

## Qualitative risk level estimation of Business Process Re-engineering efforts and effects (With special reference to IT-sector)

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### Abstract

*Change in the process involves updation. When business is going to change its business process, the feasibility is prior most aspect to be considered. The humonocology, technology, and organizationlism play a vital role in the field of new updates and derivatives of the business process to be re-engineered. There are various effects where the process needs to be considered as the necessary requirement of change and demands, a change which is feasible to all the upcoming requirement of the business, which is internal as well as externals. The effectiveness of the business solution is judged on this pyramid. The work performed under every new task in the organization evolves on these issues only which brings compatibility and effectiveness in the business. As change is eternal and Business process engineering is the mantra to enforce successful change.*

### Keywords

*BRR, Change management, humonocology, technology, and organizationlism.*

### 1. Introduction

In the era of globalization the effectiveness in business is at demand in every place of the world and is increasing day by day, new conditions are formulated in the market place which have increased new possibilities in business environment and the effective regular evaluation, equations are changing day by day in the fast forward implementation of new sources and the resources as per the business needs and availability which depends upon the factors like price, service & selection.

The process which is implementing under the business process reengineering is normally not a time consuming process but on an average the time taken by a BPR process to implement is between six months to one year.

**Table 1: BPR Project Stage, Source: PWC report 2012**

BPR Project Stages	Months					
	1	2	3	4	5	6
Preparation & coordination for BPR	█					
Business modeling & measurements	█	█	█			
Management of change & controls		█	█			
Technical design of the solution		█	█	█	█	
Personnel adjustment & training					█	█
Realization & transfer of changes						█

### Various Models use in Business process Re-engineering

Business process reengineering is well known for its models which are working under different situation and under different automations of control handling.

#### Single operated model

In single operated model of BPR the return of the ith value of the given substitute is generated which is the prime face of the risk undergoes in the situation of arithmetic averages follow up with estimation come under how to find out the number of substitute in one organization which require change in business process, Under any of the observation it is very difficult to follow up with the effects and measurement of the risk in single operated model of BPR as the single operated model is known for its high rate of risk while implementing on platforms of

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the organization. The single operated model is then operated with this equation shown below:

$$S_c = \sqrt{\left[ \frac{\sum \{R_i - R(x)\}^2}{n} \right]}$$

Where  $R_i$  = the return of the  $i^{\text{th}}$  portfolio;  
 $R(x)$  = the arithmetic average of all portfolios;  
 $n$  = number of portfolios;

### Double operated model

The double operated model follow through the low level of risk as compare to the single operated as in double operated model the check in ratio is directly twice as compare to the other model it is much secure to implement in one go as it is successfully adapt in maximum of the cases when implemented in the business development model of any company it is represented as below:

$$SV(t) = \sum R_i \sigma_i p_i (t - R_i)^2$$

Where  $\sigma_i$  = standard deviation;  
 $P_i$  = the probability of actual return being  $R_i$ ;  
 $t$  = the target return;

### Thrice operated Model

In thrice operated model of the BPR the value of the risk is estimated while tested three times as compare to the other factors and ratios, the value at the risk is then identify with various measures taken in the consideration of factors affecting the liability and the processes of the application which are then taken earlier as if the risk level is high in implementing the process it is recommended to identify the observation table and then follow the various circumstances like the value of risk, platform independencies, time of implementation and error while identifying the variance in thrice operated model of BPR as shown below:

$$VAR(t) = PF * K\%$$

Where  $t$  = observation time period;  
 $PF$  = portfolio;

$K\%$  =  $\sum R(P_{RL})$  all occurrences of return less than  $K\%$  add up to  $P_{RL}$  of the total number of  $t$ ;  
 $P_{RL} = 100\%$  - desirable confident interval;

### Some of the main failure issues in BPR

1. Complex structures.
2. Very expensive.

3. Un adequate IT networking
4. Lack of proper management of implementation steps.
5. Lack of improvement.
6. Platform independency of other process.

The effectiveness in the process changes from one level to another it is necessary to say that the rate of failure of the business is very high. A company need to mainly focus in the implementation of BPR as per the requirement in their organization only if there is a need of change in the system and if it is not necessary then there is no need of taking risk in the organization without any reason of fulfillment of resources in the organization. There are possibilities that the system will be generating problems will it shows the correct simulation of the task perform by the individual or the group in the organization, These measure also plays a vital role in the implementation and the prime factor of the responses which are taken place with the effective consideration of changes and updates. According to the failure rate in business process reengineering the value and efforts of failure are unique and always applicable as per the requirement of the organization in which the data varies from one place to another with various distances and follow up all the necessary information is then removed from the list. Differently from failure rate, the success of business process is also one of the key factors which is responsible for the changes in the company environment and the evidence of change is great.

## 2. Literature Review & Research Methodology

Implementation of BPR is very unique and it is recommended to put the sub sequential part of their fundamental analysis with this report. Business Process[1] is a theory of change in various organization as per the requirement occur in the organization to change the process which is then creating different sort of problem while analyze and identify the areas of its implementation[2]. It is essential to add value for the clients who are using the services and products of the organization by providing them a goal with appropriate inputs from clients and sufficient outputs for creating values in business. Business processes is getting the number of achievement and truth of the activities which are very essential for every organization who are hungry for providing values to their customers[3].According to

[4] Business Process Reengineering (BPR) is the analysis and redesign of workflow within and between enterprises. Timphy et al. [5] defined reengineering as a fundamental of all other requirements in the true purpose of identification, analysis, demand and the supply of the client and the customers who want to place a right place in the change management of different association and merger of all in one step. BPR can also be defined as a condition of fulfillment in the environment of the changes when it is very necessary to change ,the steps moving forward in a certain situation and certain parameter for the development of evaluation step and form an environment of fezzy transcription in the total transformation of a business, this is working as a sharpening tool which performs against the lack of data and time in the organization, it is also necessary for the collective positioning of the data source in the environment where reengineering is must [6].This involves throwing away the old processes and starting a new[7].The organizations need to backtrack and reexamine their very roots as if the requirement of analysis and requirement of give and take arise the evaluation of the BPR taken place[8]. The BPR is the evaluation and amendment of strategy, process, technology, organization, and culture [9]. This radical process includes plummeting organizational goals that are longer valid.

### **Change in Process of Organizations**

The issues which are very important as compare to technical issues are the aspects which form a system of requirement which is providing the impact of success and failure in the projects totally related to the business environment of the organizations and are necessary for the organizational change. To manage the single edge resistance is very difficult as compare to the organization cutting edge resistance in the field of BPR. Change is necessary to maintain a competitive edge, but is not always a smooth process. To manage the single edge resistance is very difficult as compare to the organization cutting edge resistance in the field of BPR[10]. In [11] concurred that the employees resist because of the uncertain

future. It has been noted that BPR is a process of leading people as per the requirement of the organization whenever the need of change arise in the organization then it should be understandable to all .

## **3. Research Methods & Procedures**

The research require a unique tool for the critical analysis of the factors used in the report, the uniqueness of the tools is then judged with the effects of the results varies from one activity to other tool is used to identify the risk level and estimation of risk in BPR project with their efforts and effect on other projects in the same organization. This requires critical analysis of the factors responsible for the required research.

### **3.1.1 Tools used for analysis of data**

The tool developed is a structured questionnaire and the software used in this research is SPSS for the analysis purpose, internet, mail accounts of respondents, and telephonic feedback for getting primary and secondary data.

### **3.1.2 Objectives of the project:**

- To identify the process used for implementation of BPR.
- To find out success and failure ratio of business process reengineering in IT industry.
- To identify the risk level while implementing the Business process reengineering.

### **3.1.3 Data Analysis & Findings**

**Q1:** This section contains various questions which are related to the personal factors use in the organization.

**(5=strongly agree, 4=agree, 3=neutral, 2=disagree, 1=strongly disagree)**

**Table 2: Bar graph of caution before adopting**

		<b>Statistics</b>			
		<b>You can competently adopt any IT project.</b>	<b>You usually take caution before adopting any new initiative</b>	<b>You usually take caution before adopting new IT projects</b>	<b>The new IT project would/will lead to staff Layoff/reduction</b>
N	Valid	36	36	36	36
	Missing	0	0	0	0
	Mean	4.47	4.06	3.94	4.58
	Std. Deviation	.736	.791	.955	.554
Percentiles	25	4.00	3.00	3.00	4.00
	50	5.00	4.00	4.00	5.00
	75	5.00	5.00	5.00	5.00

**Frequency Table**  
**You can competently adopt any IT project.**

		<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>	<b>Cumulative Percent</b>
Valid	neutral	5	13.9	13.9	13.9
	Agree	9	25.0	25.0	38.9
	Strongly Agree	22	61.1	61.1	100.0
	Total	36	100.0	100.0	

**You usually take caution before adopting any new initiative**

		<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>	<b>Cumulative Percent</b>
Valid	neutral	10	27.8	27.8	27.8
	Agree	14	38.9	38.9	66.7
	Strongly Agree	12	33.3	33.3	100.0
	Total	36	100.0	100.0	

**You usually take caution before adopting new IT projects**

		<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>	<b>Cumulative Percent</b>
Valid	disagree	2	5.6	5.6	5.6
	neutral	11	30.6	30.6	36.1
	Agree	10	27.8	27.8	63.9
	Strongly Agree	13	36.1	36.1	100.0
	Total	36	100.0	100.0	

**The new IT project would/will lead to staff Layoff/reduction**

		<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>	<b>Cumulative Percent</b>
Valid	neutral	1	2.8	2.8	2.8
	Agree	13	36.1	36.1	38.9
	Strongly Agree	22	61.1	61.1	100.0
	Total	36	100.0	100.0	

**Q2:** This section contains various questions which are related to the various factors use in the organization. (5=strongly agree, 4=agree, 3=neutral, 2=disagree, 1=strongly disagree)

**Table 3: Descriptive Statistics according to Q2**

	N	Minimum	Maximum	Mean	Std. Deviation
The organization Mission was redefined prior to Business Process Reengineering	36	3	5	4.31	.525
The IT project intended to better serve clients	36	2	5	4.25	.770
The users were/are aware of plans to Reengineer Process	36	2	5	3.72	.701
User requirements regarding the new project were fully collected	36	1	5	2.25	1.180
Valid N (listwise)	36				

**T-test  
One-Sample Statistics**

	N	Mean	Std. Deviation	Std. Error Mean
The organization Mission was redefined prior to Business Process Reengineering	36	4.31	.525	.087
The IT project intended to better serve clients	36	4.25	.770	.128
The users were/are aware of plans to Reengineer Process	36	3.72	.701	.117
User requirements regarding the new project were fully collected	36	2.25	1.180	.197

**Q3:** This section contains various questions which are related to the leadership style use in the organization.

**Table 4: Bar graph on managers constructively use their subordinates ideas**

**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
Do managers usually share vision and information with their subordinates?	36	1	5	3.56	1.027
Is there open communication between supervisors and their subordinates?	36	1	5	3.42	1.131
Do managers place confidence and trust in their subordinates?	36	1	5	3.17	1.108
Do managers constructively use their subordinates' ideas?	36	1	5	2.19	1.037
Valid N (listwise)	36				

**Q4:** This section contains various questions which are related to the working environment use in the organization.

**Table 5: Bar graph on working environment in the organization**  
 Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Are there friendly interactions between coworkers?	36	3	5	4.47	.736
Do coworkers have confidence in and trust each other?	36	2	5	3.94	.955
Is teamwork the typical way to solve problems?	36	1	5	4.28	1.003
Do coworkers feel as if they are working in a cooperative environment?	36	1	5	2.39	1.103
Is there performance recognition among coworkers?	36	1	5	4.28	1.003
Valid N (listwise)	36				

**Q5:** This section contains various questions which are related to the commitment of top level management in the organization

**Table 6: Descriptive Statistics according to Q5**

	N	Minimum	Maximum	Mean	Std. Deviation
Does top management generally have realistic expectation of the projects?	36	1	4	2.58	.937
Does top management usually have sufficient knowledge about the projects?	36	2	5	3.56	.652
Does top management frequent communicate with project team and users?	36	1	5	2.06	1.013
Valid N (list wise)	36				

**Does top management frequent communicate with project team and users? \* Do co-workers feel as if they are working in a cooperative environment?**  
 Cross-tabulation

**Q6:** This section contains various questions which are related to the managerial support factors use in the organization

**Table 7: Descriptive Statistics according to Q6**

	N	Minimum	Maximum	Mean	Std. Deviation
Does the reward system adjust to serve the employees after the changes?	36	3	5	4.33	.717
Is the communication channel efficient to convey necessary information?	36	1	4	3.00	.828
Does the performance measurement adequately correspond to the changes?	36	3	5	4.33	.717
Are the employees empowered to make decisions?	36	1	5	2.19	1.037
Valid N (listwise)	36				

#### **4. Conclusion**

Most research done on BPR has focused on approaches to document business processes, and on various techniques used to identify and select potential candidates for reengineering.

Limited research has been conducted in the area of assessing the risk of such efforts, especially on quantitative risk estimation. By using real world data collected from organizations that have experienced radical changes through BPR efforts, a research model based on triangular fuzzy numbers has been developed and validated here in the current research. The resultant research model was used to develop a tool that allows any organization considering BPR to quantitatively estimate the potential risk level of those BPR efforts before committing resources to BPR. But, no such quantitative BPR risk assessment tool was available. Having such a quantitative BPR risk assessment tool will improve management's a priori insights into the potential outcomes of BPR. Continuing work is expected to show that such insights will improve the overall success rate of BPR initiatives.

Some of the findings provide the results which are as follows:-

- The top management of the companies have a risk level with them while they are thinking about the implementation of business process reengineering, key issues of this risk are-
  - Management of human resources while implementing the BPR as if employees working on the project are not consistent to the organization then implementation may be affected. Also, the relationship between the top management and workers create problem in implementation of BPR.
  - The research shows that the managers in the organization do not want to change the business process from one end to another because of certain reasons, like afraid of losing command on the projects if new business process will be in high technology and they are not capable of working on it then this will cause problem in front of the workers.

- Failure rate of BPR in other companies also increases the level of risk in implanting the BPR.

#### **5. Analysis of Findings**

The findings of the research shows that the qualitative risk level estimation is more responsible as compare to the quantitative risk level estimation in the projects of business process reengineering as per the results the qualitative result show this data:

- The top level management is not comfortable with the theory of change in business processes.
- The top level managers in various organizations having fear of losing their authority in the organization because of which they do not take participation in reengineering of business process.
- Because of the platform independency of business process reengineering the top management is not happy to start working on the projects in BPR, as it create a feel of co-workers to get promotion.
- High level risk estimation is then found in the qualitative estimation in business process reengineering.

As per the results of the given situation we must say that it is far most difficult to implement the business process reengineering in the organization because of the casual approach of the top management and the fear of loss of time behind the change are some of the main reasons. With this node of results we can say that business process reengineering is a node of risk only for organizations who want to change it time by time.

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