CHAPTER FOUR

RESULT AND DISCUSSION

4.0 Introduction

The results of data analysis based on the questionnaire survey conducted is presented in this chapter. The first subsection of the chapter, focuses on testing of hypothesis that has been developed using Pearson Correlation. The testing of hypothesis one *(H1)* is to answer the first research question *(RQ1)* in identifying the in organizational factors fluence of audit resource on the effective 5S internal audit. The testing continues with testing of *(H2), (H3)* and *(H4)* to answer questions *(RQ2), (RQ3)* and *(RQ4)*. For subsection two, it presents demographic information which is summary statistics of respondents who participated in this research.

4.1 Summary Statistics of the Respondents

This research targets on respondents attached with private companies that had received 5S Certification from MPC as of 9 November 2011. They were chosen because they managed to provide input and able to relate internal audit of 5S Quality with company operational performance. Total answered questionnaires received were 83 out of 196 samples of respondents which represents a net response of 42.3 percent.

4.1.1 Respondent's Background and Job Profile

TABLE 4.1: RESPONDENTS' BACKGROUND
(N =83)

Item	Particulars	Frequency	Percentage (%)
Age	Under 20 years	0	0
	21-29 years	16	19.3
	30-39 years	27	32.5
	40-49 years	30	36.1
	50-59 years	10	12.0
	Above 60 years	0	0
Gender	Male	59	71.1
	Female	24	28.9
Educational Level	SPM	7	8.4
	Diploma	25	30.1
	Bachelor	46	55.4
	Master	4	4.8
	Doctorate	1	1.2
	Professional Qualification	7	8.4
Working Experience	Less than 5 years	8	9.6
	6-10 years	16	19.3
	11-15 years	29	34.9
	16-20 years	13	15.7
	More than 20 years	17	20.5
Job Title	Supervisor	14	16.9
	Line Leader	4	4.8
	Executive	29	34.9
	Manager	31	37.3
	Senior Manager	4	4.8
	Director	1	1.2
Industry	Agriculture, Oil and Gas	4	4.8
	Electric and Electronic	14	16.9
	Service, Retails	16	19.3
	IT/ IS	0	0
	Manufacturing	41	49.4
	Healthcare	8	9.6
Size of company	MNC	5	6.0
	Big	24	28.9
	Medium	44	53.0
	Small	10	12.0
	Enterprise	0	0
Position in 5S Committee	Head of Internal Audit	46	55.4
	Internal Auditor	37	44.6

Table 4.1 above elaborates the respondents' background and job profile. This finding was based on 100% responses from the 83 respondents of private companies that had received 5S Certification. From the analysis, the respondent's age group can be ranged from 21 years to 59 years old. The ages of respondents were grouped into six categories. Most of respondents in this group range are able to share their knowledge and experience in conducting IAQ.

It can be seen that male respondents are much greater than female respondents. Precisely, 71.1% of the respondents are male where female respondents consist of 28.9%. The scenario explains that auditing job has dominates by male nowadays. This is due to the toughness of audit task that required objectives and independents of mind while doing audit.

For educational level, most of the respondents consist of 54.4% are Bachelor or first degree holder. It follows by Diploma (30.1%), SPM (8.9%), Master (4.8%) and Professional Certification (1.2%). From the analysis, it indicates that IAQ required educational background to ensure the task implemented accordingly.

Result on working experience shown that 34.9% of respondents have been working with their current employer for about 11 to 15 years. About 20.5% of them have been working for above 20 years, 19.3% for 6 to 10 years, 15.7% for 16 to 20 years and 9.6% is less than 5 years working experience. The result indicates that most of 5S internal auditors are coming from people who have experience in their own business areas.

About 37.3% of the respondents consist of 31 people holding position as Managers. Those who are executives, become second highest with 34.9% of respondents. 16.9% of

respondents was under the group of supervisor and followed by group of senior manager and line leader. Only 1.2% consists of the position as director. The results revealed that the position of internal auditor mostly held by management people who has influence power towards their auditees.

From the analysis, about 49.4% of respondents were involved in manufacturing industry. 19.3% of respondent were involved in services and retails, 16.9% were involved in Electric and Electronic, 9.6% were involved in healthcare while remaining was involved in Agriculture and Oil and Gas industries. The scenario revealed that IAQ is giving major impact to manufacturing companies.

44 out of 83 respondents (53%) were from medium size of companies. It followed by 28.9% from big size of companies, 12.0% from small companies whereas remaining 6.1% are from MNC companies. It indicates that 5S practices can be implemented in any type and size of companies.

Majority of respondents are head of internal audit of 5S Quality consist of 55.4%. The remaining 44.6% respondents are internal auditor of the companies.

4.1.2 Normality Test

The assumption of normality of data is the prerequisite condition for many inferential statistical techniques. The normality presumes the presence of samples collected towards the actual population. It therefore measures the degree to which the distribution of samples corresponds to a normal distribution.

Veal (2005) describes central tendency as to how the scores on a variables tend to be "on average" their distribution, whereas dispersion is described as to how the score on a variable are dispersed across the measurement scale (Veal, 2005).

Descriptive statistic tabulates some useful information for data analysis. The output such as mean, standard deviation and variance for all the variables enable thorough checking on the data and assess the normality of data distribution. The descriptive result is presented in Appendix 2B. With N=83, a total of 26 items were assessed and no missing value reported. In addition, all standard deviation are lower than the mean which indicate satisfactory of data collection. In general, the means value of all variables exceed 3.0.

Kurtosis and skewness methods are used to assess the normality of data distribution. The skewness value provides an indication of the symmetry of the distribution whereas kurtosis provides information about the "peakedness" of the distribution (Pallant, 2007). A positively skewed distribution has relatively large values and tails off to the right whereas negatively skewed distribution has relatively few small values and tails off to the left (Hair et al., 2006). Positive kurtosis values on the other hand indicate that the distribution is rather peaked or clustered in the centre with long thin tails. Kurtosis values below 0 indicates a distribution that is relatively flat (Pallant, 2007). Pursuant to Sekaran (2002), skewness and kurtosis valued in region of 2 to -2 are deemed acceptable.Coakes and Steed (2003) further explained the kurtosis valued between 3 to -3 is deemed satisfactory for social science study. Tabachnick and Fidell (2007) on the other hand comment that with bigger sample size, it is reasonably that both skewness and kurtosis

will not make substantive difference in the analysis. Nevertheless, all items in the questionnaire fulfill data distribution.

On the other hand, the test of normality through Kolmogorov-Smirnov statistic is illustrated in Appendix 2B. Although a non significant result (sig. value more than 0.05) indicates normality of data distribution, however Pallant (2006) argue that with large sample size, significant result (sig. value of less than 0.05) of Kolmogorov-Smirnov statistic is expected. With that, the data collected are deemed acceptable for analysis.

4.2 Reliability Analysis

Table 4.2: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.804	.906	35

Churchill (1979) suggested that reliability analysis must be first done to assess the quality of data. This is supported by Zikmund (2003) who suggested that as the research variables comprise many items, a test need to be done to check the degree to which measures are free from error and therefore, able to yield consistent result in this study. Thus, reliability analysis was performed in this study to test whether all the items used to measure the research variables are reliable and can be used to achieve the objectives of study.

According to Uma Sekaran:

> "Cronbach's Alpha is a reliability coefficient that indicates how well the items in a set are positively are correlated to one another. Cronbach's Alpha is computed in terms of the average intercorrelations among the items measuring the concept. The closer Cronbach's Alpha is to 1.0, the higher the internal consistency reliability."

Table 4.2 presents the reliability for scales used in the study. The reliability coefficient for scale should range from 0.6 or higher in order to be reliable. The result of 0.804 is acceptable and shows that the questionnaire designed was reliable, and the collected data were reliable and consistent (α= 0.05). The Alpha Coefficient ranged from 0.792 to 0.907. The higher the Alpha is, the more reliable the test is. Detailed result of the reliability analysis of this research is attached in appendix B.

4.3 Correlation Analysis

The Pearson's correlation is used to find a correlation between at least two continuous variables. The value for a Pearson's can fall between 0.00 (no correlation) and 1.00 (perfect correlation). Other factors such as group size will determine if the correlation is significant.

Bivariate correlation analysis was done using two-tailed significance to the six variables; auditor experience, KSA, the ability of auditor to communicate result and give recommendation, clarity audit finding and increase company productivity. Table below shows that correlation between auditor experience and KSA with 0.000, communicates result and gives recommendation with 0.000 and clarity audit finding and communicate result with

0.002. Correlation between auditor experience and KSA as well as increase productivity also shows a significant relation with 0.000 and 0.000 respectively.

However, the correlation between ability to communicate result, gives recommendation and the clarity audit findings as well as to increase productivity with 0.076, 0.108 and 0.511 respectively are not significant because the significant level more than 0.01.

Table 4.3: Correlations

		Experience	KSA	Comm_Result	Give_Recommendation	Clarity Audit Findings	Increase Productivity
Experience	Pearson Correlation	1	.603**	.360**	.098	.292**	.379**
	Sig. (2-tailed)		.000	.001	.378	.007	.000
	N	83	83	83	83	83	83
KSA	Pearson Correlation	.603**	1	.378**	.279*	.241*	.427**
	Sig. (2-tailed)	.000		.000	.011	.028	.000
	N	83	83	83	83	83	83
Comm_Result	Pearson Correlation	.360**	.378**	1	.377**	.342**	.196
	Sig. (2-tailed)	.001	.000		.000	.002	.076
	N	83	83	83	83	83	83
Give_Recommendation	Pearson Correlation	.098	.279*	.377**	1	.179	.178
	Sig. (2-tailed)	.378	.011	.000		.106	.108
	N	83	83	83	83	83	83
Clarity Audit Findings	Pearson Correlation	.292**	.241*	.342**	.179	1	-.073
	Sig. (2-tailed)	.007	.028	.002	.106		.511
	N	83	83	83	83	83	83
Increase Productivity	Pearson Correlation	.379**	.427**	.196	.178	-.073	1
	Sig. (2-tailed)	.000	.000	.076	.108	.511	
	N	83	83	83	83	83	83

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

4.4 Regression Analysis of Variance

The purpose of Regression Analysis of Variance (ANOVA) is to examine the significant mean differences among more than two groups on an interval or ratio scaled dependent variable. The results of ANOVA show whether or not the means of the various group are significantly different from one another. If the overall model is significant, then at least one or more of individual variables will most likely have a significant relationship to the dependent variable. The result revealed that the H1 which is number of resources influence the IAQ activities and the company operational performance. By using the similar method; a significant model emerged that indicates correlation between independent variables and dependent variables was strong (R=0.601). The regression line was significant from 0.00 ($F10, 72 = 4.062$, $p<.05$). Significant variable was shown in regression test giving impact on increasing the company level of productivity.

Table 4.4a: ANOVA[b]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	14.036	10	1.404	4.062	.000[a]
	Residual	24.879	72	.346		
	Total	38.916	82			

a. Predictors: (Constant), Auditee_Cmtnt, No. of Auditor, No. of Training, No. of Budget, No. of Audit, Audit Lenght, Auditor Selection, KSA, T_Mgmt_Cmtnt, Experience

b. Dependent Variable: Increase Productivity

Regression test for the impact on increase productivity level of company (dependent variable) and number of audit resources such as number of auditor, auditor selection, auditor experience, KSA, number of audit, length of audit, number of training, number of budget allocation, top management commitment and auditee commitment (predictors), the result shows significant level at 0.000. Hypothesis 1 is supported.

Regression test for the impact on creating productive and systematic work environment (dependent variables) and internal auditor competencies such as the ability of auditor in identify non conformance, communicates result, gives recommendation, controls audit session and applies other related knowledge (predictors), the result shows significant level at 0.007. Therefore the hypothesis 2 is substantiated.

Table 4.4b: ANOVA[b]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	4.882	5	.976	3.477	.007[a]
	Residual	21.624	77	.281		
	Total	26.506	82			

a. Predictors: (Constant), Applies_Other_Knowledge, Control_Audit_Session, Give_Recommendation, Identify_NCR, Comm_Result
b. Dependent Variable: Creates Systematic Environment

Regression test for the impact on improving quality of products and services (dependent variables) and audit report such as perception on audit report produced, the clarity of audit findings, audit recommendation, standards of audit report and documented audit report (predictors), the result shows significant level at 0.001. Therefore the hypothesis 3 is supported.

Table 4.4c: ANOVA[b]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	8.660	5	1.732	4.602	.001[a]
	Residual	28.978	77	.376		
	Total	37.639	82			

a. Predictors: (Constant), Std_Audit_Report, Audit Recommendation, Perception_A_Report, Clarity Audit Findings, Documented Audit Report
b. Dependent Variable: Improve Quality

Regression test for the impact on productivity level of company (dependent variables) and the effective of IAQ such as number of audit resources (number of auditor, auditor selection, auditor experience, auditor knowledge, skills and ability (KSA), audit length, number of training, budget allocation, top management commitment and auditee commitment), auditor competencies (ability in applying standard criteria, determine objectives and scope, identify non conformance, communicate result, gives recommendation and control audit session and applies other related knowledge) as well as audit report (audit report, positive language, duration, clarity of audit findings, audit recommendation, standards of audit report, documented audit report and auditee background) as the predictors, the result shows significant level at 0.005. It shows that hypothesis 4 is substantiated.

Table 4.4d: ANOVA[b]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	20.057	26	.771	2.291	.005[a]
	Residual	18.859	56	.337		
	Total	38.916	82			

a. Predictors: (Constant), Auditee Background, Clarity Audit Findings, Std_Audit_Report, T_Mgmt_Cmtnt, No. of Auditor, Determine_Obj, No. of Training, Documented Audit Report, Give_Recommendation, Applies_Other_Knowledge, Auditee_Cmtnt, Control_Audit_Session, Audit Recommendation, No. of Budget, Identify_NCR, Comm_Result, Applies_Std, No. of Audit, Perception_Positive_Language, Audit Lenght, Auditor Selection, KSA, Perception Audit Duration, Perception_A_Report, Experience, Determine_Scope

b. Dependent Variable: Increase Productivity

4.5 Testing of Hypothesis

The testing was done based on the four hypotheses that have been determined in Chapter 3. These four hypotheses developed based on the research model that shows the relationship between independent variable, mediating variable and dependent variable.

The reliability analysis, correlation analysis and regression analysis were among three tests used in this research. Reliability test for Cronbach's Alpha was used to measure the reliability of data which was calculated separately on each factor. The correlation analysis was carried out to determine the relationship between the three variables. Finally, the regression analysis using ANOVA was used to examine the hypothses as determined in Chapter 3.

4.5.1 Testing on Hypothesis 1 (H1)

The first hypothesis was tested to examine the number of resources influence the IAQ effectiveness.

H1- Number of resources influence the IAQ effectiveness

The result from testing on H1 shows that number of resources has strong influence in internal audit of 5S Quality effectiveness. Linear regression analysis for mediating variables (5S IAQ effectiveness) and variable related to number of resources (predictor) shows significant level at 0.000. Hypothesis 1 was supported.

4.5.2 Testing on Hypothesis 2 (H2)

The second hypothesis was tested to determine the auditor level of competencies influence IAQ effectiveness.

H2 – Auditor competencies influence the effective of IAQ effectiveness

The result from testing on H2 shows that auditor competencies possessed positive relationship with the effective of IAQ. Linear regression test for mediating variable (Internal Audit of 5S Quality effectiveness) and variable related to auditor competencies (predictor) shows significant level at 0.007. Therefore, hypothesis 2 was substantiated.

4.5.3 Testing on Hypothesis 3 (H3)

The third hypothesis was tested to evaluate the audit report influence IAQ effectiveness.

H3 – Quality audit report influence the effective of IAQ.

The result from testing on H3 shows that quality of audit report has strong influence in the effective of IAQ activities. Linear regression test for mediating variable (IAQ

effectiveness) and variable related to audit report (predictor) shows significant level at 0.001. Therefore, hypothesis 3 was supported.

4.5.4 Testing on Hypothesis 4 (H4)

The fourth hypothesis was tested to measure the relationship between the effectiveness of IAQ and company operational performance.

H4 – The relationships between

a. number of resources and company operational performance
b. auditor competencies and company operational performance
c. audit report and company operational performance

are mediated by internal audit of 5S Quality effectiveness.

The result from testing on H4 shows that the effective of IAQ possessed strong relationship with company operational performance. Linear regression test for dependent variable (company operational performance) and variable related to the effective of IAQ effectiveness (predictor) shows significant level at 0.005. Therefore, hypothesis 4 was substantiated.

4.6 Discussion on Results

Based on the analysis results of hypotheses developed, generally, the effective of IAQ in private companies that received 5S Certification, in term of number of resources, auditor competencies and standard audit report needs to identified and clarified within the organization. Karapetrovic and Willborn (1999), has focused on allocation and deployment of resources to achieve audit objectives. Auditor competencies and qualification were determined as important factor in internal audit of quality. As outcomes of audit activities, audit report should able to provide useful audit findings and recommendations. In return, the management support provides resources and commitment to implement the internal audit recommendations in attaining audit effectiveness (Mihret and Yismaw, 2007). Overall. The research result can be summarized as table 4.5 below follows:

Table 4.5 : Results of Hypotheses Testing using Regression Analysis

H	Hyphotesis	Significant (P<.01)	Result
H1	The number of resources has significant influence on IAQ Effectiveness.	Sig. 0.000	Supported
H2	The auditor competencies possessed significant impact on IAQ Effectiveness.	Sig. 0.007	Supported
H3	The quality of audit report has significant influence on IAQ Effectiveness.	Sig. 0.001	Supported
H4	The effectiveness of IAQ possessed positive relationship with company operational performance.	Sig. 0.005	Supported

4.6.1 Number of Resources and IAQ Effectiveness

Based on the testing conducted, the research found that the number of resources has significant influence on the effective of IAQ. About 36.1% (based on $R^2 = .361$) of the respondent agreed that number of resources are important and IAQ committee should identified and organized the resources objectively.

This finding is inline with the system approach under ISO 9000 series an audit is viewed as a set of interdependence processes or activities that using human, material, infrastructural, financial, information and technical resource to achieve objectives related to continuous improvement of performance. (Karapetrovic and Willborn, 1998).

This research also identified that the important of adequate number of resources such as adequate number of auditor, time, and budget directly impact to the effective of IAQ in the companies.

4.6.2 Auditor Competencies and IAQ Effectiveness

The result on relationship between auditor competencies and the effective of IAQ shows that the competencies has influencing element on IAQ. The findings indicate that auditor competencies have positive relationship with the effective of IAQ.

Brody *et al.*, 1998; Mat Zain *et al.*, 2006 stated skilled auditors are more able to provide advice in order to complete audits, to find consistent solutions based on previous experiences and to deal with complex and conflicting situations. The auditors' competencies can also increase the effectiveness of the audit team by improving the recognition of their role within the organization. Karapetrovic and Willborn (2001) suggested the implementation of a systems approach in auditing in order to add ''value'' to the audited organization with helps of ''competent auditors'' in identifying area for improvements.

This research also determined that the auditor competencies such as ability to identify objective and scope of audit as well as provide useful recommendation, give positive impact on the effective of IAQ in the companies.

4.6.3 Quality of audit report and IAQ Effectiveness

Based on hypothesis development for H3, this study has discussed the requirement of quality audit report in IAQ. Issues whether auditor should rigid their audit finding based on guideline/ standard were analyzed in order to get better understanding on audit reporting standard.

The results have shown that there was a significant relationship between quality audit report and the effective of IAQ. In many cases, audit report was used as evidence for further improvement initiatives.

Mort Dittenhofer, (2001) explained that the audit reporting is probably one of the most sensitive part of the audit process. Regardless of the quality of the auditing examination and evaluation, if the results of the audit are not clearly transmitted to management, the audit effort is of little value. Internal auditors are normally told to employ standards guideline in their reporting such as clarity, brevity, timeliness, completeness, freedom from jargon and use in positive language. The purpose of guidelines is to reduce the gap between auditor audit findings and auditee point of view.

4.6.4 The Internal Audit of 5S Quality Effectiveness and Company Operational Performance

The findings on the factors influence of internal audit of 5S Quality (IAQ) on company operational performance were relatively positive relationship. About 51.2% (based on R square =.512) of respondents disclosed that the effective of IAQ has strong influence on companies operational performance such as increase productivity of company operation, improve quality of products and services, increase employees morale, strengthen company safety, increase customer satisfaction, encourage *kaizen* initiatives as well as creates productive and systematic work environment. Majority of respondent agreed that if the company implements IAQ with effective way with regards to

resources used, auditor competencies and audit report, the company can improve their operational performance as a whole.

Mihret and Yismaw (2007) stated that internal audit effectiveness, the extent to which an internal audit is debatably a result of the interchange among four factors: internal audit quality; management support; organizational setting; and attributes of the auditee. The main internal audit function's capability is to provide useful audit findings and recommendations would help raise management's interest in implementing improvement activity. The management support such as providing the resources and commitment to implement the internal audit recommendations is essential in determining audit effectiveness. Also, the organizational setting in which internal audit operates, for instance the organizational status of the office, its internal organization and the policies and procedures applying to each auditee, should enable smooth audits that lead to reaching useful audit findings that can be presented in the form of report.

The company not only stops at internal audit of quality effectiveness, however, they more focused on the outcomes of the audit itself. Normally in QMS specifically in 5S System, internal audit of quality is required as a tool in order to sustain the system and how far it can contributes to company operational performance. According to Milena et. al (2010), expectations of companies relating to the results of the internal audit of quality may differ between companies and also over time within the same company: from simple formal conformance to the requirements of the standard (interested in having the certificate) to audits that help companies actually achieve effective and efficient performance. The identified positive outcome of the QMS will be used as a

foundation for assessing the internal audit quality's contribution to achieve business goals and at the same time improve company efficiency.

Therefore, in achieving operational performance, the companies should manage well the activities that they performed such as internal audit of quality, to ensure such initiative can contributes back to the companies.