4. RESEARCH QUESTIONS AND / OR HYPOTHESIS

1. What are the attributes of business process re-engineering?
2. Is there a significant need of business process re-engineering?
3. Is there a significant difference between the existing system and BPR model?
4. What are the factors directly affected to the organization?
5. Is PBR model would be optimum benefited for the organization?
6. Is there a significant relationship between information technologies (IT), information systems and business process re-engineering (BPR)?

5. RESEARCH PLAN AND METHODOLOGY

Business process re-engineering is a worldwide applicable technique of business restructuring focus on business process, providing vast improvement in a short period of time. There are number of steps which will be implemented during research study:

1) **Selection of strategic-** Processes of redesign
2) **Simplify new processes** – Minimizing steps and optimizing efficiency of development model.
3) **Organize** a team of employees with their work responsibility
4) **Organize** the work flow model
5) **Automate processes** using information technology.
6) **Introduce the redesign processes** into business organization structure.

It is mainly concerned with sources of data collection, sample framework, method of data analysis and data interpretation. Although the labels and steps differ slightly, the early methodologies that were rooted in IT centric BPR solutions share many of the same basic principles and elements.

- **Methodology adapted for selecting the sample**

Random sampling method will be adapted to select the sample size from the leading production and manufacturing industry from Mumbai those who are practicing and having information technological infrastructure for BPR initiative.

- **Sources of data**

As the study is exploratory and empirical in nature, both primary as well as secondary sources of data collection shall be tapped.

1) **Primary Source**
Primary data shall be collected from the enterprises/organizations through the structured questionnaire, interview, discussion etc.

2) Secondary data

Secondary data shall be collected from the research paper and dissertations, scholar’s books of references, standard publication by institutes and organizations, report, internet etc.

- Data Analysis

For the purpose of data analysis various statistical application and tools will be used and some tests of validating the hypothesis such as chi-square, t-test, f-test etc.

5.1 STATISTICAL TESTING

It is step by step procedure as follows:

1. State the Null Hypothesis.

2. State the Alternative Hypothesis and decide one tailed and two tailed tests.

3. Select the desired level of significance, the most common level is 0.05 and 0.01 and the exact level to choose is largely determined by two much α risk one is willing to accept and effect that this choice has on β risk. The larger the, lower is the β.

4. Choose the statistical test.

5. To test a hypothesis researcher must choose an appropriate statistical test. There are various criteria for choose the test. One is power efficiency, nature of population, method of sampling, type of measurement scale used and so on.

6. Obtain the critical test value. (Table values) for specified level of significance.

7. Compute the value of test statistics.

8. Interpret the result and draw conclusion.

5.2 TESTING OF HYPOTHESIS

5.2.1 Null Hypothesis

It is statement that no difference exists between the parameter and statistics. The “No Difference” type hypothesis is termed as Null hypothesis and denoted by Ho. The null hypothesis can never be proven. Data, such as the results of an observation or experiment, can only reject or fail to reject a null hypothesis. For example, if comparison of two groups (for example, comparing subjects treated with a medication with untreated subjects) reveals no statistically significant difference between the two, it does not prove
that there really is no difference; it only shows that the results were not sufficient to reject the null hypothesis.

5.2.2 Alternative Hypothesis

It is the logical opposite of the Null hypothesis. It is denoted by H1 or Ha. The alternative hypothesis may take several forms depending on the objectives of the researcher. It may be of the “Not equal to” or “Greater than” or “Less than” type. And these types will be used to decide whether the underlying test is two tailed or one tailed.

If H1 /HA is (Not equal to” types (≠). The underlying test is two tailed or two sided or non directional test. Otherwise the test or One tailed or One sided or Directional . Based on the sample result Ho may be accepted or rejected. And Ho may be true or false in legal or true sense. Thus it will arise following four situations.

<table>
<thead>
<tr>
<th>Ho Decision</th>
<th>True</th>
<th>False</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accept Ho</td>
<td>Correct Decision</td>
<td>Type II Error</td>
</tr>
<tr>
<td>Reject Ho</td>
<td>Type I Error</td>
<td>Correct Decision</td>
</tr>
</tbody>
</table>

Fig2.1: Hypothesis Decision Table

The error committed in rejecting true hypothesis is termed as Type I error. The probability of community Type I error is denoted by α and known as level of significance. The standard value of α is 5% and 1%.

\[
\alpha = P[\text{Type I Error}]
\]

\[
 = P[\text{Reject} \text{ Ho}/\text{Ho is True}]
\]

In quality control Type I error is termed as Producer’s Risk.

The error committed in accepting false hypothesis is termed as Type II error. The probability of community Type II Error is denoted by β.
\[ \beta = P \text{ [Type II Error]} \]
\[ = P \text{ [Accept Ho/Ho is false]} \]

1-\( \beta \) is known as power of test.