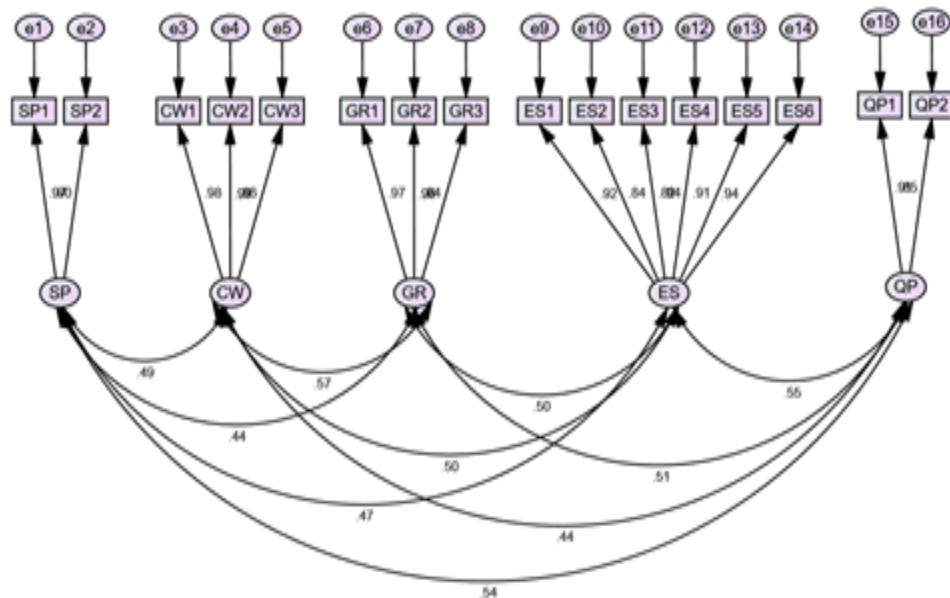
Confirmatory Factors Analysis

According to the results of confirmatory factor analysis CFA given in table 5, it can be observed that the values for all the indicators linked with CFA are present within the appropriate range given in the table (Hassan, Hameed, Basheer, & Ali, 2020; Iqbal & Hameed, 2020). This indicates that the hypothetical model is fit for use in the study.

Table 5: Confirmatory Factors Analysis

Indicators	Threshold range	Current values
CMIN/DF	Less or equal 3	2.957
GFI	Equal or greater .80	.927
CFI	Equal or greater .90	.984
IFI	Equal or greater .90	.984
RMSEA	Less or equal .08	.058

Figure 1. CFA



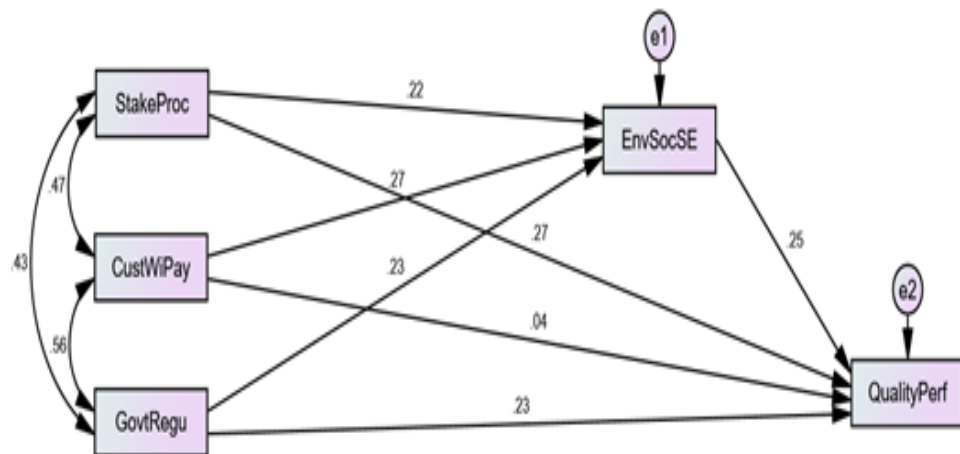
Structural equation modeling

The table 6 of structure equation modeling shows that the impact of stakeholder’s pressure and government on the quality performance of the organization is significant but the impact of costumer’s willingness to pay on quality performance has been found as insignificant. On the other hand, the mediating impact of environmental and social sustainability factors between all the independent variables i.e. stakeholder’s pressure, costumers’ willingness to pay and government regulations and the dependent variable, quality performance has been found as significant.

Table 6: Structural Equation Modeling

Total Effect	StakeProc	GovtRegu	CustWiPay	EnvSocSE
EnvSocSE	.217**	.227**	.267**	.000
QualityPerf	.319***	.282**	.105	.246**
Direct Effect	StakeProc	GovtRegu	CustWiPay	EnvSocSE
EnvSocSE	.217**	.227**	.267**	.000
QualityPerf	.266**	.226**	.039	.246**
Indirect Effect	StakeProc	GovtRegu	CustWiPay	EnvSocSE
EnvSocSE	.000	.000	.000	.000
QualityPerf	.053**	.056**	.066**	.000

Figure 2: SEM



DISCUSSION AND CONCLUSION

Discussion

It has been made very clear in the earlier sections that the basic objective or aim of this study was to find out the impact of stakeholder’s pressure, costumers’ willingness to pay and government regulation on the quality performance of an organization in the mediating role of environmental and social sustainability factors. In this regard, the first hypothesis has been accepted which indicates that there is significant relationship between stakeholder’s pressure and quality performance and this result is confirmed from the past studies (Zhao, Chen, Su, & Tian, 2019). The second hypothesis that costumers’ willingness to pay has significant impact on quality performance has been rejected while the third hypothesis of significant impact of government regulations of quality performance has been accepted, in accordance with the past studies (Arda, Bayraktar, & Tatoglu, 2019; Lawson, Dietrich, & Murray, 2019). Moreover, the last three hypothesis of significant mediating impact of environmental and social sustainability factors between the relationship of stakeholder’s pressure, costumers’ willingness to pay and government regulation; and quality performance have also been accepted as per the results obtained. These results are in line with the similar studies of the past (Ahinful, Tauringana, Essuman, Boakye, & Sha’ven, 2019; Norambuena et al., 2018).

Conclusion

There are various factors such as stakeholder’s pressure, customer’s willingness to pay and government regulations that have the impact on quality performance in one way or the other. In this regard, this study has been designed in order to find out the impact of stakeholder’s pressure, costumers’ willingness to pay and government regulation on

the quality performance of an organization in the mediating role of environmental and social sustainability factors. The analysis of the results indicated that all the independent variables except costumers' willingness to pay have significant impact on quality performance. Furthermore, it was found out that the mediating impact of environmental and social sustainability factors is significant in the relationship of all the independent and dependent variables.

Implications

This study contains much information about the aspects such as stakeholder's pressure, costumer's willingness to pay, government regulations, environmental and social sustainability factors and quality performance of organization, which might be useful for the other researchers as well as the industries to take steps for the improvement of quality performance.

Limitations and Future Research Indications

The sample size and sampling techniques may be improved in the future studies by other researcher. Moreover, other analysis methods and tests may also be employed in order to get a broader perspective on the given topic.

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