Internship Report
On
BUSINESS PROCESS RE-ENGINEERING DOCUMENTATION AT GRAMEENPHONE LTD

Submitted By:
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Submitted to the
Department of Electrical and Electronic Engineering
Faculty of Sciences and Engineering
East West University

In partial fulfillment of the requirements for the degree of
Bachelor of Science in Electrical and Electronic Engineering
(B.Sc. in EEE)

Spring, 2011

Approved By

Shamim Ahmed

_____
Academic Advisor
Shamim Ahmed

_____ 25.05.201

Department Chairperson
Dr. Anisul Haque

Letter of Approval

grameenphone

January 09, 2011

Career Counseling Center
East West University
Dhaka
Bangladesh

Sub: Completion of Internship

Dear Sir,

We would like to inform you that **Ms. Fahmida Rahman** has successfully completed her internship program in our organization starting from **October 20, 2010 till January 17, 2011**. She worked in Assurance under Technology Division.

We hope this program has provided practical knowledge to Ms. Fahmida Rahman which will help to build up her career in related field.

We wish her every success in life.

Best regards

Md. Shariful Islam
Head of Recruitment & Development
People & Organization
Grameenphone Ltd.

| Grameenphone Ltd. | Telephone: +(8802) 988 2990 Telefax: +(8802) 988 2970 E-mail hr@grameenphone.com | Postal address: Celebration Point Plot # 3 & 5, Road # 113/A Gulshan-2 Dhaka 1212 | Office Celebration Point Plot # 3 & 5, Road # 113/A Gulshan-2 Dhaka-1212 |

Acknowledgment

First of all I wish to convey my heartfelt thanks and gratitude to Almighty **Allah** to complete the internship successfully and also those who all rendered their co-operation in making this report. Without their assistance I could not have completed my internship.

Nobody can do anything properly without others assistance. So if we want to get better output in any activity from a particular job, then assistance or co-operation is very much essential. I am personally in debt to a number of persons who helped me very politely and gently whose advice, direction and co-operation in corporate me to earn experiences and give opportunities to learn about the report formatting and Grameenphone Limited.

I would like to express my best regard, indebtedness and deepest sense of gratitude to my advisor **Dr. Anisul Haque,** Professor, Chairperson, Department of Electrical & Electronic Engineering, East West University for his cordial guidance enthusiastic encouragement and active help throughout the entire period of my internship report.

I want to convey my gratefulness to **Shakawth Md. Hossain** Assurance Technology Grameenphone Ltd Specialist, (Assurance/Technology) and **Enamul Haque** Assurance Technology Grameenphone Ltd Senior Executive (Assurance/ Technology) who helped me greatly by providing valuable suggestions whenever required in preparing my internship report on '**Structured Documentation of Business Process Re engineering** 'They also give me the opportunity to hold flagship of this topic. As we entered 21st century, the rapid progress in the capabilities of internet information technology infrastructure are enabling enterprising to create value in new and exciting ways. In this customer-centered high velocity environment an enterprise's business process must be fast, focused and flexible. Moreover the focus of business process redesigning has shifted to include cross enterprise processes partly excited by one enterprise and partly by another enterprise. In such an enterprise involves changing the information flow around the business process and changing the knowledge management capabilities on the process. The analysis and design of workflows and processes within an organization, A business process is a set of logically related tasks performed to achieve a defined business outcome. Re-engineering is the basis for many recent developments in management. The cross-functional team, for example, has become popular because of the desire to re-engineer separate functional tasks into complete cross-functional processes. Many recent management information systems developments aim to integrate a wide number of business functions. Enterprise resource planning, supply chain management, knowledge management systems, groupware and collaborative systems Human Resource Management Systems and customer relationship management. Business Process Reengineering is also known as Business Process Redesign, Business Transformation, or Business Process Change Management. began as a private sector technique to help organizations fundamentally rethink how they do their work in order to dramatically improve customer service, cut operational costs, and become world-class competitors. Reengineering starts with a high-level assessment of the organization's mission, strategic goals, and customer needs.

I would also like to acknowledge to everyone else of technology division for providing suggestions on how to do work and what is the procedure to work in a practical manner and also how to make this internship report in better way. Thanks to everyone of Technology Division of Grameenphone Ltd.

Executive Summary

To fulfill the requirements to be a B.Sc Engineer from East West University, I have chosen the Industrial attachment or internee. I have done internship at Grameenphone Ltd. My internship title is "Business Process Reengineering". Though my major area is Power and minor is telecom. So as a telecom Engineer Equipments are related to my field. This is a descriptive report on Grameenphone Ltd. that mentions Structured Documentation of Business Process Re-engineering & Analysis of Quality Improvement Scopes of the largest cellular company of Bangladesh. The report has been prepared by collecting information from Practical work exposures from the different tasks of the business process. This report also covered various equipments and software used to maintain and control the whole BPR processes. This report is basically prepared to assess the current BPR and various prospects of this project, in the context of Grameenphone Ltd. Even though I tried to gather as much information as possible, still some necessary information might be missing in order to follow the rule of the company confidentiality. Having the authorization from East West University (EWU) the internship program was started with the technology division of Grameenphone Ltd. (GP) under the supervision of Shakawth Md. Hossain, Specialist Assurance, and Technology Division. The project was assigned to the intern by the company supervisor and was approved by the institute supervisor as well. Business Process Reengineering (BPR) is basically the fundamental rethinking and radical re-design, made to an organization existing resources. Reengineering recognizes that an organization's business processes are usually fragmented into sub processes and tasks that are carried out by several specialized functional areas within the organization. Often, no one is responsible for the overall performance of the entire process. Reengineering maintains that optimizing the performance of sub processes can result in some benefits, but cannot yield dramatic improvements if the process itself is fundamentally inefficient and outmoded. For that reason, reengineering focuses on redesigning the process as a whole in order to achieve the greatest possible benefits to the organization and their customers. This drive for realizing dramatic improvements by fundamentally rethinking how the organization's work should be done distinguishes reengineering from process improvement efforts that focus on functional. Reengineering identifies, analyzes, and redesigns an organization's core business processes with the aim of achieving dramatic improvements in critical performance measures, such as cost, quality, service, and speed. Though 'Business Process Reengineering' sounds more like 'Business', here I basically focus on the **engineering part**, which is the most important part of BPR.

Abstract

It was a great opportunity to work under the largest telecommunication company of Bangladesh. The main purpose of the program was to perceive the real life situation. The academic knowledge is not well enough to complete with real world. This internship program was helpful to face the real working environment. Being the largest cellular phone company in the country, Grameenphone has to have a gigantic number of employees and a huge number of employees and a huge number of customers as well.

This internship report contains all the information about my work experience with Grameenphone Ltd, which got its cellular license in Bangladesh at 28th November 1996 by the Ministry of Posts and Telecommunications, the company launched its service on the Independence Day of Bangladesh at 26th march 1997. In GP I have spent a good time in learning and was rewarded for my best efforts, learnt to deal with different situations, had experience of corporate working environment which affects an employee performance and attitude towards work, had good time in learning and performing. I would like to say that it will be one of my best skills that would remain with me and help me in future which will offer many challenges. I would like to highlight this that my experience with Grameenphone Ltd. was very memorable and full of learning's where I found a lot of changes in my attitude, learning and behavior. In order to achieve the major improvements BPR is seeking for, the change of structural organizational variables, and other ways of managing and performing work is often considered as being insufficient. For being able to reap the achievable benefits fully, the use of information technology (IT) is conceived as a major contributing factor. While IT traditionally has been used for supporting the existing business functions, i.e. it was used for increasing organizational efficiency, it now plays a role as enabler of new organizational forms, and patterns of collaboration within and between organizations BPR derives its existence from different disciplines, and four major areas can be identified as being subjected to change in BPR - organization, technology, strategy, and people - where a process view is used as common framework for considering these dimension Technology is concerned with the use of computer systems and other forms of communication technology in the business. The human resources dimension deals with aspects such as education, training, motivation and reward systems. The concept of business processes - interrelated activities aiming at creating a value added output to a customer - is the basic underlying idea of BPR. These processes are characterized by a number of attributes: Process ownership, customer focus, value adding, and cross-functionality.

Business Process Reengineering, although a close relative, seeks radical rather than merely continuous improvement. It escalates the efforts of and TQM to make process orientation a strategic tool and a core competence of the organization. BPR concentrates on core business processes, and uses the specific techniques within TQM"toolboxes" as enablers, while broadening the process vision. BPR can have on jobs and operations, was described by Lon Roberts (1994) Roberts also stressed the use of change management tools to proactively address resistance to change—a factor linked to the demise of many reengineering initiatives that looked good on the drawing board

Table of Internship Work

In our Acceptance Letter of industrial attachment from Ahmed Shahejudul Alam, Deputy Manager (HR & Admin), Grameenphone Ltd. On that latter he told us to contract with ,Mr. Shakawth Hossain, Specialists. At 20th Oct, 2010 my first day of training Mr. Shakawth Hossain gave me my training Schedule.Training for three months

Training schedule

Date	Section	Duration	Contract person
25.10.10 - 04.11.10	Different process flowchart To read	9 days	Engr. Shakawth Hossain,Specialists
7.11.10 – 11.11.10	Knowing the company profile	5 days	Engr. Enamul Haque, Manager
14.11.10 – 18.11.10	Ideas about process system	5 days	Engr. Walid Shams, DGM
21.11.10 – 6.12.10	Concept Design & Detailed Design	9 days	Engr. Z.M.Saifullah, Manager Engr. Moktadir, Manager
9.12.10-30.12.10	Workflow Design & documentation	9 days	Engr. Matiur Rahman Siddiqi, Head of Assurance Department

Working Time: Sunday to Thursday
10:00 AM to 05:00 PM (1 PM to 2 PM Lunch & Prayer)

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Chapter 1

Introduction

In this section I had worked five days (07-11-2010 to 11-11-2010).
Project planning with
- Engr.Md.Shakawth Hossain
- Engr.Z.M Saifullah Ahmed
- Engr.Enamul Haque
- Engr.Moktadir Alam

1.1 Internship Objective

Actually internships will provide students the opportunity to test their interest in a particular career before permanent commitments are made. It will also provide students with a high level knowledge of the formal functional activities of a participating organization. To keep pace with the education System has become more and more practical and as a result practical knowledge has got priority. To provide fresh graduates with professional knowledge related to the academic training, East West University.

It was a great opportunity to work with the largest telecommunications service provider of Bangladesh .The main purpose of the program was to perceive the real life situation. The academic knowledge is not well enough to complete with real world. This internship program was helpful to face real working environment & working process. Being the largest cellular phone company in the country, Grameenphone has a huge number of customers. To serve this huge number of customers, Grameenphone has an excellent Technology Division, supporting the whole value chain.

1.2 Company Profile

November 28, 1996
Grameenphone was offered a cellular licensed in Bangladesh by the Ministry of Posts and Telecommunications

March 26, 1997
Grameenphone launched its service on the Independence Day of Bangladesh.

November 5, 2006
After almost 10 years of operation, Grameenphone has over 10 million subscribers
Grameenphone is now the leading telecommunications service provider in the country with more than 23 million subscribers as of December 2009.

Presently, there are about 50 million telephone users in the country, of which, a little over one million are fixed-phone users and the rest mobile phone subscribers.

Starting its operations on March 26.1997, the Independence Day of Bangladesh, Grameenphone has come a long way. It is a joint venture enterprise between Telenor(55.8%), the largest telecommunications service provider in Norway with Mobile phone operations in 12 other countries. and Grameen Telecom Corporation(34.2%) , non-profit sister concern of the internationally acclaimed micro-credit pioneer Grameen Bank. The other 10% shares belong to 10% to general retail and institutional investors.

Over the years, Grameenphone has always been a pioneer in introducing new products and services in the local market. GP was the first company to introduce GSM Technology in *Bangladesh when it launched its services in March 1997.The technological know-how and* managerial expertise of Telenor has been instrumental in setting up much an international standards mobile phone operation in Bangladesh. Being one of the pioneers in developing the GSM service in Europe, Telenor has also helped to transfer this knowledge to the local employees over the years.

1.3 Origin of this Report

This report is based on internship program. Grameenphone Ltd arranges internship program to gather practical knowledge about manufacturing of substation equipments, which is followed by their Engineers for universities students.

1.4 Report Background

The purpose of this report is to fulfill the internship requirement for the degree of B.Sc in Electrical and Electronics Engineering from East West University. I had started my industrial training in the factory of manufacturing equipments and successfully completed with lots of experiences. And based on that I prepared this report where I tried to mention every point that gathers from there.

1.5 Objective of this Report

The first objective of writing the report is fulfilling the partial requirement of EEE program. In this report, we have attempted to give an overview of protection management.. The study aims at some objectives, which are as follows

> ➢ Understanding company management
> ➢ Understanding developing process
> ➢ Understanding design techniques
> ➢ Understanding how Grameenphone Ltd runs its business
> ➢ Finding out the every risk related to Grameenphone Ltd
> ➢ Identifying the problems of Grameenphone Ltd
> ➢ Recommending how it can be solved

1.6 Methodology

Grameenphone is one of the leading telecommunications companies in Bangladesh. The report is based on secondary research

The secondary data has been collected from

- Different papers of Company
- Updated website of Grameenphone Ltd.
- Report submitted by several internship students.

1.7 Scope of study

The scope of organization part covers the organizational structure, background, and objectives, functional departmentalization, developing process, design strategy of Grameenphone Ltd as a whole and especially this report focuses on developing process, design strategy of Grameenphone Ltd.

1.8 Organization Chart of Industry

Assurance

Departmental chart with scope of work

Scope of work:
- Integrated reporting - one truth to all
- End to End view of Network & Services Quality
- Proactive measures on Revenue Leakages and Frauds
- Focus on Improvement – Business, Process, Technical

Assurance
Matiur Rahman Siddiqi

Security & Compliance Azman Sami	RAFM Shah Alam Bhuiyan	MIS & Reporting Ekhlas U Ahmed (Acting)	E2E Service Mgt Ekhlas U Ahmed	BPM & QA Saiful Islam

Scope of work:
- Information security
- Network Security
- DR
- Compliance

Scope of work:
- Implement & operate controls
- Reconciliation
- Reduce revenue leakage
- Implement & operate Fraud Mgt. system

Scope of work:
- Business Intelligence & Info Mgt.
- Network Information Mgt.
- Customer Information Mgt.

Scope of work:
- End to End Service Delivery with Performance
  - Quality
  - SLA/Ops Fault
  - Customer complaints

Scope of work:
- Process Management
- Quality Management System
- Site quality assurance
- Process Improvement
- Cost vs. Quality strategy
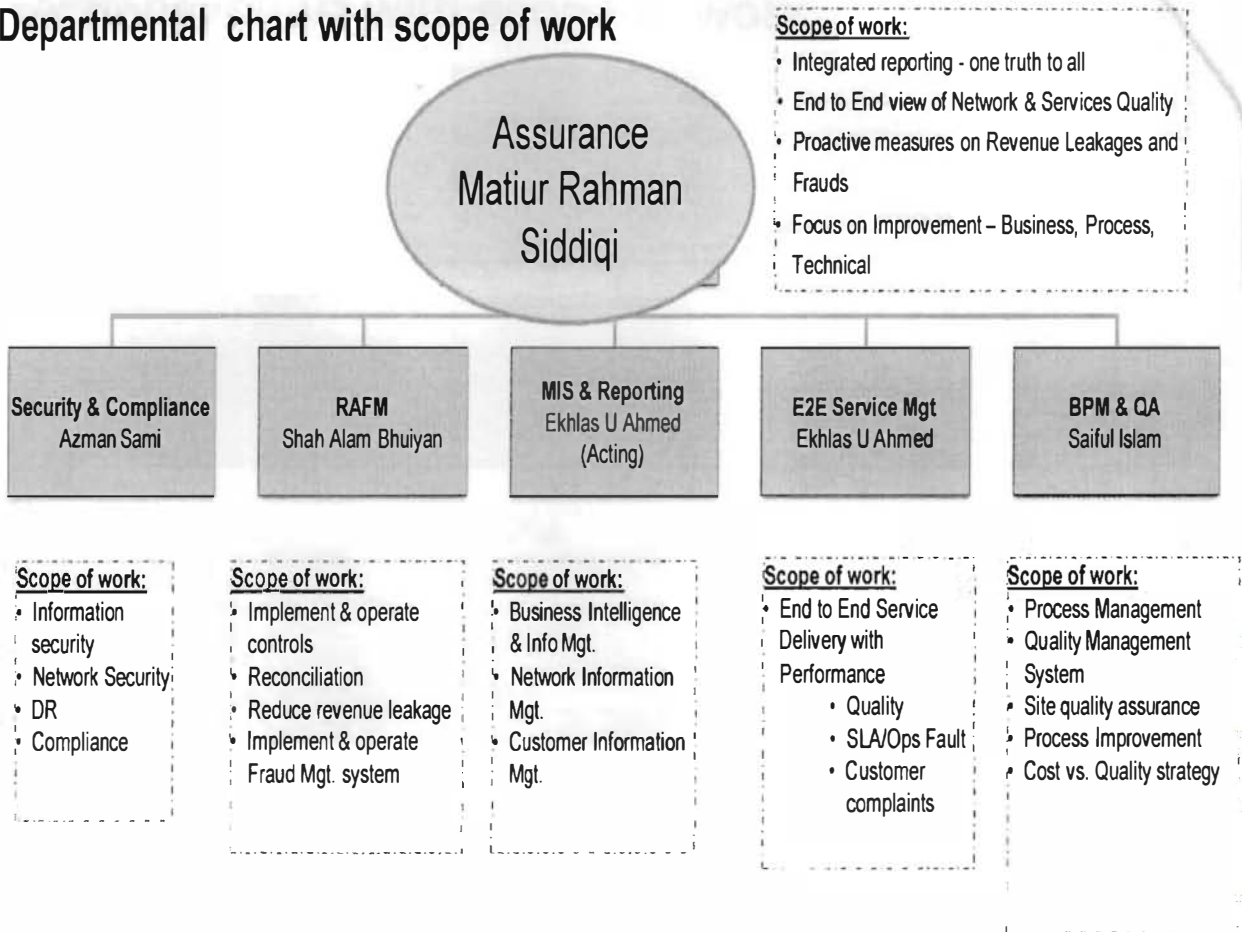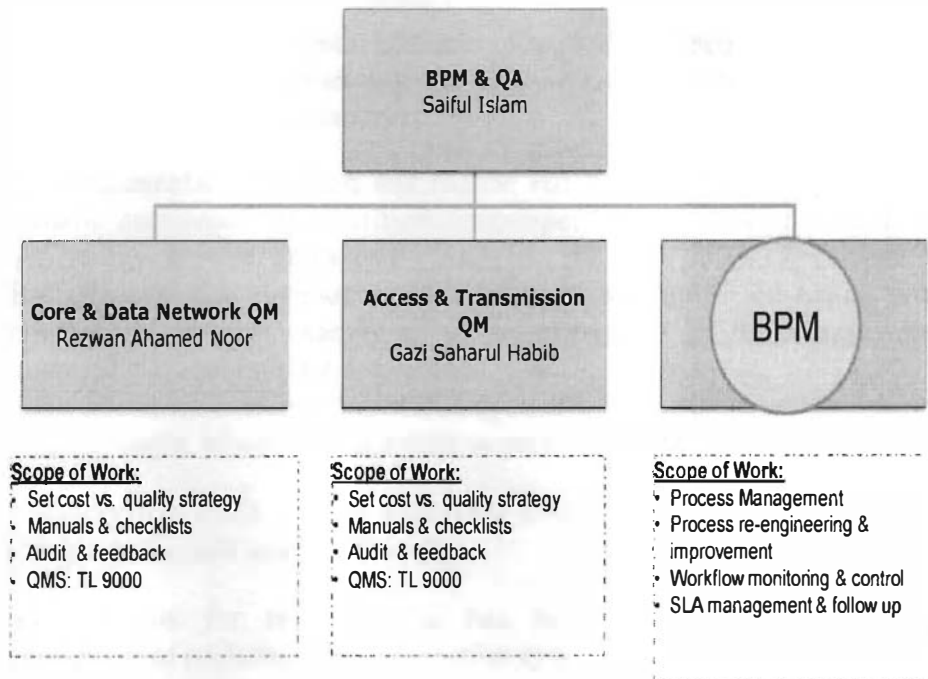
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Figure 1: Assurance Departmental Chart

1.9 Business Process Management & Quality Assurance Sectional Chart

BPM & QA
■ ## Sectional chart with scope of work

BPM & QA
Saiful Islam

| **Core & Data Network QM** | **Access & Transmission QM** | **BPM** |
| Rezwan Ahamed Noor | Gazi Saharul Habib | |

Scope of Work:
- Set cost vs. quality strategy
- Manuals & checklists
- Audit & feedback
- QMS: TL 9000

Scope of Work:
- Set cost vs. quality strategy
- Manuals & checklists
- Audit & feedback
- QMS: TL 9000

Scope of Work:
- Process Management
- Process re-engineering & improvement
- Workflow monitoring & control
- SLA management & follow up

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Figure 2: BPM &QA Sectional Chart

1.10 Key Issues in BPR

- Re-engineering is a narrow space in a single area of company.
- Re-engineering is an enterprise wide core business process. (Such as new product development across all product lines.
- Re-engineering is a strategic supplies chain management process that extends across several companies(such as raw materials)

- Re-engineering is a common business process that affects the way business in entire country(such as re-engineering the shipping and customs clearance process for international trade in Singapore)

- The fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical contemporary measures of performance, such as cost, quality, service, and speed.
- "Encompasses the envisioning of new work strategies, the actual process design activity, and the implementation of the change in all its complex technological, human, and organizational dimensions.
- High performance computing, allowing on-the-fly planning and revisioning·
- Expert systems, allowing generalists to perform specialist tasks.

- Reengineering starts with a high-level assessment of the organization's mission, strategic goals, and customer needs.

- Key stimulus for reengineering has been the continuing development and deployment of sophisticated information systems and networks

1.11 Why Engineers are in Business Process?

It is a very common question in my internship topics that why we are dealing with business process.

The answer is, for a technological organization, it is very important to monitor all the activities with **proper knowledge.** For people who have not proper knowledge about IT, cannot run that organization effectively or profitably. But engineers have enough knowledge about IT and so it is easy for him/her to ensure proper quality and security of that product. Furthermore **it is easy for an engineer to learn about business process, rather than a businessman to learn about engineering.** This particular issue is detailed discussed in **Engineering Ethics**. For a telecommunication organization it is very much necessary to design the technological part of their business process by an Engineer.

Chapter 2

Introduction to working and responsibilities

2.1 Introduction

In this section we worked nine days (14-11-2010 to 18-11-2010).
In Business Process Management section my supervisor was Engr .Md.Shakawth Hossain,
Specialists assigned an Engineer named Enamul Haque.

Business Process Management (BPM) & Quality Management (QA) makes four types of
management:
  ➢ Process Management

  ➢ Process re-engineering & improvement

  ➢ Workflow monitoring & Control

  ➢ Service Level Management & follow up

2.2 Process

A specific ordering of work activities across time and space, with a beginning, an end, and
clearly identified inputs and outputs:
 Structure for action

Figure 3: A Systematic Sequences of Actions to produce an output

2.3 Business Process

A group of logically related tasks that use the firm's resources to provide customer-oriented results in support of the organization's objectives.

2.4 Business Process Reengineering

Re-engineering is the fundamental rethinking and redesign of Business processes to achieve dramatic improvements in critical, contemporary measures of performance, such as cost, quality, Service and speed.

2.5 Why We Consider Business Process Re-engineering

Performance:
BPR seeks improvements of
- Cost
- Quality
- Service
- Speed

Why Reengineer?
- Customers
- Demanding
- Sophistication
- Changing Needs

Competition
- Local
- Global

Change
- Technology
- Customer Preferences

2.6 BPR Methodology

Processes flows be documented in process flow charting software, such as visio and then inserted into a word processing software, such as Microsoft word in order to enable all stakeholder the ability to read the final output. Process flow document Model is mentioned below:

Process Title should be
a) Purpose of the process

b) Trigger factor for the process

c) Team used in the process

d) Business input to the process

e) Business output of the process

For a time being I have only scope to work with documentation, it is done to provide templates for documenting each phase of the BPR methodology. While delivering the various phases of the BPR methodology there are tools and templates to assist the BPR team in tracking and documenting their work.
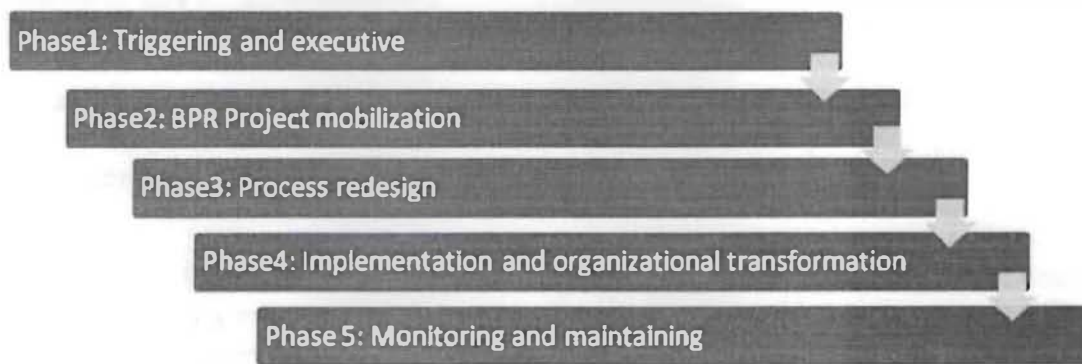
Phase1: Triggering and executive

Phase2: BPR Project mobilization

Phase3: Process redesign

Phase4: Implementation and organizational transformation

Phase 5: Monitoring and maintaining

Figure No 4: Phases of BPR Methodology

Phase 1
A BPR project starts with some sort of trigger such as a performance problem, a competitive e-business (electronic business) move, or pressure from a supply chain partner. It can also be driven primarily by a value creation opportunity or an executive vision of how particular aspect of the company (Say customer service) should be. Deliberations and discussions take place and proposals are made. Then top management gives the go-ahead.

Phase 2
BPR mobilization occurs by selecting a project leader and forming a core BPR team. The processes to be redesigned are selected and a preliminary assessment of IT infrastructure around those processes is made. A BPR plan and
Budget is proposed.

Phase 3
In this phase the business process is redesigned and performance comparisons are made, sometimes through benchmarking with other companies.

Phase 4

The implementation and organizational transformation stage is the toughest phase to execute. It includes designing the information systems and modifying the IT infrastructure. It also involves introducing and instituting the new process with its accompanying organizational design changes, training people (Sometimes firing them) and possibly rescaling them, and dealing with the political and human problems that occur whenever a large organizational
Change is made.

Phase 5

The process needs to be monitored on a continuous basis so that the process can be maintained.

2.7 How to Improve Business Process by Technology

Process Owner of Technology division and Assurance agrees to develop a process:

a) Process owner will form a team for BPR/BPI with all stakeholders and select a team leader to lead this exercise. A pilot team leader will also be appointed by the process owner for piloting the process.

b) Team leader will lead the team to accomplish an exhaustive process analysis and thus develop a concept for the proposed process. Team leader will arrange approval for his team's concept.

c) Team leader will prepare the detail design (SLA, Interface, etc) for the approved concept
d) Team leader will communicate the revised process to all stake holders.
e) Team leader will update the process document as per division accepted by this exercise.
f) Pilot leader will pilot the proposed process and capture all necessary data
g) And prepare plot finding report.

h) Pilot leader will publish the pilot report and communicate it all applicable Stakeholders.

Problem-Faced-To-Problem-Solved

Since the late 1980s, firms around the world have launched Total Quality Management (TQM) programs in an attempt to retain or regain competitiveness in order to achieve customer satisfaction in the face of increasing competition from around the world in this era of globalization. It is an integrative philosophy of management for continuously improving the quality of products and processes. TQM functions on the premise that the quality of the products and processes is the responsibility of everyone who is involved with the creation or consumption of the products or services offered by the organization.BPR Team will need to identify the business processes and the individual steps to those processes during the implementation of the

BPR. A Business Process is defined as the work that transforms inputs into outputs. Each process has at least one input and at least one output (although most have multiple inputs and outputs). BPR Team will need to identify the business processes and the individual steps to those processes during the implementation of the BPR. A Business Process is defined as the work that transforms inputs into outputs. Each process has at least one input and at least one output (although most have multiple inputs and outputs). A Business Process is one that takes an input, puts the input through a value transformation, producing a new output. There are often variations of (or exceptions to) the process. There is no product or service without a process. Likewise, there is no process without a product or service. Essentially, processes are "what an organization does." Processes are what contribute to the main value of the organization, that is, the business process support the public need of the government organizations providing a reason that the organization exists. While if there is any problem in the process to solve we will be use the PDCA Cycle where we can have done total quality management.

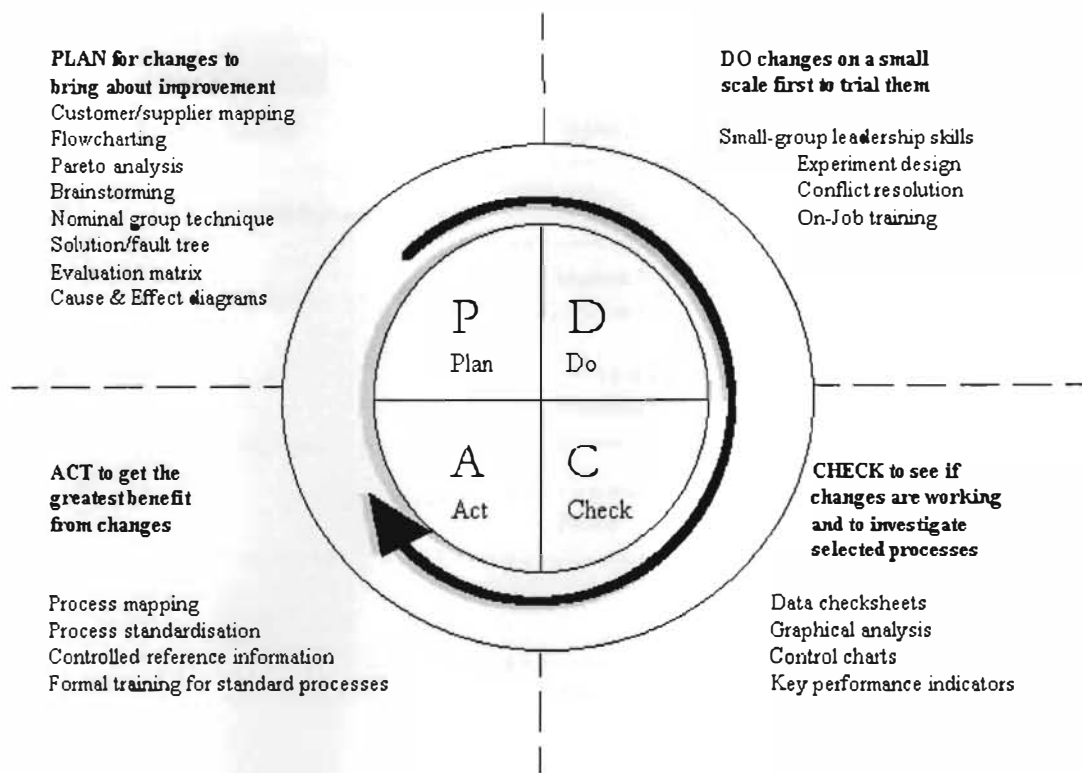Here is what we do for each stage of the Cycle:

Figure 5: PDCA cycle

Plan: - To improve your operations first by finding out what things are going wrong (that is identify the problems faced), and come up with ideas for solving these problems.

Do: - Changes designed to solve the problems on a small or experimental scale first. This minimizes disruption to routine activity while testing whether the changes will work or not.

Check: - Whether the small scale or experimental changes are achieving the desired result or not. Also, continuously check nominated key activities (regardless of any experimentation going on) to ensure that you know what the quality of the output is at all times to identify any new problems when they crop up.

Act: - To implement changes on a larger scale if the experiment is successful. This means making the changes a routine part of your activity. Also Act to involve other persons (other departments, suppliers, customers') affected by the changes and whose cooperation you need to implement them on a larger scale, or those who may simply benefit from what you have learned (we may, of course, already have involved these people in the trial stage). We have now completed the cycle to arrive at problem solved'. Go back to the Plan stage to identify the next 'problem faced'.

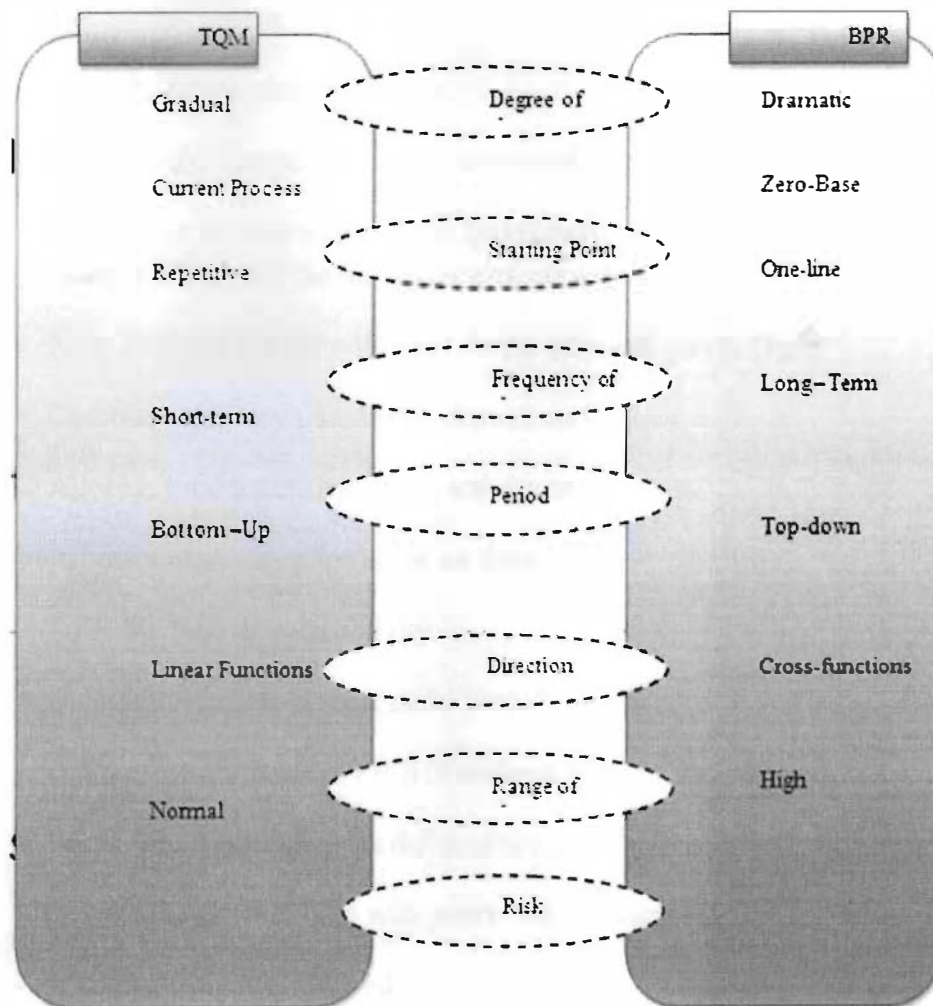## 2.8 Total Quality Management Verses Business Process Reengineering

Figure No: 6 Total Quality Management versus Business Process Re-engineering

Chapter 3
Building a Process Map
3.1 How to Build a Process Map
In this section I had worked nine days (21-11-2010 to 06-12-2010).

- Get a cross –functional team of all front-line process players to participate

- Discuss & define the start and end -points accurately

- List all the players on left

- Start mapping the process activities one after the other clearly marking the flow of the activities with arrows

- What happens next?Why?

- Decisions (yes/no. if possible)

- Identify/ emphasize wait times

- Ground rule-The activity is not an exception and occurs at least in 20% cases.

- Note down the relevant policies (rules governing the process activity) and any responsibility for the particular process activity.

- Keep building the time-line and finish with end-point; mark

- Completion of any phase with distinct end-points

- Allocate time for each process activity on the map

- All team members must agree on time

- Total the time of each activity

- Do realities check- does it make sense?

- Discuss & map process PIES (Problems Issues Expectations)

- Locate process hand –offs &disconnects

- Review the process map with peers, management

- And other players involved

- Is the map a true reflection of the As Is process?

- Are e there additional issues?

3.2 Business Process Flowchart Symbols
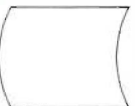
(oval)	The oval represents the start and the end of the Documented process.
(square box)	The square box represents a process step.
(automated process symbol)	Automated Process
(circle)	Continuation of the process at the same page at an equal symbol with the same number. Used when a relation arrow crosses another relation arrow.
(parallelogram)	Data (inputs as output)
(document symbol)	Request from user documented process.
(predefined process symbol)	A pre- defined process
(database symbol)	A Database file
(off-page connector symbol)	Off-Page Connector

Table No 1: Flowchart Symbols

3.3 Rules for Data Symbols
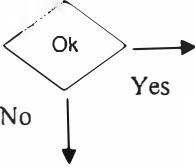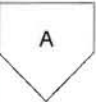
Symbol	Description
Start	Symbol used to identify the start of a business process.
Generate Purchase Order	Activities must be described as a verb.
Ok / Yes / No	Decisions have only two possibilities(Yes/ No)
→arrow	Crossing lines are not allowed
End	If one side of the decision has no further processes defined this symbol has to be used.
I	Continuation symbol within the same number must be present twice on the same page.
Purchase Order	Name the document
A	Off-page Connector is used to continue a process at the next page or to let the process to flow over at the previous to the next page. If more than one is needed use A, B, C, and D……..
Posting of Bonus	Name the Data

Table no 2: Chart of Data Symbols

3.4 Example of Documentation Process Flow Chart

Technology Business Process
BPM, Assurance, Technology

Process Name	Internal Audit AP follow-up
Process 'X'	Head of Assurance
Level 1 Process	Technology compliance control monitoring and management
Level 2 Process	Internal Audit AP follow-up
Process Stakeholders	GP-IT, GP Technology, and all divisions on who there is any dependency
Process Input:	Audit Action point from 'A'
Process Output:	Report of Audit Action points, Monthly

Symbols:

Manual process		Terminator ◯
Linked process		Decision ◇
Automated process		Document ▭

Process Flow	Description

After Internal Audit team conduct any audit on Technology, they published the report and share it with' A', and audit tee. 'A' shares that report with 'X'. Through this process, we follow-up all the audit action points on 'A'.

1.1: 'X' will prepare a list for all the pending audit action point for the month. This data is collected from IA report that is published after every audit to 'A'.

1.2:' X' will follow-up all the audit action point for a particular month in a weekly frequency.

During the following up' X' will evaluate the likeliness of closing the AP in due time and take necessary action to align Stake holder (if required) so that AP are closed in time.

1.3: 'X' will conduct meetings with AP owner, stakeholders (Line organization, other party like commercial, finance on whom technology may have dependency to complete this task) and ensure focus in line organization to close the AP in due time.

If required 'X' will get revised deadline/waivers, and update management.

1.4: Continue to track the AP status. Follow up is done weekly.

1.5: 'X 'will update the list of Audit Action Points, preserve all the supportive emails, MoM, UAT, Waiver forms. 'X' will publish a monthly report.

1.6: Quarterly when LON (Letter of Notification) is received from IA regarding AP follow-up, update IA about the current status.

This process contributes to manage a risk controlled and compliance environment for technology and strengthen operational excellence.

Figure No 7: Documentation Process Flowchart

3.5 Review Log

Technology Business Process
BPM, Assurance, Technology

Process Name	Internal Audit AP follow-up
Process 'X'	Head of Assurance
Level 1 Process	Technology compliance control monitoring and management
Level 2 Process	Internal Audit AP follow-up
Process Stakeholders	GP-IT, GP Technology, and all divisions on who there is any dependency
Process Input:	Audit Action point from 'A'
• Process Output:	Report of Audit Action points, Monthly

Symbols:		
Manual process		Terminator
Linked process		Decision
Automated process		Document

Revision history

Version	Date	Reason for revision	Revision by
1.0	24-Oct-10	First version	

Performance matrics

1.1	X		1 WD	90%
1.2 & 1.4	X		Weekly follow up with AP owner	90%
1.5	X		Publish report by 1st week of next month	90%

Figure No: 8 Chart of Monthly Report

Chapter 4
Documentation

4.1   Description of Documentation Process

The documentation   process puts the company on the fast track to moving forward in its process maturity. This is the first step towards making the overall functioning of your company more efficient and streamlined, allowing to reap the benefits of business process management. Our experienced consultants will be able to quickly identify and map key processes thin your organization targeting specific areas that need to be focused on for the best value in the results of this project.

4.2   Benefits of Documentation Process

Consolidating the process documentation in a single standardized and controlled repository makes it easier and more efficient to retrieve process information, as well as communicate it with the necessary resources. Training process standardization, accountability and company knowledge management are all improved when processes are properly documented.

4.3   Components of Documentation

The Process Documentation consists of the following components
- Resources and systems survey

- Management level Interviews for the organization and process framework

- Collection and analysis of existing process content

- Process documentation workshop

- Goals and Strategy Review

- Final process documentation review

4.4   Conclusion of Documentation Process

At the conclusion of the documentation process, interfacing will create and present a readiness assessment report which details:
- Analysis of resources and systems survey

- Finalized organization and process framework

- Assessment of current process content and expertise

- Correlation of Interview findings, Survey Results and content analysis

- Areas of likely resistance and risks.

Chapter 5
My Task as an intern

First of all my task was to design a process and modified it according to my supervisor's requirements .The process which I used to start the problem is named as work flow design, hand sketching and brain storming work has done, concept design and work flow design is weekly days work. Both concepts design and work flow design has done in following ways which have been mentioned below:

5.1 Defining Design, an introduction and history of design, and the first set of elements and principle of Design

Defining a design.

-A brief introduction and history of design.

-Principles and elements: Understanding the differences.

-Understanding the first set of principles of design: unity/variety, hierarchy, proportion, and scale.

-Understanding the first set of elements of design: shape, space/whitespace, line, and size

5.2 The role of designer, differences between web and print design and second

- Set of elements and principle of design
- Discussion: The role of a designer in the construction of functional website.
- Discussions: Design is a process that has a clear beginning and end.
- A brief synopsis of the differences between print and web design.
- Understanding the second set of principles of design: balance, rhythm/repetition, proximity, and emphasis.
- Understanding the second set of elements of design: color, texture/pattern, value, and typography.

5.3 Exploring pattern and texture, classical rules of composition and value

- Exploring and using texture pattern.
- Discovering the classical rules of composition leading the viewer's eye, the use

5.4 Creating an enhancing design with color and typography

- Understanding the color models.
- Exploring the technicalities of color.
- Working with color creatively.
- Typography Basics - Understanding typography and using it creatively.

5. 5 Solidifying a design concept, generating ideas, design tips and breaking Rules

- Brainstorming techniques.
- Exploring and enhancing avenues of creativity.
- Design tips for designs and graphics destined for the Web.
- Learning how to break the rules of design.

5.6 Finalizing the concept

In this way we develop a concept design and work flow design has done for the proposed process will form a team for BPR/BPI with all stakeholders and select the team leader to lead this exercise. Team leader will arrange approval for his team's concept. Finally, documentation has done by using the Ms. Visio software. The documentation part is attached below:
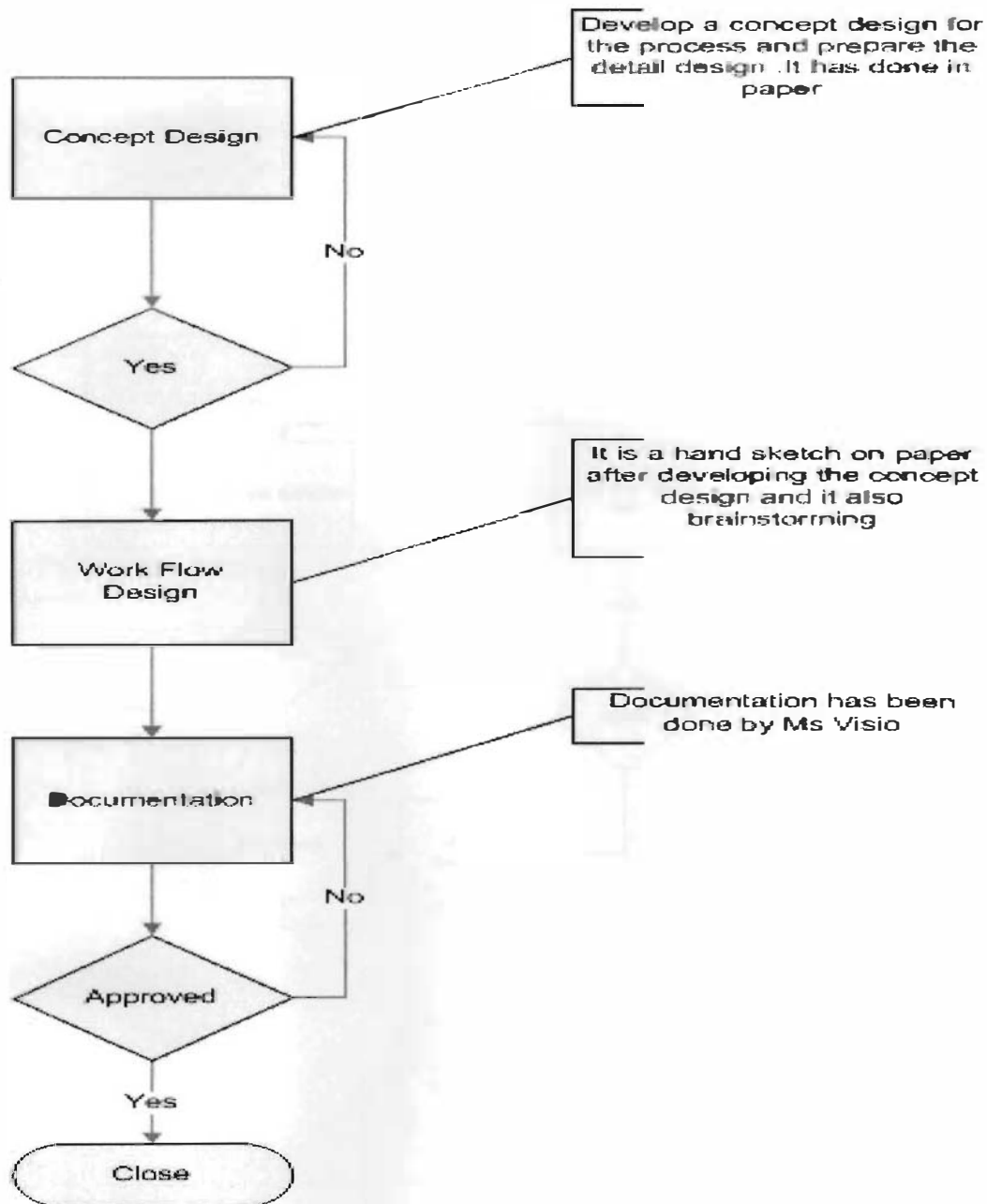
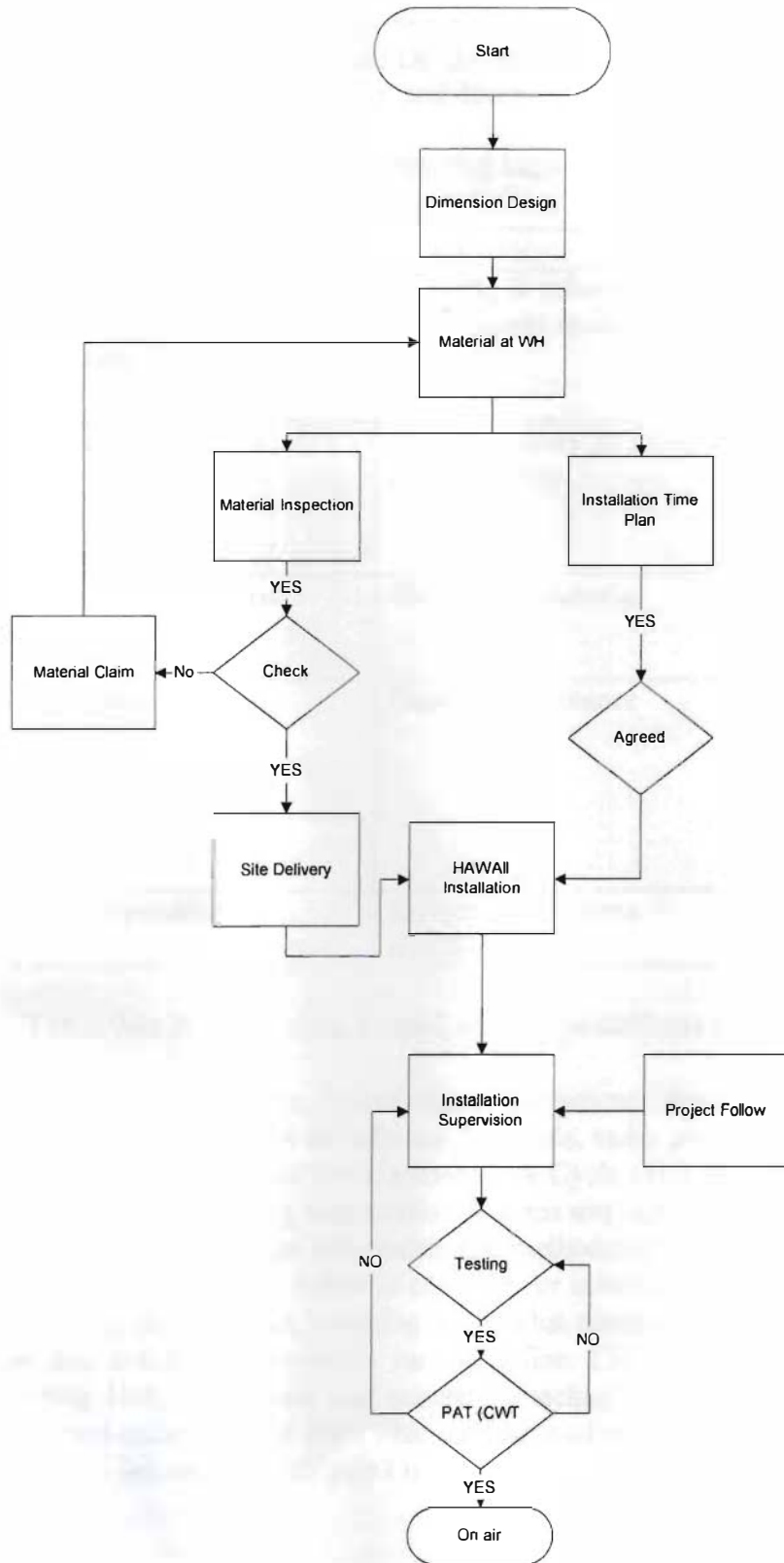Figure 9: Basic Process Flow Diagram

Figure No10: As Is Process Map of Core Power Systems flowchart

Process Name:-Core power system rollout
Objective:-To provide AC and DC power to core switch
System Input: - System Design and dimensioning
System Output: - On -Air
Problems, Issues and Expectations that impact As –Is –Process -Performance

Problems	Issues	Expectations
Mismatch in implementation information during installation	Drawing & information are not regularly updated in site folder	Proper Drawing
Delay in Hw delivery	Approval delay BTRC/LC opening delay	Approval with planned time
Discrepancy in material delivery	Shortage of material	Proper delivery match with good quality
Site preparation Delay	Delay in acceptance	A separate SLA level be prepared for this process or can be mapped into it
Vendor dependency	Reluctance resource material	Agreement should be done clearly

Table No 3: Problems, Issues and Expectations that impact Performance

By using this software, I have drawn the process flowchart of many system flow charts e.g. developing the process of software life cycle, radio planning process flow chart, access control flowchart. The Systems Development Life Cycle (SDLC), or Software Development Life Cycle in systems engineering, information systems and software engineering, is the process of creating or altering systems, and the models and methodologies that people use to develop these systems. The concept generally refers to computer or information systems. For system analysis situation, analyzing project goals, breaking down what needs to be created and attempting to engage users so that definite requirements can be define. The code is tested at various levels in software testing. Unit, system and user acceptance testing's often performed. This is a great area as many different opinions exist as to what the stages of testing are and how much if any iteration occurs. This is a last and difficult part I have done.

Chapter 6
Relation between IT and business

6.1 How do Information technologies Change Business Process?

Some of the ways that IT changes different process:

- IT automates and speeds up processes.
  IT breaks traditional assumptions about the physical world .Geography does not matter any longer.
  IT is mobile .You can take work with you and still is connected to portables PCS, phones, mobile, scanners and hand-held computers.
  IT increases interactivity and allows instant feedback.
  IT enables physical and electronic parts of a process co-ordinate .For example Bar coding.
  IT enables knowledge to be created, shared and managed intelligently and effectively.

6.2 Why we use BPR Software and workflow management software?

When a business process is redesigned through BPR software one of the outputs doing the process redesign the phase in a BPR project is to provide the requisition information system requirements to information system designers who in turn used them in inputs to CASE tools(computer-aided-software engineering in order to produce accompanying information systems design and computer code) if the business process is highly automated workflow management software processes can be used as information technology infrastructure to execute the process rather than developing the systems.

BPR Software is used for business process design, workflow management software is used to automate managing the business of the process and it has its roots in document images system. To make workflow management software an integral part of IT enabled process management architecture, it is a composed of group of leading vendors.

6.3 People issues in BPR

The people side of BPR is the most challenging aspects of managed; BPR is used to generate new growth around a business process. The word re-engineer' projects mechanistic impression in which humanistic concern marginalized in reality in well managed BPR project, the people issues are the most important. It never changed management thinking, actually the largest causes of failure in an organization performing BPR as a one-off project with limited strategy alignment and long-term perspective. Reengineering focuses on redesigning the process as a whole in order to achieve the greatest possible benefits to the organization and their customers. This drive for realizing dramatic improvements by fundamentally rethinking how the organization's work should be done distinguishes reengineering from process improvement efforts that focus on functional or incremental improvement.

Chapter 7
Technical issues

As an engineer we must have to care about the quality and cost of the product equally. The another responsibility of engineer is to care about the technical sides of an organization. We've to protect the network of an organization from hackers and ensure the entire security.

Reengineering is a process where engineers get feedback about their product and try to find out proper solution if there is any error or difficulty. By this process engineers get exact point where to correct or make improvement of their product. This is an excellent way to improve quality of product for the engineers. Here are some quality and security related issues where reengineering can be apply are discussed.

Quality issues
7.1 Radio wave propagation characteristics

The propagation of radio waves is generally affected by several factors, irrespective of radio communication service or the specified purpose of telecommunication such as, frequency effect, terrain effects, tropospheric effects, multipath effect etc.

To overcome these problems and to design a proper path of propagation, we have to consider some issues.

Fresnel zone
The area where the signal spreads out into is called the Fresnel zone. If there is an obstacle in Fresnel zone, part of the radio signal will be diffracted or bent away from the straight line path. The particle effect is that on a point to point radio link, this refraction will reduce the amount of RF energy reaching the receive antenna.

The thickness of Fresnel zone depends on the frequency of the signal. The higher the frequency the smaller the Fresnel zone.

Received signal level

Received signal level is the actual received signal level (usually measured in negative dbm) presented to the antenna port of a radio receiver from a remote transmitter.

Receiver sensitivity

Receiver sensitivity is the weakest RF signal level (usually measured in negative dbm) that a radio needs receive in order to demodulate and decode a packet of data without error.

Antenna gain

Antenna gain is the ratio of how much an antenna boosts the RF signal over a specified low gain radiator

Transmit power

The transmit power is the RF power coming out of the antenna port of a transmitter. It is measured in dbm, watts or milliwatts and does not include the signal loss of the coax cable or the gain of the antenna.

Effective isotropic radiate power

Effective isotropic radiate power (EIRP) is the actual RF power as measured in the main lobe of an antenna. It is equal to the sum of the transmit power into the antenna (in dBm) added to the dBi gain of the antenna.

Multipath interference

When signals arrive at a remote antenna after being reflected off the ground or refracted back to earth from the sky (ducting), they will subtract (or add) to the main signal and cause the received signal to be weaker(or stronger) throughout the day.

7.2 Path profile

The purpose of the path profile is to provide information concerning free line of sight between the selected station sites, and to decide whether there is sufficient clearance to avoid obstacle attenuation. The path profile will also be used when determining the fading of received signal.

The path profile is essentially a plot of the elevation of earth as a function of the distance along the path between the transmitting and receiving sites. The data is derived by locating the two terminals on an elevation counter map, drawing a straight line between the two points and reading the elevation counters at suitable distance intervals.

The topographical information used to design a path profile can also be derived from tropographical map database.

The path profile is plotted on a path profile chart. Also the Earth bulge Δh must be calculated according to the following formula:

$\Delta h = d_1 d_2 / 1274k$

Here, Δh = The earth bulge at a certain point along the path (m)
d_1 = The distance from one site to the calculated point (km)
d_2 = The distance from the opposite site to the calculated point (km)
k = The earth radius factor, R=The true earth radius (6370km).

7.3 Link Budget

A link budget must be prepared in order to calculate the received signal level during non-time. The link budget sums all attenuation and amplifications of the signal between the trans output and the receiver input terminals.
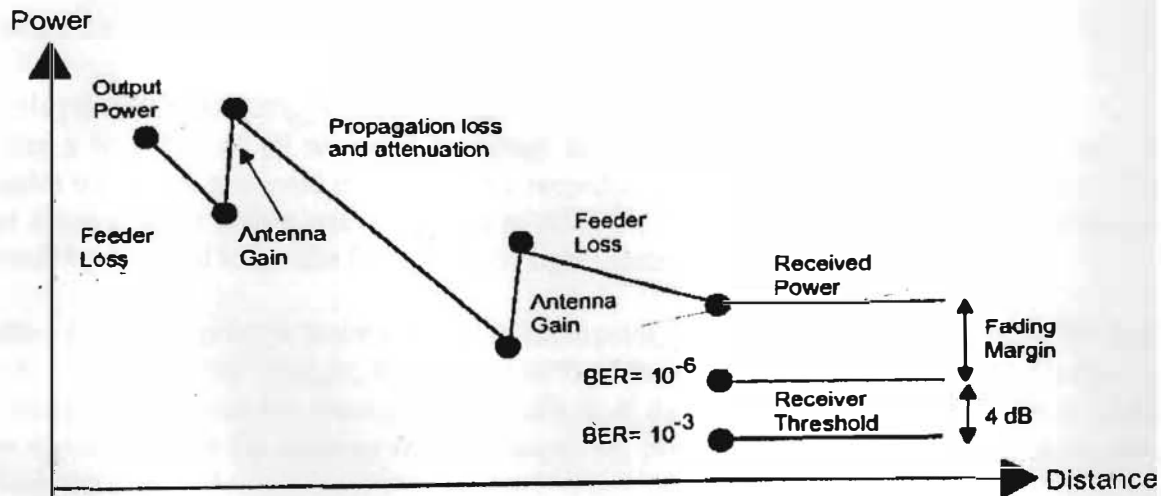
Figure 13: Transmitted and Received Power

The received power in the radio link terminal can be calculated according to the following form

$$P_{in}= P_{out} -\sum A_F +\sum G- A_{BF} -A_o - A_G - A_L$$

Where, P_{in}= Received power (dBm)
P_{out}= Transmitted power (dBm)
A_F= Antenna feeder loss (dB)
G= Antenna gain
A_{BF}= Free space loss (dB)
A_o= Obstacle loss (dB)
A_G= Gas attenuation (dB)
A_L= Addition loss (dB)

7.4 Availability and Quality Targets

The basis for the dimensioning of the connections in a network often stems from an operation; requirement, which describes the required availability of a connection and the quality re during the available time. A dimensioning standard developed by ITU is often used in or obtain an internationally accepted availability and quality for parts or entire network to be p Radio wave propagation, hardware failures, resetting time after repairs and frequency dep interference problems are among the factors to be considered when dimensioning a network wl supposed to meet the standard requirements recommended by ITU.

The ITU target standards are based on two recommendations:
   i) ITU-T Recommendation G.821 intended for digital connections with a bit rate of 64 kBit/s. Even used for digital connections with bit rates higher than 64kBit/s. G.821 will successively be replaced by G.826.
   ii) ITU-T Recommendation G.826, used for digital connections with bit rates of or higher than 2048 kBit/s (European standard) or 1544 kBit/s (USA standard).

These are the main fundamental terms need to **design a plan** a microwave link.

7.5 Steps for planning a link

To plan a link first of all we need to survey how many obstacles are there in the path. All the obstacles which are observed in the path are recorded and applied in to the software of PATHLOSS to get determine the height with reference to AMSC (Average mean sea level) of MW antenna and Azimuth be installed to get the LOS (Line of sight) cleared

Whether the link is point to point or point to multipoint, the first thing is to do is to verify that it will have not only clear line of sight, but at least 60% of the first Fresnel zone clear of obstacles as well. The longer the distance the more important this is. If the Fresnel zone is blocked, then it will get a lower signal level on the distance end than expected, even if it can literally see the other antenna in the distance.

But even if the Fresnel zone is partially blocked, it is still possible to get the link, provided that the system was designed to have a strong signal at the other end of the link. In planning a long range microwave link where it is not sure that it has unobstructed line of sight and clear Fresnel zone, an RF path always should be done. There are many software packages available that have terrain data and can create a path profile from a set of latitude/longitude coordinates.
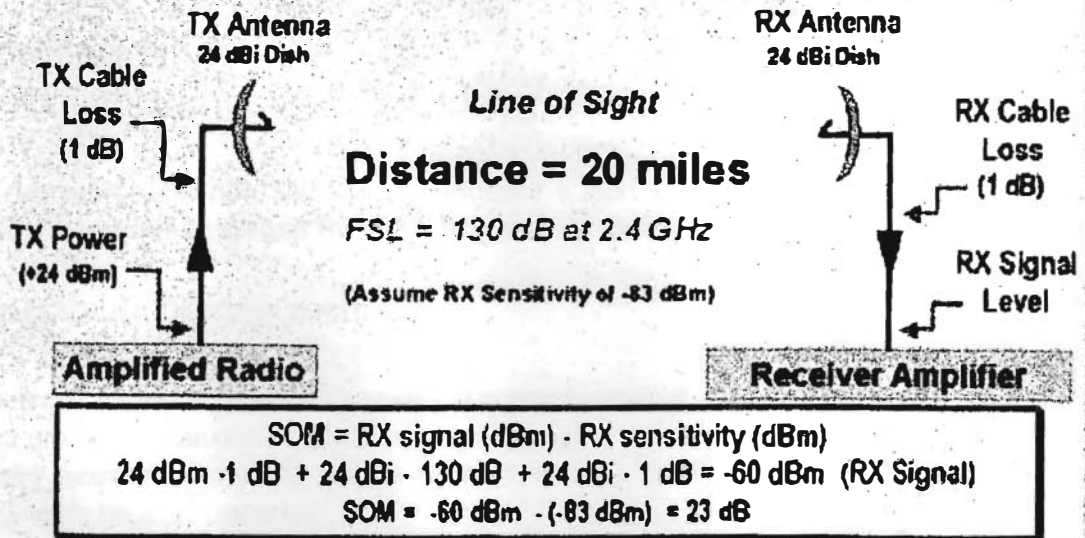
It could be wasting time and money by ignoring Fresnel zone issues or worse yet, no line of site and attempt to set up a link anyway.

But assuming that there is clear line of site and 60% of the first Fresnel zone clear (or nearly clear). How can someone know if he/she will have a good link or not? How much gain do antennas need to have? How much coax cable loss is too much? If the link is at 2.4 GHz, should external amplifiers be used? Or given fixed base station antenna with preset gain, how far he/she reach with the different types of client antennas? And which clients will need amplification?

By doing an SOM calculation, someone can test various system designs and scenarios to see how much fade margin (or safety cushion) the link will theoretically have.
SOM (System Operating Margin) is the difference (measured in dB) between the normal signal level received at one end of a radio link and the signal level required by that a packet of data is decoded without error. Another word SOM are the difference between the signals receive and the ratio's specified receiver's sensitivity. SOM is also referred to as link margin or fade margin.

2.4 GHz 20 Mile Link with Amplifiers

TX Antenna
24 dBi Dish

RX Antenna
24 dBi Dish

TX Cable Loss (1 dB)

RX Cable Loss (1 dB)

Line of Sight

Distance = 20 miles

FSL = 130 dB at 2.4 GHz

TX Power (+24 dBm)

(Assume RX Sensitivity of -83 dBm)

RX Signal Level

Amplified Radio

Receiver Amplifier

SOM = RX signal (dBm) - RX sensitivity (dBm)
24 dBm -1 dB + 24 dBi - 130 dB + 24 dBi - 1 dB = -60 dBm (RX Signal)
SOM = -60 dBm - (-83 dBm) = 23 dB

Figure 14: Link Planning

The above figure illustrates a sample SOM calculation on a point to point link. It presumes that the antennas are aimed at each other property (i.e. they are in each other main lobe). To calculate SOM in this example start with the transmit power (+24 dBm), subtract the coax cable loss (1 dB) and add the transmit antenna gain (24 dBi). This gives the effective isotropic radiated power:

EIRP= TX power – Coax Cable loss + TX Antenna gain

Then subtract the FSL , add the receiver antenna gain , subtract the coax cable loss and get the signal reaching the receiver:

RX Signal= EIRP – FSL + RX antenna gain – Coax cable loss

Compute the difference between the received signal and the radio's receiver sensitivity to determine the SOM. In this example, the received signal is -60 dBm, giving a theoretical SOM of 23 dB.

What is the minimum SOM needed?

Regarding the minimum SOM needed, there is no absolute answer to this question, but the higher it is the better. Most engineers agree that 20 dB or more is quite adequate. Some think as low as 14dB is still good.

The problem with accepting a lower SOM is that have a smaller safety margin. To run the risk of the link going down for such things as interference, an antenna off its aim, atmospheric conditions, moisture in coax, ice on the random or a host of other gremlins.

So after considering all these issues, we can design suitable system for signal transition.

7.6 Security Issues
Intrusion Detection and Monitoring

IDS (Intrusion detection and system) monitor s alert the system or network adminstrate.IDS is a security management system for computers and networks. It gathers and analyzes the system

Vulnerability Management

To become cautious to GP-IT team. Targeted network only GP network. It's a GP-IT network thread problem. Hankers occurs doing copyright
Security assessment process checks whether security has any whole problem on network, so that GP-IT team become cautious.

Access Monitoring

Internet Access Monitor is a comprehensive internet use monitoring and reporting utility for corporate networks. The program takes advantage of the fact that most corporations provide internet access through proxy servers, such as MS ISA Server, MS Forefront TMG, Wingate, Win Route, MS Proxy, Win Proxy, Serve, Squid, Proxy Plus, and others. Each time a user accesses any website, or downloads files or images, these actions are logged. Internet Access Monitor processes these log files to offer system administrators a wide range of report-building options. The program can build reports for individual users, showing the list of websites visited, along with detailed classification of internet activity (downloading, reading text, viewing pictures, watching movies, listening to music, and working). Plus, the program can create comprehensive reports with analysis of overall bandwidth consumption, building easy-to-comprehend visual charts that indicate the areas where wasteful bandwidth consumption may be eliminated

System Security Architecture

It's a ISID (Information security infrastructure design) .For example GP is giving offer to buy ticket from SMS , so GP server and railway server will be taken part on it.

Improving the process, the information of employees whether they are accessing into HR privacy or any unauthorized person.
1. Privacy Maintained.
2. Employee cannot share their password

Information Security System

It classify the business system (network means connectivity, nodes means server)
It protecting information and information from unauthorized access, use, disclosure, disruption
recording destruction. It increases the business profit.

• SOX(Sarbanes Oxley Act) control monitoring

In financial auditing public companies in United States
1. Privacy Maintained.
2. Employee cannot share their password.

Chapter 8
Conclusion

It was a great opportunity to work in the environment of the largest telecommunications industries in Bangladesh. Grameenphone provides one of the best services to their customers and also to their employees that is conducted by technology Division. By working in Technology Division the knowledge was learnt would be helpful to sustain with the real world situation.

As three months flew by my internship just conducted with effect from today. I am glad to have undergone this internship because it taught me a few important things and also got me to explore my own interests. Some of you may be wondering why there is no posting throughout the duration of my internship and part of the reason is time.

Anyway, my internship taught me a lot of things and I also got to meet a lot of nice people. Somehow, I feel really lucky that I always get to work under nice bosses and that makes everything a whole lot easier and happier. All of the colleagues in the Grameenphone had also helped me one way or another either through my work or to create a better work environment. Contrary, to my initial expectations, I totally enjoyed my internship and also learnt a lot of things.

A comprehensive survey was conducted to know about GP's present position in the market and its present service condition that is providing to its valued customers. The survey report shows that Grameenphone is still a market leader in this industry but as it is becoming more competitive day by day so Grameenphone should revise its service and quality with more conveniently for the customers. Among the other cellular phone companies Grameenphone has some unique competitive advantages in this industry in Bangladesh. We passed some remarkable days at Grameenphone during internship program.By the internship program we have reached expected practical life. The completion of three months industrial attachment at Ltd the authorities in Grameenphone were very concerned about all kinds of safety. The friendly environment in Grameenphone encouraged us to cooperate with each other. Finally we learned a lot and obtained practical knowledge from our internship at Grameenphone, which will help us in our future life.

Besides that, I have seen many other system flow charts:
They start collecting data from various companies like aktel, banglalink telecom

Reengineering is a very important part of any kind of organization to improve their product quality. It is a process to get feedback from consumers or any subdivisions of process and make correction of faults and to improve quality.

Actually it is not possible to lunch a product most accurately or without error at the first time. It needs reengineering and by doing this we can improve the quality of product.

In telecom sector it is very much important because this business totally depcndent on quality and service. Better the quality and service, better the business. So BPR is a very much important part of telecom sector.

Appendix

BPR: Business Process Re-engineering

TQM: Total Quality Management

PDCA: Plan Do Check Act

PIE: Problems Issues Expectations

"A": Team Name

"X": Team Name

AP: Action Point

IA: Internal Audit

MOM: Minutes of Meeting

UAT: User Acceptance Testing

LON: Letter of Notification

WD: Working Days

QA: Quality Assurance

SOM: System Operating Margin

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