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Effect of substantial competent team on training after ERP implementation, continual system improvement, department related to decision support and business performance- A study of critical success factors on implementation of ERP systems among process industries.

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Abstract: The current research focused on estimating critical success factors that are substantial competent team, training after ERP implementation, continual system improvement, department related to decision support and business performance. The respondents chosen for the current research were employees of process industries in India who are working under ERP platform. Researcher formulated four research objectives and four research hypotheses and the sample size for the current study was 139. The researcher formulated one predictor variable being substantial competent team and three predicted variables as training after ERP implementation, continual system improvement, department related to decision support and business performance. The impact between predictor variable and predicted variables were positive and significant except substantial competent team and continual system improvement which were negative but significant. Organizations may concentrate more on continual system improvement as critical success factor to increase productivity after implementation of ERP systems at department level.

Keywords: Employee's attitude, ERP post implementation, support of top management and business performance.

INTRODUCTION

According to (Bingi, Sharma, & Godla, 1999) during implementation of ERP solution across the world, organizations mostly encounter challenge of aligning business process in congruence with ERP package which is newly introduced in the organization. Research made by (Pishdad, A,, Reich, & Geursen, 2014) revealed that many organizations have been wrangled with post implementation of ERP related issues and (Ha & H. J, 2014) also revealed in their research that organizations struggle due to absence of crucial adoption knowledge.

The research made by (Arnold, 2018) revealed that the nature of the specific jobs in the sector of finance is being adjusted before, after and during implementation of ERP systems besides insufficiency of ERP to functions of finance which ensures the success of system implementation.

According to (Chen, 2012), (Belfo & Trigo, 2013) (Trigo, Belfo, & Estébanez, 2014), organizations might have notable experience though implementing ERP systems needs studies which are practical and cognitive. Some studies depicted findings as implementation of ERP systems brings changes to some organizations, job nature and process.

The current research work tries to test critical success factors where effect of substantial competent team on training after ERP implementation, continual system improvement, department related to decision support and business performance.

LITERATURE REVIEW

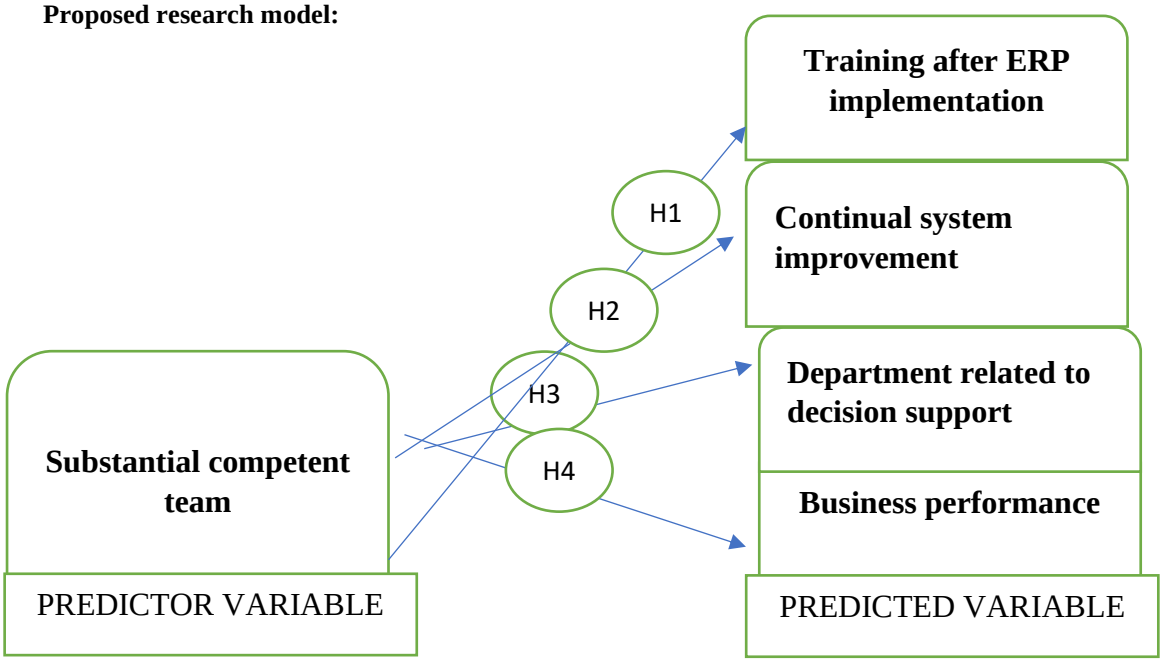
According to the report of (Wang & Wang, 2012) revealed that training program of ERP must reflect the learning of members and contribute observations, experiences and insights back to the community of users as a collective discussion. According to the report of (Wang & Ramiller, 2009) revealed that training program of ERP must reflect the learning of members and contribute observations, experiences and insights back to the community of users as a collective discussion.

The research made by (Uribe, Klein, & Sullivan, 2003) reveals that ERP system requires users working at one time via integration of business processes which are tight where training after implementation of ERP SYSTEM may be driven effective in a better manner when performed under settings which are team-based collaboration.

The study made by (Ha & H. J, 2014) revealed that involvement of personnel who are experts to create supportability in sustainable manner in operating and maintaining ERP system's post-implementation stage where absence of competent team would lead to limiting the importance of ERP.
The study made by (Holsapple, P, & Sena, 2003) revealed that the decision support unit is taken into consideration as key sub-system under information system. The decisions which are effective can ameliorate performance of business processes and organization as well where different organizational functional domains to be integrated. Managers can get benefits due to efficacious decision support from system like increasing the decision support's reliability, decreasing the cost of decision-making, rendering decisions based on evidences and increasing the satisfactions besides decision processes.
The research made by (McGinnis & Z, 2007) revealed that organization adopts Enterprise Resource planning in the beginning with the infrastructure of Information Technology where the personnel may encounter innumerable challenges according to the requirements of various projects at operational stage. To resolve unforeseen requirements of the project, an ERP system needs improvement on regular basis. The utmost success to implement ERP systems would be "continuous system development.
The research conducted by (Chou, et al., 2014) depicted that many companies encountered the process related to operations regarding post implementation of ERP would be incompetent and results in an effect which is negative in nature affects the performance of the business. ERP factors are being explored after implementation would have impact on processes related to performance in the organization is captivating field of research to measure the significant outcomes of business performance which would be focused during the stage after implementing ERP.

Research Objectives:
1) To test the Effect of substantial competent team on training after ERP implementation in process industries.
2) To test the Effect of substantial competent team on continual system improvement in process industries after ERP implementation.
3) To test the Effect of substantial competent team on department related to decision support in process industries after ERP implementation.
4) To test the Effect of substantial competent team on business performance in process industries after ERP implementation.

Proposed research model:



METHODOLOGY

The research concentrated on evaluating the effect of predictor variable being Substantial competent team and predicted variables as training after ERP implementation, continual system improvement, department related to decision support and business performance. Researcher used quantitative method to test the effects of predictor and predicted variables. The survey instrument was adapted from (Najmul, Shah, Yukun, & Rakibul Hoque, 2019) and distributed to 139 respondents who are employees of process industries in India. The items in the survey were designed based on 5 point Likert type scale where "1" is strongly disagree to "5" as strongly agree. The initial testing was conducted as pilot study within 15 respondents of the organization to check the content validity and modified few wordings and few items were eliminated.

Hypotheses:

Hypothesis -1:

Ho: There is no relation between substantial competent team and training after ERP implementation.

H1: There is relation between substantial competent team and training after ERP implementation.

Hypothesis -2:

Ho: There is no relation between substantial competent team and continual system improvement.

H1: There is no relation between substantial competent team and continual system improvement.

Hypothesis -3:

Ho: There is no relation between substantial competent team and department related to decision support

H1: There is no relation between substantial competent team and department related to decision support

Hypothesis -4:

Ho: There is no relation between substantial competent team and business performance.

H1: There is no relation between substantial competent team and business performance.

Data Analysis

Reliability Statistics	
Cronbach's Alpha	N of Items
.854	17

The reliability of current study is above acceptable level.

Gender			
		Frequency	Percent (%)
Valid	Male	133	71.12
	Female	54	28.88
	Total	187	100.0
Age			
		Frequency	Percent (%)
Valid	25 -35 years	65	34.75
	36-45 years	73	39.05
	46-55 years	38	20.32
	Above 55 years	11	5.88
	Total	187	100
Tenure in current organization (in years)			
		Frequency	Percent (%)
Valid	0-5 years	63	33.68

	6-10 years	52	27.80
	11-15 years	34	18.18
	16-20 years	23	12.29
	Above 20 years	15	8.0
	Total	187	100.0

Hypothesis -1

Correlations			
		SCT	TRG
SCT	Pearson Correlation	1	.498**
	Sig. (2-tailed)		.000
	N	166	166
TRG	Pearson Correlation	.498**	1
	Sig. (2-tailed)	.000	
	N	166	166
**. Correlation is significant at the 0.01 level (2-tailed).			

The value of R is .498** which is significant for substantial competent team and training after ERP implementation where both are moderately as well as positively correlated with each other.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.498[a]	.248	.243	.76675
a. Predictors: (Constant), SCT				

The R value represents the simple correlation and is .498[a] (the "**R**" Column), which indicates a moderate and positive degree of correlation between substantial competent team and training after ERP implementation. The R^2 value (the "**R Square**" column) indicates how much of the total variation in the dependent variable training after ERP implementation can be explained by the independent variable substantial competent team. In this case, 49.8% of the variables can be explained.

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	31.772	1	31.772	54.043	.000[b]
	Residual	96.416	164	.588		
	Total	128.188	165			
a. Dependent Variable: TRG						
b. Predictors: (Constant), SCT						

The above table shows the statistical significance of the regression model that was run between predictor and predicted variables. Here, $p < 0.0005$, which is less than 0.05, and indicates that, overall, the regression model statistically significantly predicts the outcome variable (i.e., it is a good fit for the data).

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.628	.210		7.734	.000
	SCT	.477	.065	.498	7.351	.000
a. Dependent Variable: TRG						

The Coefficients table provides with the necessary information to predict relation between dependent and independent variables as well as determines whether substantial competent team and training after ERP implementation contributes statistically significant to the model where significant value is lesser than 0.05.
Based on above table, researcher can present the regression equation as follows:
Training after ERP implementation = 1.628+.4777 (Substantial competent team).

Hypothesis-2

Correlations			
		SCT	CSI
SCT	Pearson Correlation	1	-.379**
	Sig. (2-tailed)		.000
	N	166	166
CSI	Pearson Correlation	-.379**	1
	Sig. (2-tailed)	.000	
	N	166	166
**. Correlation is significant at the 0.01 level (2-tailed).			

The value of R is -.379** which is significant for substantial competent team and continual system improvement where both are moderately and negatively correlated with each other.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	-.379[a]	.143	.138	.80524
a. Predictors: (Constant), SCT				

The R value represents the simple correlation and is -.379[a] (the "**R**" Column), which indicates a moderate and negative degree of correlation between substantial competent team and continual system improvement. The R^2 value (the "**R Square**" column) indicates how much of the total variation in the dependent variable continual system improvement can be explained by the independent variable substantial competent team. In this case, 14.3% of the variables can be explained.

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	17.803	1	17.803	27.457	.000[b]
	Residual	106.339	164	.648		
	Total	124.142	165			
a. Dependent Variable: CSI						
b. Predictors: (Constant), SCT						

The above table shows the statistical significance of the regression model that was run between predictor and predicted variables. Here, $p < 0.0005$, which is less than 0.05, and indicates that, overall, the regression model statistically significantly predicts the outcome variable (i.e., it is a good fit for the data).

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.279	.221		10.311	.000
	SCT	.357	.068	.379	5.240	.000
a. Dependent Variable: CSI						

The Coefficients **t**able provides with the necessary information to predict relation between dependent and independent variables as well as determines whether substantial competent team and continual system improvement contributes statistically significant to the model where significant value is lesser than 0.05.
Based on above table, researcher can present the regression equation as follows:
Continual System Improvement = 2.279 +.357 (Substantial competent team).

Hypothesis-3

Correlations			
		SCT	DRDS
SCT	Pearson Correlation	1	.411**
	Sig. (2-tailed)		.000
	N	166	166
DRDS	Pearson Correlation	.411**	1
	Sig. (2-tailed)	.000	
	N	166	166
**. Correlation is significant at the 0.01 level (2-tailed).			

The value of R is .411** which is significant for substantial competent team and department related to decision support where both are moderately as well as positively correlated with each other.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.411[a]	.169	.164	.82796
a. Predictors: (Constant), SCT				

The R value represents the simple correlation and is .411[a] (the "**R**" Column), which indicates a moderate and positive degree of correlation between substantial competent team and department related to decision support. The R^2 value (the "**R Square**" column) indicates how much of the total variation in the dependent variable department related to decision support can be explained by the independent variable substantial competent team. In this case, 16.9% of the variables can be explained.

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	22.890	1	22.890	33.391	.000[b]
	Residual	112.425	164	.686		
	Total	135.315	165			
a. Dependent Variable: DRDS						
b. Predictors: (Constant), SCT						

The above table shows the statistical significance of the regression model that was run between predictor and predicted variables. Here, $p < 0.0005$, which is less than 0.05, and indicates that, overall, the regression model statistically significantly predicts the outcome variable (i.e., it is a good fit for the data).

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.996	.227		8.782	.000
	SCT	.405	.070	.411	5.779	.000
a. Dependent Variable: DRDS						

The **Coefficients** table provides with the necessary information to predict relation between dependent and independent variables as well as determines whether substantial competent team and department related to decision support contributes statistically significant to the model where significant value is lesser than 0.05.
Based on above table, researcher can present the regression equation as follows:
Department related to decision support = 1.996 +.405 (Substantial competent team).

Hypothesis -4

Correlations			
		SCT	BUSPER
SCT	Pearson Correlation	1	.397**
	Sig. (2-tailed)		.000
	N	166	166
BUSPER	Pearson Correlation	.397**	1
	Sig. (2-tailed)	.000	
	N	166	166
**. Correlation is significant at the 0.01 level (2-tailed).			

The value of R is .397** which is significant for substantial competent team and business performance where both are moderately as well as positively correlated with each other.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.397[a]	.157	.152	.74234
a. Predictors: (Constant), SCT				

The R value represents the simple correlation and is .397[a] (the "**R**" Column), which indicates a moderate and positive degree of correlation between substantial competent team and business performance. The R^2 value (the "**R Square**" column) indicates how much of the total variation in the dependent variable business performance can be explained by the independent variable substantial competent team. In this case, 15.7% of the variables can be explained.

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16.869	1	16.869	30.612	.000[b]
	Residual	90.376	164	.551		
	Total	107.245	165			
a. Dependent Variable: BUSPER						
b. Predictors: (Constant), SCT						

The above table shows the statistical significance of the regression model that was run between predictor and predicted variables. Here, $p < 0.0005$, which is less than 0.05, and indicates that, overall, the regression model statistically significantly predicts the outcome variable (i.e., it is a good fit for the data).

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.099	.204		10.305	.000
	SCT	.348	.063	.397	5.533	.000
a. Dependent Variable: BUSPER						

The **Coefficients** table provides with the necessary information to predict relation between dependent and independent variables as well as determines whether substantial competent team and business performance contributes statistically significant to the model where significant value is lesser than 0.05.
Based on above table, researcher can present the regression equation as follows:
Business performance = 2.099 +.348 (Substantial competent team).

CONCLUSION, IMPLICATIONS AND LIMITATIONS

Researcher concludes current research by identifying solutions to current research problem where the impact between predictor variable and predicted variables were positive and significant except substantial competent team and continual system improvement which were negative but significant. The impact of employee's attitude towards ERP post implementation is more on support of top management than business performance. Organizations under process industries may focus more on continual System Improvement than training after ERP implementation, department related to decision support and business performance as one of critical successful factors in post ERP implementation. The demographics and sample size are limitations where the outcomes of research may change from due to change of above parameters.

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