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Business Process Re-Engineering Implementations in the High Tech Entrepreneurship Firm in Malaysia: A Study on Determinant Factors

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ABSTRACT

Basically, Business Process Re-Engineering (BPR) is critical important as a problem solving mechanism within the firms with aimed to formulates the solution. With regard to the current competitive environment, most of high tech firm are choosing this method to enhance the performance, especially in the areas of process, procedure, or rules. However, in the high tech entrepreneurship firm, to the best of knowledge, there is lacks of knowledge regarding the practical implementations of BPR. From literature survey, BPR will become more important to make the firm achieved better performance compares to before. BPR implementation will increased the performances where make the firm more competitive, efficient and proactive. The general idea of the paper is discussed on determinants factor of success in the high tech entrepreneurship firm, with specific case on the MSC status firm in Malaysia. The main purpose of this study is to identify the success factor of BPR in the high tech entrepreneurship firm. Secondly, this paper is identifying what benefit(s) that the high tech entrepreneurship firm achieves from the BPR implementation. This study was conducted among 100 high tech entrepreneurship firm that select randomly from the directory of MSC Malaysia. One of the finding has indicated that there was a significant (2 tailed significant) positive relationship between independent variables (cross functionality, BPR methods, human resource skills and expertise, and leadership/motivation) and dependent variable (benefits of BPR). In addition, the results also indicated that variable leadership and motivation factor became more significant positive relationship with benefits of BPR. Finally, suggestion was made on how to use BRP as a method to sustaining the firms' performance, accordingly to the current change of current business environment.

Keywords: Determinants, business process re-engineering, high tech entrepreneurship firm, msc status companies

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1. INTRODUCTION

Basically, reengineering has been referred to as the creative destruction and re-creation work processes in order to leverage the potential of new information technologies. In general terms, reengineering is comprised of a set of supposedly objective and impartial procedures, which focus on the radical redesign of organizational processes, with the objective of optimally fitting them to organizational needs and environment (Kiely, 1995). In contact of business, the term Business Process Re-Engineering (BPR) is vital important to identify the problems within the firms that finally to formulates specific solution the target issues. Recently, Thyagarajan and Khatibi (2004) explained that a BPR has emerged as a conspicuous tool for restructuring the organization. In fact, the process of reengineering not only fosters a favorable climate supportive of desirable change but also improves the organizations' probability of success. With regard to the current change of the international business environment, McKenney (1995) coined that Information Technology (IT) now in large part determines the design of work processes, and has become a major component of organizational strategy. Therefore, BPR is needs to implement in contact of IT-based firm, including the high tech entrepreneurship firm.

Routinely, the entrepreneurs firms face many significant challenges, not the least of which is generating or recognizing ideas that have the potential to be developed into appealing goods and services. Successful ideas are often a balance between novelty and familiarity (Ward, 2004). This is in a line with Thyagarajan and Khatibi (2004) by pointed out the business environment of the present day has become so complex that organizations are necessarily to be alert to respond to the new challenges and opportunities. This involves a continuous process of managing the change. The idea that the change is essential, desirable and constructive within the established pattern of organization is realistic. In fact, Laudon and Laudon (2009) mention that one of the most important factors associated with the side of entrepreneurship is technological development, which has been strategically prosecuted through the investment in IT innovation and sophistication. However, entrepreneurial opportunities in the ICT sector are synonym with a high risk of failure (Lasch, Le Roy & Yami, 2007). Even if a huge body of literature exists, Lasch (2008) mention those studies deal with survival and growth factors (predictors of success) linked to human capital, organizational or environmental issues. Paradoxically, few studies apply sector specific approaches or focus more specifically on the ICT entrepreneur. With regard to these opinions, BRP is one of method that possible to bring an idea to in the high tech entrepreneurship firm.

Currently, most of international firm are using BPR method to helps them in improves their performance, either concentrates on the process, procedure, or rules, as noted by Huff (1992), Farmer (1993) and Blyth (1998). This is surported by Thyagarajan and Khatibi (2004) conceptually explain that the reengineering

efforts on business processes, which will improve the customer service quality, the product value, etc. It is notable that redesigning the processes improves the working life of employees which in turn lead to indirectly improved quality and responsiveness to customers. However, in the high tech entrepreneurship firm, to the best of knowledge, there is limited knowledge on the practical used of business process re-engineering in term of competitive advantages. Similarly to Multimedia Super Corridor (MSC) firms in Malaysia, BPR will become more important to make them achieved better competitive than before. In the perspective of technopreneur marketplace, competitive advantages is the top most issues that facing by women entrepreneurs in everywhere at every time as mention by Kroenka (2005). As well as important of competitive advantages to entrepreneurs, the high tech entrepreneurship firm will face a lot of challenges. In the one hand, competitive advantages will bring themselves into the right way forward and assist them to scan and follow the current change of external and internal environment of business, in order to generate new knowledge to the managers as noted by O'Brian and Marakas (2009). However, in the one hand, competitive advantages has potential to bring more damage to women entrepreneurs if they are not able to choose the suitable strategy to implemented in the current practice of operation as pointed out by Laudon and Laudon (2009).

Practically, Goll, Cordavano, Grover, Jeong, Kettinger, and Teng (1995) emphasized that all these can be accomplished of BPR by major paradigm shifts which focus on value-added activities as well as other underpinnings for successfully implementing the concept of BPR and these are similar to what has been discussed by Ramberg, Bashein, Markus, and Riley (1994) and Kettinger and Grover (1995). It is evident that BPR leads to greater benefits in the firm once implemented effectively and therefore most of the BPR implementation derived to benefits has been reported on large manufacturing sector in developing countries. For instance, in 1992 the results from Price Waterhouse survey of the manufacturing industry in the mid-Atlantic region reported that more than 80 percent of the respondents were currently reengineering, in the planning stages or seriously considering it (Cypress, Caron, Jarvenpaa & Stoddard, 1994). Meanwhile, empirical evident from Thyagarajan and Khatibi (2004) shows that the most direct benefit that companies derive from reengineering is significant in the process improvement (50 to 100%). Costs are lowered while speed, quality and service are dramatically improved. Unfortunately, reengineering seldom makes a significant impact on the organisation's bottom line (only 20% of the time). With regard to technopreneur business environment, Shakya (2007) noted that technopreneurship is a process of synthesis in engineering the future of a person, an organization, a nation and the world. In a digital, knowledge based society, strategic directions or decision-making processes will be demanding and complex. As implication, BPR is vital important to the high tech entrepreneurship firm with aimed to improve the current performances.

Historically, BPR originated in the 1950s as large firms began to explore efficiency and effectiveness of computer technology on the business processes. Many approaches, methods, and techniques have since appeared and constitute the foundations of BPR as it is presently known. Davenport (1993) notes six areas which influenced the emergence of BPR the total quality approach, industrial engineering, the systems approach, the socio-technical approach, the diffusion of innovations, and the use of information systems for competitive advantage. As example, the report of the companies, which were undertaking BPR projects in past one decade or so also identified that many of these organizations that have undertaken reengineering projects report significant benefits from their BPR experience in several areas, such as customer satisfaction, productivity, and profitability (Goll *et al,* 1995). To date, some study regard BRP have been applied in various types of indystry, as well as in the small business by Kumar (2009), Bank (Shin & Jemella, 2002), enterprise (Xu & Hu Ju, 2009), logistics industry (Shen & Chou, 2010), and currently among the ICT firm. The implementation of BPR in ICT firm is vital important where, accordingly, in 1994, the members of the Society for Information Management identified BPR as a major concern for organizations, on a level with customer orientation, development of organizational culture, and strategic alignment of information technologies (SIM 1994). Empirically, a survey by Deloitte and Touche, as reported by Davenport, Beers and Maglitta (1995) found that nearly 75 percent of 400 large North American firms were planning to increase the number of BPR projects in 1995 and 1996.

By taken point of view from the studies as mention above, a study on BPR implementation among the high tech entrepreneurship firm will lead in enhance new knowledge to industry and academician. The implementation on BPR within the high tech entrepreneurship firm may create different results which this type of firm has differs culture and behavior. Shakya (2007) noted a technoprenuer is an entrepreneur who is technology savvy, creative, innovative, dynamic, dares to be different and take the unexplored path, and very passionate about their work. They take challenges and strive to lead their life with greater success. Although common understand that BPR is known to produce highly positive results for firms, including significant reductions in costs, errors, and times, increased customer satisfaction, and better overall organizational efficiency and effectiveness (Davenport & Short, 1990; Earl, Sampler, Short, 1995; Ramani, Yap, and Pavri, 1995; Smith, McKeen & Davenport, 1994; Wilder, Bashein, Markus, & Riley, 1994). Therefore, a study of BPR implementation on the high tech entrepreneurship firm will lead the ways on how to formulate the best practices of BPR in such business.

2. RESEARCH PROBLEM

Reengineering has a greater chance of success if it is viewed as leading to growth and value creation. In addition, there are costs to reengineering that must be considered before deciding for such a right strategy for an organization (Thyagarajan & Khatibi, 2004). From the some studies revealed that there is a likelihood of firm to success by implementing BPR. This is because the effective BPR provides plenty of benefits for those who have implemented it seriously. Therefore, the purpose of the study is to investigate the factors that lead to success of BPR at the high tech entrepreneurship firm in Malaysia. In the other word, this study focuses on investigation and exploration of the factors which determine the success of business process re-engineering project in the organization. For this purpose, the researcher has test the impact of the success factor of BPR on the success of BPR which is identified as benefits and advantage for a firm achieved due to successfully completed the BPR project. The success factors of BPR for this study have been compiled by various previous literatures. Since the success factors have been reported in many numbers, therefore the researcher only use those which would be relevant or closely related to ICT firms (Nicholson, Gupta & Govindarajan, 1995). Although the success of BPR in many ICT firms especially in developing countries is undoubtedly, but, there is still lack of study regarding success factors of BPR in ICT firms in Malaysia. Simultaneously, this study is important to contribute some knowledge regarding success factors of BPR in the high tech entrepreneurship firm in Malaysia.

In contact of high tech entrepreneurship firm, BPR is critical need to implement accordingly to the current change in the international environment of business. Zigiaris (2000) explained competition is continuously increasing with respect to price, quality and selection, service and promptness of delivery. Removal of barriers, international cooperation, technological innovations cause competition to intensify. All these changes impose the need for organizational transformation, where the entire processes, organization climate and organization structure are changed. In case of Malaysia, Pei, Noordin, Ting and Baharudin (2010) explain technopreneurships have contributed to the nation's economy. The entrepreneur creates, promotes and markets new ICT products and services to both markets local and abroad to fulfill the demand from customers. It will help the country to enhance its economic and lead to produce more job opportunities for people. However, there are still many newly established BPR mechanisme in the high tech entrepreneurship firm that found themselves either failed right at the start-up or during the maturity of the businesses. Accoding to Chong, Robert and Sivakumar (2003) noted there are many factors that could contribute to the failure of IT technopreneurship. One of the main reasons is it could be due to poor scheduling system. Practical scheduling problems are dynamic, uncertain and often unpredictable due to the continuous arrival of new and unforeseen orders, and the occurrence of all kinds of disturbances. In addition, most

businesses today are operating at near optimal productivity under normal conditions, but they are failing to maintain the performance when meet with some problems and disturbances. This is due to the fact that they are not well prepared when setting up their businesses (Jeroen & Hartog, 2007). By taken all these recent work and current issues, a study on BPR implementation among the high tech entrepreneurship firm in Malaysia will plays major role in leading the way on how the BPR should conducted.

Yet, In addition, implementing the BPR is not easy as mention by Hammer and Champy 1993 that BPR related to the fundamental rethinking and radical redesign of the business processes to achieve dramatic improvements in critical, contemporary measures of performance, such as cost, quality, service and speed (Zigiaris, 2000). Consistent with the above discussion of the success factors and the derived benefit firm received from the BPR projects implemented in the firm, a major question still remaining is whether the actions or factors proposed in the literature as necessary for success, and to what extent the success factors of BPR will actually increase the chances for more ICT firms in implementing BPR projects successfully in the future. This is supported by Gerrits (1994) mentions that in the literature on BPR, examples of successful BPR implementations are given. Unfortunately, the literature restricts itself to descriptions of the 'situation before' and the 'situation after', giving very little information on the redesign process itself. Therefore, this study is conducted in the hope of being able to generate some knowledge in order to encourage others organization to implement BPR.

3. OBJECTIVE OF THE STUDY

The main purpose of this study are to identify the success factor of BPR in the high tech entrepreneurship firm and what benefit(s) that the high tech entrepreneurship firm achieve from the BPR implementation.

4. RESEARCH METHODOLOGY

4.1 Survey

All the data have been collected through a field survey method. The basic information of high tech entrepreneurship firm in this work was come from the list of MSC Malaysia status companies which is available at MSC Malaysia web site. The questionnaires were administered to 150 ICT companies that have MSC Malaysia status. However, there were only 111 companies returned the questionnaire. From 111 questionnaire received by researcher, there were 11 set of questionnaires rejected due to incomplete responses to various questions. Therefore, the total sample used in this study only 100 set of questionnaires.

4.2 Questionnaire Development

The concepts/variable in this study was measured by existing measurement; however questions/items may re-worded if required. The measurement used in this study is available from the different sources and previous studies. Since it was difficult to obtain the financial data such as sales, and income statement, therefore, the researcher was use subjective measurement approach to measure the benefits obtained by the high tech entrepreneurship firm by implementing BPR. Subjective measures are widely used and accepted in this type of study (Pelham & Wilson, 1996). The questionnaires were administered to executive level, such as Manager, Chief Operation Officers (CIO), or CEO/Directors of ICT Company through the mail. The questionnaires will collect from them after 1 month.

Success Factor
In order to measure the aspect of success factor of BPR, there were 12 items have been used. This measurement adapted from the list of success factor of BPR by Bowns and McNulty (2000), Gulden and Reck (1992). Instead, factor analysis using Varimax rotation had produced four separate success factors such as subgroups cross functionality, BPR methods, human resource skills and expertise, and leadership/motivation. Therefore, subsequent analyses use these subgroups.Respondents rated all items comprising the constructs using the scale 1 (to great extent), 2 (to a large extent), 3 (to a moderate extent), 4 (to a minor extent), and 5 (not at all). The average rating for the respective sub-items represents the overall measure for each construct.

The Measurement of BPR Benefits
A list of five major benefits from BPR implementation proposed in the literature was provided for respondents to rate the extent to which each has been derived from the particular BPR project. Respondents rated all items comprising the constructs using the scale 1 (to great extent), 2 (to a large extent), 3 (to a moderate extent), 4 (to a minor extent), and 5 (not at all).

4.3 Hypothesis Setting

The hypothesis testing in this study is following below:

H1: Cross functionality is positively associated with the advantages gained from the BPR project.
H2: The BPR methods involved is positively associated with the advantages gained from the BPR project.
H3: The human resources skills and expertise involved is positively associate with the advantages gained from the BPR project.
H4: Leadership/motivation is positively associated with the advantages gained from the BPR project.

4.4 Research Framework

The theoretical/conceptual framework identifies the four major variables which will be used to develop the basic model of relationship among benefits derived from BPR, methodical rigors, diversity of human resource, and compliances with BPR principles. The research framework in this study adapted from Al Mashari and Zairi (2000). All these four major variables are represented in a diagram.

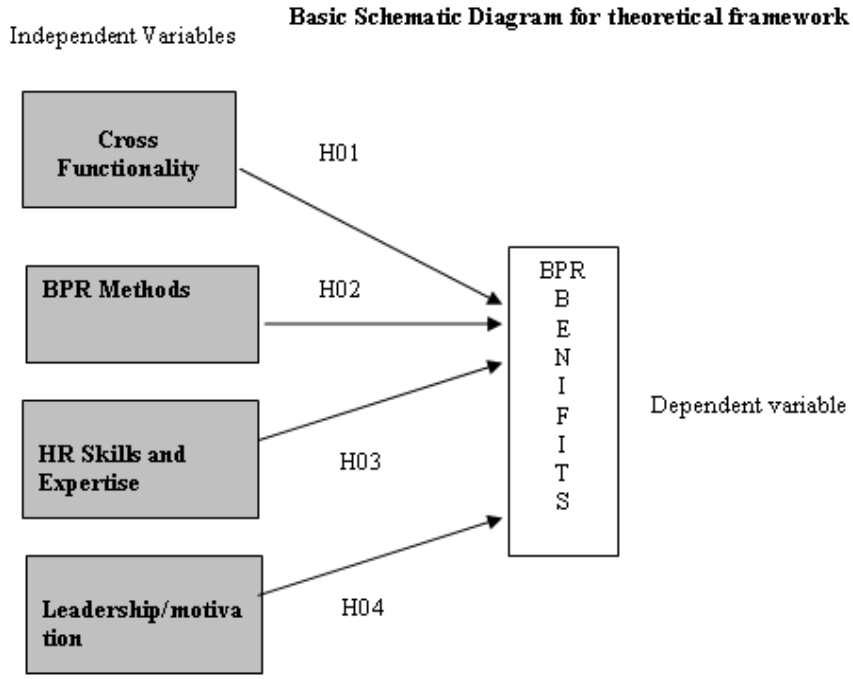

Figure 1: Research Framework
Source: Adapted from Al Mashari and Zairi (2000)

5. RESULTS

5.1 Descriptive Analysis

Frequencies, means, medians, and standard deviations for all variables were calculated in order to obtain a general profile of the distribution. Table 1 and 2 shows the summary of descriptive statistics for the variables of the study.

Table 1: Means and Standard Deviation for Success Factors (Independent Variable)

Items/Questions	Mean	St. Dev
1. BPR team was focused on results not politics	1.69	0.62
2. BPR project team had representatives from all important departments	1.89	0.65
3. There was good communication among BPR team members	1.58	0.64
4. View technology as an enabler, not as a solution	1.92	0.73
5. There was a thorough process analysis to identify and eliminate non-value-added activities	2.02	0.89
6. There was careful planning for project details such as tooling, scheduling, maintenance, system user interfaces, quality, etc. before new process implementation	2.17	0.83
7. Process redesigners knew the processes well from experience	2.47	0.83
8. Some process redesigners have best-in-kind process knowledge	2.21	0.95
9. IT people were very competent	2.34	0.83
10. Project leader has a politically powerful position in the organization hierarchy	1.95	0.72
11. Organization's commitment to continuous improvement	1.74	0.65
12. BPR project motivated by need for better performance and competitive pressures	1.91	0.65

Table 2: Means and Standard Deviation for BPR Benefits (Dependent Variable)

Items/Questions	Mean	St. Dev
1. We have improved our Quality of our product and ser vice	2.09	0.82
2. We are able to response our customer needs and wants and achieve higher BPR benefits	2.51	0.83
3. We have improved Productivity (decreased cycle time, error rates, inventory, or cost)	2.28	0.94
4. We have improved Profitability (increased economic growth)	2.04	0.84
5. We have improved employee morale, knowledge and productivity	2.23	0.86

5.2 Respondents and Firm Profile

The distribution of the BPR project currently implemented at ICT firms that have MSC status. The study ranges from 1 BPR projects to 10 and above projects. However, the frequency table (Table 3) indicated that 60 firms from the 100 participating firms currently implemented and focused on 1 to 2 major BPR projects and certainly gained benefits as indicated from measurement of mean and standard deviation for BPR benefits. However it is also interesting to see that 3% percent of the firms are actually implemented 10 or above BPR projects.

Thus, this indicated that those companies who are engage in many BPR projects are certainly concern with the various business processes and realized to radically redesign them.

Furthermore, Table 5 indicated that most respondents consist of Chief Executive Officer (CEO) which is 33%. The least of respondents consist of Chief Operation Officer (COO) and group of manager which is only 9% both. That means the CEOs of the firms primarily involved in the BPR projects in the firms. Result also reported that managers at senior level such as director (10%) Chief Financial Officer (CFO) (16%) and administrator (12%) represented that the firms top level management is the main source behind any initiative of BPR projects implemented in the firms.

Table 3: Frequency of BPR Projects Implementation in the Firms

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 to 2	60	60.0	60.0	60.0
	3 to 5	26	26.0	26.0	86.0
	6-to 10	11	11.0	11.0	97.0
	10 and above	3	3.0	12.0	100.0
	Total	100	100.0	100.0	

Table 4: Frequency of Employees in the Firms

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	50 or below	40	40.0	40.0	40.0
	51 to 100	26	26.0	26.0	66.0
	101 to 300	21	21.0	21.0	87.0
	301 to 500	12	12.0	12.0	99.0
	above 500	1	1.0	1.0	100.0
	Total	100	100.0	100.0	

Table 5: Respondent Position at the Firm

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	CEO	33	33.0	33.0	33.0
	COO	9	9.0	9.0	42.0
	Director	10	10.0	10.0	52.0
	Controller/Supervisor	11	11.0	11.0	63.0
	Administrator	12	12.0	12.0	75.0
	CFO	16	16.0	16.0	91.0
	Group of Managers	9	9.0	9.0	100.0
	Total	100	100.0	100.0	

Table 6: Knowledge of Respondent about BPR Projects

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very High	52	52.0	52.0	52.0
	High	38	38.0	38.0	90.0
	Moderate	10	10.0	10.0	100.0
	Total	100	100.0	100.0	

5.3 Measurement of Success Factor

The principle component factor analysis was performed to investigate interrelationship among the items used in the proposed five measures of service quality. Factor analysis allowed the researcher to determine underlying dimensionality.

The factor analysis of 12 success factors items provide four factors with value in excess of over 1 and with value of over .70 for Cronbach's alpha coefficient for the summed score of the items. Table 7 indicated that total percent of variance accounted for four factors was 74.614%. This result indicated that there is 74.61% variance explained four factors namely: Cross functionality, BPR methods, human resource skills and expertise, and leadership/motivation.

Table 7: Shows the Factors and its Rotated Factor Loading for the Factor Analysis

Factors Labeling/Items **Factor One : Cross Functionality**	**Loadings**
BPR team was focused on results not politics	.913
BPR project team had representatives from all important departments	.905
There was good communication among BPR team members	.879
Factor Two: Business Process	
View technology as an enabler, not as a solution	.889
There was a thorough process analysis to identify and eliminate non-value-added activities	.849
There was careful planning for project details such as tooling, scheduling, maintenance, system user interfaces, quality, etc. before new process implementation	.811
Factor three: HR Skills/Expertise	
Process redesigners knew the processes well from experience	.859
Some process redesigners have best-in-kind process knowledge	.855
IT people were very competent	.753
Factor Four: Leadership/motivation	
Project leader has a politically powerful position in the organization hierarchy	.892
Organization's commitment to continuous improvement	.771
BPR project motivated by need for better performance and competitive pressures	.752

Table 8: Total Variance Explained

Component	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	2.543	21.188	21.188
2	2.251	18.758	39.946
3	2.100	17.498	57.444
4	2.060	17.170	74.614

5.4 Result of Hypotheses Testing

The following four hypotheses were tested by using simple regression analysis to examine the effect of the predictor (independent variable) on the dependent variable (BPR Benefits). The significance level was set at $p < .05$.

(i) Result of First Hypothesis

H1: Cross functionality is positively associated with the advantages gained from the BPR project.

Results from a simple regression analysis revealed that, a significant relationship between one of the success factor named as cross functionality and the benefits gained from the BPR project. The result showed that Cross functionality effect positively to the BPR advantages or benefits.

Table 9: Simple Regression analysis for H1 (Cross functionality-BPR benefits)

Model Summary (a)

Model	R	R Square
1	.513*	.263

*Predictor (Constant) Cross Functionality

ANOVA (b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	35.001	1	35.001	34.945	.000*
	Residual	98.159	98	1.002		
	Total	133.160	99			

*Predictor (Constant) Cross Functionality Coefficients (c)

Model	Unstandardized Coefficients		Standardized Coefficients		.
	B	Std. Error	Beta	t	Sig
Cross Functionality	.459	.078	.513	5.911	.000

* Dependent Variable: BPR benefits
(n=100p < .05)

The Pearson correlation and coefficient of determinant denoted by R^2 were calculated to describe the strength of the association between the two variables at $p > 0.05$ level. As shown in the (Table 9), a positive effect and relationship were established between the success factor (cross functionality) and the BPR benefits companies gained.

The slope, b, and the one tailed t-test statistics from the summary of the regression analysis also showed that there was a positive relationship between the

two variables (slope b=.459, t=5.911, < .000). The R^2 value for cross functionality and BPR benefits was .263; indicating cross functionality explained 26% of the variability in BPR benefits companies gained. Hypothesis (H1) is supported.

(ii) Result of Second Hypothesis

H2: Business process associated with the advantages gained from the BPR project.

Simple regression analysis (Table 10) was run to determine whether the BPR methods is the methodology or approach that has been adopted for BPR projects had an effect on BPR benefits. The result of regression analysis revealed that, there was a positive relationship between these two variables at the significance level 0.001, accounting an 11% of the variance gained BPR benefits due to the BPR methods or approaches used by the companies. The correlation analysis for these variables showed a positive coefficient (R Square = .110). The slope (b = .284) and one tailed t-test statistics (t = 3.47; 0.001) also indicated that there was a positive and significant relationship between the two variables and hence second hypothesis was also supported for this study.

Table 10: Simple Regression analysis for H2 (BPR methods – BPR benefits)

Model Summary (a)

Model	R	R Square
1	.331*	.110

*Predictor (Constant) BPR methods

ANOVA (b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.310	1	10.310	12.095	.001*
	Residual	83.530	98	.852		
	Total	93.840	99			

*Predictor (Constant) BPR methods

Coefficients (c)

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
	BPR methods	.284	.082	.331	3.478	.001

* Dependent Variable: BPR benefits (n=100) p < .05

(iii) Result of Third Hypothesis

H3: Human resource skills and expertise associated positively with the advantages gained from the BPR project.

Simple regression analysis (Table 11) was run to determine whether the human resource skills and expertise of the people to do BPR project has an effect on BPR profits that a company gained from the BPR projects. The result of regression analysis revealed that, there was a positive relationship between these two variables at the significance level 0.000, accounting a 25% of the variance of BPR benefits due to the human or employee skills and expertise or knowledge of doing BPR projects. The correlation analysis for these variables showed a positive coefficient (r =.504). The slope (b=.447) and one tailed t-test statistics (t=5.55; at 0.000) also indicated that there was a positive and significant relationship between the two variables and hence third hypothesis was also supported for this study.

Table 11: Simple Regression Analysis for H3
(Human Resource Skills and Expertise –BPR Benefits)

Model Summary (a)

Model	R	R Square
1	.504*	.254

*Predictor (Constant) Human Resource Skills and Expertise

ANOVA (b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	34.001	1	34.001	33.601	.000*
	Residual	98.159	98	1.009		
	Total	132.999	99			

*Predictor (Constant) Human Resource Skills and Expertise

Coefficients (c)

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	HR skills and Expertise	.447	.080	.504	5.55	.000

* Dependent Variable: BPR benefits (n=100) $p < .05$

(iv) Result of Fourth Hypothesis

H4: Leadership/motivation associated positively with the advantages gained from the BPR project (BPR benefits).

Simple regression analysis (Table 12) was run to determine whether the top management leadership has an effect on BPR benefits. The result of regression analysis revealed that, there was a positive relationship between these two variables at the significance level 0.000, accounting an exceptional 38% of the variance of BPR benefits gained due to the leadership and motivation factor towards BPR benefits. The correlation analysis for these variables showed a positive coefficient ($r = .529$). The slope ($b = .446$) and one tailed t-test statistics ($t=6.75$; at 0.000) also indicated that there was a positive and significant relationship between the two variables and hence fourth hypothesis was also supported for this study.

Table 12: Simple Regression analysis for H4
(Leadership/motivation –BPR Benefits)
Model Summary (a)

Model	R	R Square
1	.529*	.279

*Predictor (Constant) Cross Functionality

ANOVA (b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	39..010	1	39.010	38.24	.000*
	Residual	98.990	98	1.002		
	Total	138.000	99			

*Predictor (Constant) Leadership/Motivation

Coefficient (c)

Model		Unstandardized Coefficients		Standardized Coefficients		.
		B	Std. Error	Beta	t	Sig
	Leadership/motivation	.446	.066	.529	6.75	.000

* Dependent Variable: BPR benefits (n=100) p <.05

6. DISCUSSION

The results indicated that the high tech entrepreneurship firms have derived substantial benefits from BPR in this study. On average, the total benefits are ranges from large to moderate. The relatively less diversity of the extent to which the high tech entrepreneurship firms are deriving the BPR benefits can be seen in the relatively lower standard deviations shown in Table 2 and 3. The specific benefits which have been derived somewhere between a “large extent” and a “moderate extent” are represented by increases in productivity, improved service quality, and improvements to personnel resources.

Fortunately, the increasing of the high tech entrepreneurship firm profitability have also on average, substantially been derived somewhere between “to a large extent” and “a moderate extent.” Why is there so much similarities in results from BPR projects among MSC status firms? A strong clue for answering this question may be found in the less diversity (relatively lower standard deviations) in the extent to which the high tech entrepreneurship firms are doing what has been recommended as important thing for successfully in implementing BPR

projects. This is in a line with Zigiaris (2000) that coined BPR is achieving dramatic performance improvements through radical change in organizational processes, rearchitecting of business and management processes. It involves the redrawing of organizational boundaries, the reconsideration of jobs, tasks, and skills. This occurs with the creation and the use of models. Whether those is physical models, mathematical, computer or structural models, engineers build and analyze models to predict the performance of designs or to understand the behavior of devices.

The average and standard deviations for the wide collection of items being prescribed in the literature are shown in Table 2. On average, the high tech entrepreneurship firm have "to a major extent" used BPR project leaders that have a politically powerful position in the organization hierarchy. The relatively small standard deviation around the average for this item shows that most the high tech entrepreneurship firm are doing that. With a somewhat wider difference (larger standard deviation) in behavior, on average the high tech entrepreneurship firms have to a significant extent started their BPR projects motivated by competitive pressure and a need for better performance. On the other hand, BPR project managers have ignored some of the literature prescriptions for increasing the likelihood of success in their BPR projects.

In adition, the firms should do to increase the likelihood that a BPR project will deliver benefits to the organization. The literature contains an abundance of personal opinions and case studies prescribing one or more factors deemed important for BPR project success. Most of the factors discussed make common sense, such as the need for the BPR project to be driven by customer demand, competitive pressures, and the need to improve financial performance (Nicholson *et al,* 1995). In fact, the results support the notion that ensuring project cross functionality is extremely important. Fortunately, many the high tech entrepreneurship firms have done that, but many did not and paid the price in terms of lower benefits. The team should have representatives from all departments related to the processes being redesigned, and these representatives must be taught to communicate freely, receive/provide feedback on work progress and what is working (or not) according to the project plans. Finally, despite the importance of creativity in process redesign, BPR team members must be taught that accountability for accomplishing their tasks and goals is an important ingredient for ultimate team success.

All four hypothesis result showed that the four sub groups of success factor in the high tech entrepreneurship firm has a strong and significant relationship with the BPR benefits. However, an interestingly leadership and motivation factor seems to be more significant and this factor even determine or effect positively to BPR benefits that a firm received compared to BPR methods, human resource skills and expertise or cross functionality. However the other three factors are also significant positively related to the benefits gained from the BPR projects. In

sum, all the four hypotheses tested in this study have a positive relationship with BPR benefits. Therefore, all the four hypotheses tested in this study were accepted.

With regard to results, BPR is making radical changes to one or more business processes affecting the whole organization. It also requires a cross-functional effort usually involving innovative applications of technology. Re-engineering is a pioneering attempt to change the way work is performed by simultaneously addressing all the aspects of work that impact performance, including the process of activities, the people's jobs and their reward system, the organization structure and the roles of process performers and managers, the management system, and the underlying corporate culture which holds the beliefs and values that influence everyone's behavior and expectations (Cypress *et al*, 1994).

7. CONCLUSION

Based on the result obtain in this study it was proved that there are benefits or advantages gained by implementing BPR project. Moreover, the result was aligned with previous studies that reported the benefits or advantages gained from the implementation of BPR project. However, the advantages gained from the BPR projects in the firms may vary from organization to organization and from industry to industry. In addition, future research on this area should have been extended to various sectors because it may yield findings that are different from those reported in this study. Meanwhile, future research also needs to consider more than 12 items of success factors because it also may yield different findings from those reported in this study and in order to see its impact.

In contact of the high tech entprenuership firm as such MSC status firm in Malaysia, an important idea from Zigiaris (2000) is needs to consider. To Zigiaris (2000) redesign, retooling and reorchestrating form the key components of BPR that are essential for an organization to focus on the outcome that it needs to achieve. The outcome pursued should be an ambitious outcome. They will additionally need very sophisticated supporting information systems and a transformation from a traditional organizational structure to a network type organization.

Before making any concluding remarks from this study, it is important to acknowledge possible limitation in this study. The first limitation was this study only focused on the high tech entrepreneurship firm in Malaysia. Therefore, the finding of this study is limited to only MSC status ICT companies and not other companies. The study can be extended to the different industry those are not even MSC status but also play an important role in economic and social development. In addition, the second limitation of this study is about the lack of success factors items used in this study.

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