

CHAPTER 4: DATA ANALYSIS

4.1 Data Screening and Test for Normality

SPSS was used for conducting the statistical analyses. This program is believed to be the “easiest to use for the most widely used statistical techniques. The majority of the hypotheses identified require a comparison between ERP system users and non-users, or between individual questions answered by one of the groups. These types of analyses would require either a parametric test of the difference between means, such as an independent samples t-test (or related samples t-test), or a nonparametric test equivalent. Certain assumptions must be met before using the parametric tests, including the use of interval scale data, homogeneity of variances, and normality of data. These assumptions are explored below.

The number of returned questionnaires is 86. After the data screening process by eliminating the outliers, the sample size is trimmed to 81. The test of the analysis is carried out using parametric test. The results and the scale reliabilities of the main variables measured by Cronbach's alpha are reported in Table 2.

Table 2: Reliabilities of Variables

Variables	N of Items	Cronbach's alpha	Average	SD
Operational effectiveness	12	0.87	3.78	0.46
Problem & Insufficient Management*	1	N.A	3.96	1.46
Internal Exploration**	1	N.A	0.71	1.11

Management responsive	2	0.58	0.66	0.72
Number of employee	3	0.61	0.50	0.64

*The variable is a single item scale and shall be treated as ordinal variable.

**The deficiency score is a single item scale (Cook et al, 1961).

4.2 Reliability and Validity

The scale of all the main variables is reported to be reliable, with value of Cronbach's alpha generally greater than 0.60. The Lower level in effectiveness of ERP system is the variable with lowest alpha value (0.58), mainly because there is only 2 items in the scale. The reliability for internal exploration and problem & insufficient management are not available since there is only a single item scale. As explained in the previous *Method* section, the reliability and content validity of the scales of measurement are generally justified through previous studies. To summarize, the measurement scales used in this study are generally valid and reliable, which permitted us to draw further discussion on the respondents' perception on the effectiveness of ERP system implementation in organization.

4.3 Correlations

The correlation matrix among the main variables using Pearson correlation appears in Table 3. The correlations between employee whistle-blowing with their external disclosure, management responsive and ERP are found to be significant at the 0.05 levels. However, the correlations between internal

disclosure and ERP are found to be not significant. The same thing happened to the correlation between internal disclosure and management responsive & number of employees is found not significant. However, the correlation between external disclosure and management responsive are found significant at the 0.05 levels. The correlation between ERP and number of employees are also found significant at the 0.05 levels.

Table 3: Pearson correlation, standard deviation, and means (n=86)

Variable	ERP implementation	Operational effectiveness	Problem & insufficient management	Internal exploration	Management responsive
Operational effectiveness	1.00				
Problem & insufficient management	0.44*	1.00			
Internal exploration	0.30*	0.20	1.00		
Management responsive	0.21*	0.06	0.36*	1.00	
Number of employee	0.09	0.11	0.08	0.17*	1.00

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

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

Hypothesis 1 (H1) was tested using one tailed t-test appears in Table 4. The reported increased in effectiveness on a scale ranging from –2 to 2 were 0.25. The calculated t value was 6.66, which was significant at the 0.01 levels. As a result, the result support *hypothesis 1*.

Hypothesis 2 (H2) was tested using the same test. The reported decrease in problem & insufficient management following the implementation of ERP

system and internal exploration was –0.20. The calculated t value was 5.95. As a result, the result supports the *hypothesis 2*.

Table 4: Change in the level of effectiveness after the implementation of an ERP

	Mean change	Standard deviation	t statistic
Operational effectiveness	0.25	0.55	6.66*
Problem & insufficient management	-0.20	0.52	5.95*

*p < 0.01

Hypothesis 3 (H3) was tested using one tailed t-test appears in Table 5. The reported increased in internal exploration on a scale ranging from –2 to 2 were 0.35. The calculated t value was 7.15, which was significant at the 0.01 levels. As a result, the result support *hypothesis 3*.

Hypothesis 4 (H4) was tested using the same test. The increase in management responsive following the implementation of ERP system and internal exploration was –0.10. The calculated t value was 5.28. As a result, the result supports the *hypothesis 4*.

Table 5: Change in the level of effectiveness after the implementation of an ERP

	Mean change	Standard deviation	t statistic
Internal exploration	0.35	0.45	7.15*
Management responsive	-0.10	0.32	5.28*

*p < 0.01

Hypothesis 5(H5) was tested using multiple regression (coefficient) appears in Table 6. Table 6 summarizes the relationship between the organizational benefits. There was a significant correlation between with ERP system and without ERP system, which has significant p value at the 0.08 levels. In the other hand, there is also a relationship between the management responsiveness and external disclosure, which has significant p value at the 0.25 levels. As a result, the result supports the *hypothesis 5*.

Table 6: Relationship of organizational benefits

	Beta	Standard beta	Standard error	Significance (p value)
ERP system	0.15	0.12	0.06	0.08
Without ERP system	-0.06	1.48	0.05	0.25