

## The Effect of Organizational Culture on Material Risk among Malaysian Construction Industries

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Nur Syafiqah Abdul Malik<sup>1,\*</sup>, Adekunle Qudus Adeleke<sup>1</sup>

<sup>1</sup> Faculty Industrial of Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak 26300 Gambang Kuantan, Pahang Darul Makmur, Malaysia

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### ABSTRACT

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This paper assessed the significant relationship between organizational culture and material risk among Kuantan Malaysian construction industries. Survey was conducted among 10 registered G7 contractors operating in Kuantan construction industry. Proportionate stratified random sampling was used out of which 10 questionnaires were distributed for pilot study. Methodologically, this research is perhaps the first to assess the relationship between organizational culture and material risk among Malaysian construction industries with five point Likert scale categories of material risk from previous studies. Statistical analysis affirmed a significant positive relationship between organizational culture and material risk among Malaysian construction industries through Statistical Package for Social Sciences (SPSS).

#### Keywords:

Material risk, organizational culture, construction industry, Malaysia

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## 1. Introduction

According to Zhao *et al.*, [17], the meaning of risk is the form of situation that consists of too many unknown factors, often unpredictable factors, often undesirable and unexpected situation. Risk from the view of Perry and Hayes as “an uncertain event that, if it occurs, has a positive or negative outcome on a project aim” [16]. Besides that, the risks are also seen as “the exposure to gain, loss, or the likelihood of natural events of gain/loss procreated by its respective level” [15]. Meanwhile Abbasi *et al.*, [1] and Zhao *et al.*, [17] reported risk by “the possibility of loss, injury, disadvantages or destruction”.

Zhao *et al.*, [17] categorized material risks as one of the categories that can affect the cost and time of the exhibition of project in construction industry. The factor of material risk caused by inflation in material prices due to huge demand constitutes supply related risk factors [17]. Factors such as delay in payment of contractors/suppliers, inflation/price fluctuation, price increase in materials, funding from the sponsor/client, variation orders, and poor financial/capital market are

\* Corresponding author.

E-mail address: Nur Syafiqah Abdul Malik ([syafiqahmalik966@gmail.com](mailto:syafiqahmalik966@gmail.com))

the most critical factors of delay in construction industries [16]. Material risk need to be managed properly in order to move towards an effective construction industry in Malaysia [5]

### *1.1 Importance of the Study*

The following Research objective was formulated because there is a significant relationship between organizational culture and material risk among Malaysian construction industries. Material risk could lead to project failure, project delay and results to other negative effects in construction industries [8]. The study of Adeleke *et al.*, [4] mentioned that the organizational culture would influence effective construction risk management. Therefore, this paper could help to provide a clearer figure about how the organizational culture will affect the material risk. This study will also inspire the people in organization to create a new idea to prevent the culture in organization towards material risk. Similarly, the study of [6] affirmed that material risk is the major risk factor that leads to delay in most of the construction industry projects.

### *1.2 Aims of the Study*

This paper aim to address the following research objective: There is significant relationship between organizational culture and material risk among Malaysian construction industries.

## **2. Research Methods**

### *2.1 Design of the Study*

This paper is a cross-sectional research design in nature, which means, data were collected at a single-point-in-time using structured questionnaire [2]. However, proportionate stratified random sampling technique was also employed in this paper. The research approach is quantitative, that mostly adopted in social sciences [15]. This paper presents a pilot test study of an on-going research which was conducted in Malaysia on 26th, Oct 2017, among the G7 contract manager, executive director, marketing manager, project manager and engineer [2]. The total numbers of ten (10) questionnaires were personally distributed in Malaysia construction industries for the pilot study analysis.

### *2.2 Data Collection*

According to Polit *et al.*, [16] a pilot study can be used as a "small scale version or trial run in preparation for a major study" [7] studied that a pilot study is often used to pre-test or try out a research instrument. The sample size of 10-20% of the sample size for the actual study is a rational number of participants to consider enrolling in a pilot. Although a pilot study does not guarantee success in the main study, it greatly increases the likelihood the result of the study.

Naresh *et al.*, [15] affirmed that questionnaire as one of the appropriate survey instrument for research. To make sure all the variables in this research framework are all measured, items for this study were adapted from [2] in order to create item pool and content validity which include previous research findings on the construct of this study (Organizational factors and material risk). These items were adapted and modified from preceding literatures by [2]. The purpose of creating the validity of the construct includes (a) to investigate the extent of material risk among Malaysian construction industries (b) to determine the significant relationship between organizational culture and material risk among Malaysian construction industries.

### 2.3 Statistical Analysis

Statistical Package for Social Science (SPSS) version 21.0 was used to analyse the collected data for pilot study. The demographic profile of the industries and respondents were analysed with descriptive statistics. More so, the goodness of fit was ascertained by reliability test. Descriptive statistics like the standard deviation, percentage and mean score were analysed. Using (26) scale categories interpretation, values (range) was ascribed to the 5-point likert scale used in the questionnaire in ascending order as follows: 1= very low (1.0-1.49); 2= low (1.5-2.49); 3= medium (2.5-3.49); 4= high (3.5-4.49); 5 = very high (4.5-5.00), following [2].

### 2.4 Reliability Analysis

The Cronbach's alpha coefficient threshold was used to ascertain the reliability of all the items in this study. This was done in order to be sure of the scales, which was adopted in this paper were not ambiguous and that the items within a component were measuring the same fundamental component. Thus, higher Cronbach's alpha coefficient is a sign of greater consistency among the items for each component and the assurance that the measurements are reliable. This paper achieved the minimum reliability threshold level [2] where 0.7 is regarded acceptable. However, all the Cronbach's alpha coefficient values attained in this paper were above the 0.7 minimum thresholds.

## 3. Results and Discussion

After the assessment of the research instrument from the experts view, further test known as the reliability test was also conducted to know the internal consistency of the research instrument. Adeleke *et al.*, [3] affirmed that 10% or more respondents were sufficient enough to conduct a pilot testing. The pilot survey results for this paper was interpreted with the following analysis such as demographic analysis, skewness and kurtosis, descriptive analysis and correlation analysis.

**Table 1**  
Demographic Breakdown of the Respondents

Respondents	Frequency	Percentage (%)
<i>Position in the industry</i>		
Contract manager	0	0
Executive director	0	0
Marketing manager	0	0
Project manager	1	10.0
Engineer	4	40.0
Others	5	50.0
<i>Working experience (Years)</i>		
Lowest working experience	1	10.0
Highest working experience	5	50.0
<i>Gender</i>		
Male	10	100.0
Female	0	0

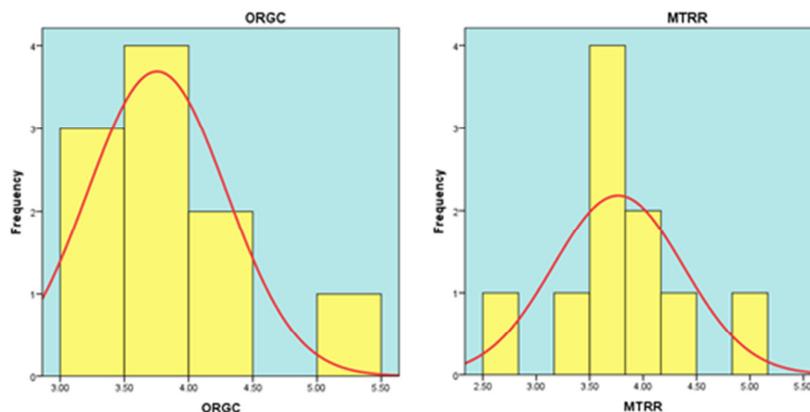
Out of 10 respondents that participated in this survey, 10.0% were project manager; 40.0% engineer and 5.0 % other employees. Their years of working experience were rated from 1 to 5. The highest (50.0%) of working experience was 5 years, and the lowest was 1 year. As for gender, the percentage of male respondents was 10.0% compared to 0.0% female.

Table 2 shows the demographic breakdown of the Industry. A total of 60.0% of the industry specialized in road, another 40.0% specialized in other specializations. This was followed by industry’s ownership with 100.0% as the highest which were local industries. The industry existence was gathered to be 50% which was the highest and the lowest was 2 years at 20%.

**Table 2**  
 Demographic Breakdown of the Companies

Respondents	Frequency	Percentage (%)
Company specialization		
Apartment buildings	0	0
Roads	6	60.0
Bridges	0	0
Other	4	40.0
Company ownership type		
Local	10	100.0
International	0	0
Other	0	0
Company existence (years)		
Lowest	2	20.0
Highest	5	50.0

	ORGC	MTRR
N	10	10
Valid	10	10
Missing	0	0
Skewness	1.371	.359
Std. Error of Skewness	.687	.687
Kurtosis	2.420	1.744
Std. Error of Kurtosis	1.334	1.334



**Fig. 1.** Skewness and kurtosis

Figure 1 depicts the skewness and kurtosis of variable used in this paper. The independent variable was organizational factors, while the dependent variable was material risk. From the statistics above, it shows that the data was normally distributed because the standard error of skewness multiply by 3 was greater than the absolute skewness and also the standard error of kurtosis multiply by 3 was greater than absolute kurtosis.

**Table 3**  
 Frequency of variables

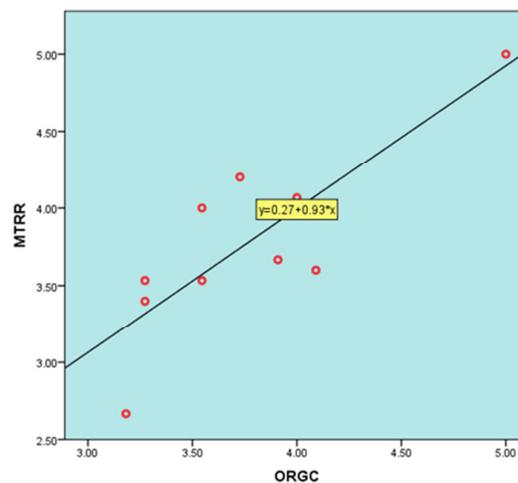
	N	Minimum	Maximum	Mean	Std. Deviation
ORGC	10	3.18	5.00	3.7545	.24047
MTRR	10	2.67	5.00	3.7667	.60959
Valid N (listwise)	10				

Table 3 above shows the descriptive analysis in this study. The mean of organizational culture that influence on material risk. The mean for Organizational Culture was 3.7545 which falls into the category of medium high level of agree for interpretation of the level of mean. The mean for Material Risk was 3.7667 that also falls into Medium level for level of agree. As for standard deviation, the organizational culture was .24047 and the standard deviation for material risk was the highest score of .60959.

**Table 4**  
 Strength of correlation coefficient value

		ORGANIZATIONAL CULTURE	MATERIAL RISK
ORGANIZATIONAL CULTURE	Pearson Correlation	1	.825**
	Sig. (2-tailed)		.003
	N	10	10
MATERIAL RISK	Pearson Correlation	.825**	1
	Sig. (2-tailed)	.003	
	N	10	10

\*\* . Correlation is significant at the 0.01 level (2-tailed)



**Fig. 2.** Scatter diagram of the correlation

Table 4 and Figure 2 show the correlation matrix for independent variable and dependent variable. In detail, the result shown that organizational culture (independent variable) which has very strong positive correlation ( $r=0.825$ ) at the 1% significance level (2tailed) with material risk (dependent variable). It has shown above the value of significant was 0.01 (1%) and was less than 0.05. Thus, there was a significant positive relationship between organizational culture and material risk. This implication showed that every organizational culture must be flexible because on the long run, it will influence the performance of every construction industries.

#### 4. Conclusion

This study was carried out particularly to assess the significant relationship between organizational culture and material risk among Malaysian construction industries. It was discovered in this paper that there was a significant positive relationship between organizational culture and material risk among Malaysian construction industries. This implicates that organizational culture acts as a major role in reducing future risk occurrence in Kuantan Malaysian construction industries project. The theoretical and empirical result in this paper has added to the growing body of knowledge within this domain, which might also serve as a framework towards risk reduction in Kuantan construction industries.

Therefore, future studies can measure the material risk and its implementation in other industries to give higher reliability to the application organization culture. Similarly, it would have been more comprehensive to study personality as another independent variable besides organizational culture and double the sample used in this study to further generalize the findings.

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