Chapter V: METHODOLOGY AND TECHNIQUES

Technology incorporated the various methods applicable to various functions. It gives the detail information about the production of product. In a broader sense, it refers to the body of “skills, knowledge and procedures for making, using and doing useful things”. Technology thus includes methods used in non-marketed activities as well as marketed ones”. It includes the nature specification of what is produced—the product design – as well as how it is produced.

The main intention behind this chapter is to focus on various methodology and techniques to get objectives fulfilled. We have determined our objectives on the basis of relevant literatures, references, books, journals etc. and formulated the Hypothesis. Visited the various locations of the External Field Application and discussed with concern authorities. Studied the various tools to handling complexity. The design steps have been carried out which tools would be suitable for the designed goals. Studied the various tools of software engineering subject and collected the data from External field Application. Prepared the various parameters which show the importance of EFA. We have prepared two questionnaires. One questionnaire is prepared for the employee of UCB and second is prepared for the different categories customers of EFA. Analyzed and checked the data sheet form. Categorized the data sheet form. Determined and finalized, test significant techniques and methodology for the external field application. The following theory which is useful to fulfillment of our objectives

5.1 Significant of Technology

The growth of techniques is indispensable historical course of actions in that earlier skill with its feature change into another in the light of the past and economic conditions of the time. Most of the technology used today has been developed in the Western countries during the period of the last two and a half centuries or so (i.e. after the advent of the industrial revolution). This is often referred to as “modern technology” to distinguish it from the technology used in earlier periods in the Western countries. The latter termed as “traditional technology” continues to be used in many undeveloped
countries even today particularly in the field of agriculture and small-scale and cottage industry [74].

Main focus put in organization for development of product. To achieve the target, it is necessary to avail the available resources like management, materials machine, people etc. [51].

5.2 Review of IT

Precise action should be taken on available information. After accumulating the data, proper operations to be performed for certain objective that includes in Information Technology. The result obtained after operation that can be supportive for decision making.

The following fundamental concepts of Information technology system enlighten, in view of the defined research objective.

5.2.1 Components of IT System

⇒ An information technology based system generally is made up of six basic elements. These elements interact and are closely related to each other. These are:

People: People are the most important users in terms of operators and beneficiaries of the IT system. They can be classified as professionals and End users. They are responsible for development, design and operation of IT systems.

Procedures: This refers to the operation of the system to produce results. They describe the method of processing inputs into outputs as per defined steps.

Data and Information: This is the element which causes an IT system to exist in an organization. The data, which is raw facts, gets converted into meaningful information.

Hardware: This is the tangible part of the IT system that enables people to make use of hardware devices to convert data into information according to the procedures defined in the system. And IT system makes use of variety of software, the primary type of which are: System software and Application Software.

Communication: This element provides mobility to the data and information to allow it to be shared among interested users. A variety of cost-effective and powerful modes of transmission are being explored worldwide with use of variety of
communication media. It is this dimension of IT, which has brought information technology in the forefront after decades of silent growth in the organizations for routine data processing tasks.

Information Technological tools used for total automation in the Indian banking Industry. Networking is one of the important parameter in information technology. Through this network shared the information and data across required geographical area [1].

5.3 Value of Network

Two decades ago, few people had access to a network. Now, Computer networks have been growing explosively. In different part of the business, networking is used for billing and accounting, advertising, planning etc. In our infrastructure, Computer communication has become an essential part. The Industrial sector has emerged with new product, technologies and services of networking. The demand of networking has increasing day by day in all industries with larger storage and computational power. The popularity makes people with more networking expertise.

5.3.1 Influence of Wireless Technology

Communication without using physical wire and electrical conductors. The information is transferred from source to destination. It overcome the barrier of distance. Most of the branches of External Field Application are planning to use such type techniques. Wireless communication is generally considered to be a branch of telecommunications.

Since the mid 1990s, the cellular communications industry has witnessed explosive growth. The mobile radio communication industry was grown by orders of magnitude, fueled by digital, new large scale circuit integration and other miniaturization technologies which makes wireless equipments not large, depreciate cost and greater in reliability. Wireless skill have support the huge amount of creation of affordable and in less effort to use radio communication networks. These type of fashion will not stop at an even greater pace during the next future. The innovation of wireless technology has changed education system in new direction. There are many benefits of wireless technology for small and large organization today. A second area of benefit is mobility. The ability to be mobile and remain connected to the network is an efficiency gain as
well as convenient. While early wireless technologies were very feature limited, this is changing rapidly. Inexpensive wireless devices now include the latest security capabilities and radios that are as powerful and stable as those in the most expensive devices of the past. As the price of wireless hardware has decreased, the number of features has increased giving most organizations an excellent return on investment. Now a day’s people are becoming closely interconnected through wireless devices like cell phones, radios, wireless internet etc.

5.3.2 Application Area of WT

- Security purpose
- Health care
- Transportation
- Market
- Home utilities
- Business
- Government
- Semi Government
- Education
The above graph shows that the user of cellular equipment has tremendously going increasing day by day. The advantages of wireless technology have made not only the task of communicating easier, but also simplified many other in all domain functions. Some of these operations have a highly specialized functions whereas many of these operations are useful in our day to day life [17].

5.4 Comparisons of Various Life Cycle Models

The software engineering discipline concern with Software Development Life Cycle (SDLC) model for development of software products. The SDLC model is used for the product development on the basis of project characteristics and each model has its own features.

**Classical waterfall Model**
It is a basic model (Theoretical) and all other life cycles models as embellishments of this model. This life cycle model is named “waterfall model” because its diagrammatic representation resembles a cascade of waterfalls. The different phases of this model are feasibility study, requirement analysis and specification, design, coding and unit testing, integration and system testing, and maintenance. The different phases starting from the feasibility study to the integration and system testing are known as the development phases. During each phase of the life cycle, a set of well-defined activities are carried out. The important activities in each phase are discussed here. Each phase typically requires relatively different amounts of effort. Each phase of the life cycle has a well-defined starting and ending point but no mechanism to handle errors committed during any of the phase.

**Iterative Classical Waterfall Model**
- It is simple to understand and use
- It is suitable only for well-understood problems
- It is suitable for very large projects
- It is handle the project which subject to have many risk

**Prototype Model**
- It is suitable for project either the user requirements or the underlying technical aspects are not well-understood
Popular for development of the user-Interface part of the projects and object-oriented development project

**Spiral Model**
- It consist all other life cycle model
- Risk handling mechanism
- It is suitable for development of technically challenging software product that are prone to several kinds of risk
- It is much more complex than other models

**Evolutionary Model or Successive Version or Incremental Model**
- Popular for Object oriented software product development
- To make experiment with partially developed software
- First to develop core modules then add new functionalities in successive version
- It is helpful to reducing chance of errors

### 5.4.1 Selection of a Life Cycle Model

We have seen earlier for the development of software product various Software Development Life Cycles Models (SDLC) are available in software engineering subject. Each model has its own specialty for development of software product. The SDLC model is to be selected depending on the nature and working culture of software product. Once the model has been selected then to follow the techniques of the selected model.

The selection of a suitable model is based on the following characteristics.

1. Requirement
2. Development team
3. Users
4. Project type and associated risk

**Characteristics of Requirements**
Requirements are very important for the selection of an appropriate model. There are number of situations and problems during requirements capturing and analysis.

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Waterfall</th>
<th>Prototype</th>
<th>Iterative</th>
<th>Evolutionary</th>
</tr>
</thead>
</table>

Table No.04: Model selection on the basis of quality of Requirement
Easily understandable and defined | Yes | No | No | No
Change requirements quite often | No | Yes | No | No
Define requirements early in the cycle | Yes | No | Yes | Yes
Requirements are indicating a complex system to be built | No | Yes | Yes | Yes

**Status of Development of Team**

The important parameters for development team in terms of availability, effectiveness, knowledge, intelligence, team work etc. are very important for the success of the project. Firstly, we will have to know the above said parameters and characteristics of the team then we choose an appropriate life cycle model for the project.

Table No.05. Selection of a Model based on status of development team

<table>
<thead>
<tr>
<th>Development team</th>
<th>Waterfall</th>
<th>Prototype</th>
<th>Iterative</th>
<th>Evolutionary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less experience on similar projects</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Lower domain knowledge (new to the technology)</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Less experience on tools to be used</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Availability of training, if required</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Involvement of users**

Increases the user’s involvement is better the understandability of project. The user participation, if available plays a very significant role in the selection of an appropriate life cycle model.

Table No.06: Selection of a Model based on user’s participation

<table>
<thead>
<tr>
<th>Involvement of Users</th>
<th>Waterfall</th>
<th>Prototype</th>
<th>Iterative</th>
<th>Evolutionary</th>
</tr>
</thead>
<tbody>
<tr>
<td>User Involvement in all phases</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Limited user Participation</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>User have no previous experience of participation in similar projects</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Users are experts of problem domain</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Type of project and associated risk**
Very few models incorporate risk assessment. Project type is also important for the selection of a model.

Table No. 07: Selection of a Model based on Type of project and associated risk

<table>
<thead>
<tr>
<th>Project Type and associated risk</th>
<th>Waterfall</th>
<th>Prototype</th>
<th>Iterative</th>
<th>Evolutionary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project is the enhancement of the existing system</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>High reliability requirements</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Tight project schedule</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Use of reusable components</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Are resources (time, money, people etc.) scare?</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

For the selection of appropriate model we have to answer the question presented for each category by circling a yes or no in each table. The total number of circled responses for each column in the table decide an appropriate model [47].

**Characteristics of the selected model**

Software Development Life Cycle models are used for the development of software products. The models have their own characteristics and specialty about development of product. After studying and analyzing the various models of Software Development Life Cycle Model, we have found the Waterfall Model is suitable for this research project. It has shown the following important characteristics.

- Well known requirements
- Stable Product definition
- Suitable Technology
- Existing product transform in to an New version
- Existing product porting to a new platform.

**Waterfall Model Strength**

- Easy to use and understand
- Well understood Milestones
• Stability of requirements
• Management control
• Irrespective of cost or schedule, works well [35].

5.5 Reference theory

⇒ Keeping the following techniques and tools of software engineering as a reference model for the purpose of fulfillment of research objective. With the help of this information we could do the study in systematic way and well disciplined manner. We have referred the views of system Analysis, need of requirement (functional and nonfunctional requirement), interview and questionnaire techniques etc. for obtaining fruitful outcome.

Views of System Analysis

This is one of the key phases in software development life cycle which can either make or break the success of software product. For the obvious reason, that no software can be developed without proper understanding of existing system.

It is conducted with following objectives:

1) Identify customer’s needs

2) Evaluation of system with reference to economic and technical feasibility

Any project can be completed given all possible resources and infinite time. But checking feasibility of a system with available resources, mainly money and technical platform is a measure issue in analysis process.

⇒ Economic analysis is done with respect to monetary resources available and the kind of benefits that can be generated by the investment done. This basically decides whether the system is worth developing or not.

The majority of the organizations use cost benefits analysis as the way of measuring the possible benefits against the proposed investments. The costs and the benefits as well as can be classified into the following types: tangible benefits and intangible, direct and indirect.

Following are the major heads of costs:
Procurement cost: Purchase, installation, consultation
Startup cost: Operating system software, communication equipments, human expertise, and training

Project Related cost: Cost of application software, modification in software, overheads, data collection, documentation, development management.

ongoing cost : Maintenance, depreciation, salaries, electricity and other costs.

**Following are major head of benefits:**
Reduction in processing time cost of reduction in errors, increased business, better goodwill and perception about organization.

Increased moral of the staff that results into better output, better quality of the product.

Technical analysis tests performance, reliability, maintainability and productivity of the system under consideration. The kind of technology required to make the system function is assessed. It includes the hardware and software configuration and allied software to accomplish the systems.

**Need of Requirement**

IEEE defines a requirement as a condition or a capability that must be met or possessed by software system, to satisfy contract, standard, specification or other formally imposed documents.

I. (a) **Types of Requirements**

While requirements are being gathered from the clients, they can be categorized into functional requirements and non-functional requirements.

Functional => Input / Output; Processing; Error handling

Non-functional => Flexibility; Reliability; Usability; Performance; Security

**Functional requirements** at the ones which are part and partial of a software and software can not have any existence without these requirements. These are functions which form the basis of the application.

1) Input /Output: All the data entry a report generation support that an application is expected to provide is categorized under this head.

2) Processing: Any processing volume or frequency that application is expected to handle.

3) Error handling: All error messages for invalid data or invalid operation.

**Non-functional requirements:**
1) Physical environment (equipment locations, multiple sites, etc)
2) Interfaces (data medium, etc)
3) User and human factors (who are the users, their skill level etc.)
4) Performance (how well is system functioning)
5) Documentation
6) Data (Qualitative stuff)
7) Resources (finding, physical space)
8) Security (back up, firewall)
9) Quality assurance practices

II. b) Steps in Requirement Analysis

II (c) Problems in Requirement Analysis

II (d) Techniques for knowing User Requirement

Introduction: To study the system one must collect facts. Data collection is significant task for any research activity. Exact requirement and proper investigation should be required by using the available resources and expressed in terms of Quantitative way. The appropriate method should be select for data collection. These methods used for collecting data are called fact-finding techniques or requirements gathering techniques. Interview, questionnaire, record reviews, observation, are some of the fact finding techniques used by the analyst.

a) Interview

Interview techniques are used for collecting information from individuals or from groups. Analyst should select respondents who are related with the system under study. In this, the interviewer (analyst) sits face-to-face with the respondents and record his her responses. The interviewer must plan in advance and should fully know the problem for under consideration.

➢ We have gathered the information through this tool and we have successes to obtain desired information and collection of data’s.

(b) Questionnaire

A questionnaire is a Performa containing a sequence of questions to collect information, mostly from a large number of audiences. The created formulated series of questions must be transparent and precise. It must be orderly structured in view of concerned
people to obtain the data in expected form. This method can be easily adopted when field of investigation is very vast, where the responding are literate and understand written question and can answer them.

- We gathered the information through this tool and we have prepared questionnaire to obtain desired information and collection of data’s.

(c) Record review

Information related to the system may be present in the form of records like books, magazines, newspapers, historical documents, letters, journals, manuals, written policies, government publication, etc. This kind of record review provides very valuable information to the analyst about the system about organization and various procedures and rules. Record review may be performed at the beginning of the study to collect initial information or at the end of the study to compare actual operations.

- Referred the relevant papers, journals, internet web sites, books, magazines, historical documents, manuals, written policies, government publication etc.

(d) Observation

If information cannot be collected through fact-finding techniques, then observation method is used. In this method, analyst observes the flow of documents, the way process is carried out steps followed, the persons involved etc. This technique provides a means to analyze the current system in greater depth and raises various questions about the system like:

1. What are the problems in existing system?
2. What user expects from the proposed system?
3. Which are the various processes involved related with the problem?
4. What data are used or produced during the process?
5. Which controls are used currently?

Modern digital equipments like video cameras, close-circuit TVs are available which are widely deployed to monitor the activities and collect the information.

(e) FAST: Facilitated Application Specification Technique

It is a technique where there are meeting software customers and developers at a natural site (no home advantage). Any discussion about expectations from proposed software system or cost associated with the system at customer’s premises or developers
premises may lead to strong disagreements on account of home advantage. To avoid this, meeting between selected end-users and representatives from developers is conducted at neutral sites, which is facilitated by a third party. Such meetings are highly successful because the two parties arrive at agreement very fast because of neutral environment. Use of wall posters, banners, flip-charts is a common feature of such meeting which help in finalizing high level requirements.

Goals of FAST

a. Problem Identification
b. Solution of Elements
c. Approaches negotiate
d. Requirements specified

Such meeting needs lot of preparation in advance in the form of well defined agenda, points for discussion and so on. Facilitator generally assists in providing necessary infrastructure and documentation. JAD (Joint Application Development) approach frequently uses in this method.

(f) QFD (Quality Function Deployment)

This is a widely used technique for requirement gathering by Japanese companies. This methodology believes in three levels of requirements, based on customer satisfaction. Customer needs imply technical requirements.

III. Requirement Modeling

Requirement modeling is an activity which encompasses showcasing the user-requirements in user-understandable format and getting the approval for the same. This is necessary because users’ perception about the proposed software system may differ from those of developers. Requirements modeling helps common understanding about user’s requirements from the software system, which in turn avoids further losses on time and cost for correcting the same.

Following are some of the Requirement Modeling Tools

(1) Prototypes
(2) Use cases
(3) Data flow diagrams
(4) Transaction process diagrams
IV SRS (Software Requirement Specification)

The following subsections of the Software Requirement Specifications (SRS) document explained in view of external Field Application. The text contains study of EFA in the SRS format specification.

1.1 Purpose

⇒ The purpose of this SRS to study the induction of IT tool in Urban Cooperative bank (non scheduled) and to prove that Software Engineering techniques can be used for external study field applications. Software engineering model can be role models for the researchers.

1.2 Scope

⇒ i) Study of external field application

⇒ ii) Analysis by using software engineering tool on External Field Application

⇒ iii) Extraction of software techniques for external field applications & prepared it as role model.

1.3 Definitions, Acronyms, and Abbreviations

⇒ EFA - External Field Application

⇒ UCB - Urban Cooperative bank

⇒ NS- Non-Scheduled

⇒ SE - Software Engineering

⇒ SDLC - Software Development Life Cycle

⇒ IT - Information Technology

⇒ NATO - North Atlantic Treaty Organization

⇒ SDLC - Software Development Life cycle Model

⇒ CWM - Classical Waterfall Model

⇒ GPF - Generic Process Framework

1.4 References
i) (Refer the actual references & Number given )

ii) Sources like International journal, internet websites, research papers, relevant reports, books, magazines, customers etc. from which references is obtained.

1.5 Overview

i) It contains various types of planning & methodology to achieve the goals. (refer the previous chapters).

i) We have organized the SRS as per the priority requirements of External Field Applications. Description, project planning, sample data survey etc. All these parameters are considered for organization of SRS.

2. Description

Mention the various parameters which cause the product status and its requirements.

The following format of the SRS is useful for obtaining the systematic study and comparison of software engineering with External Field Application (EFA).

III. (a) Need for SRS

(1) Establish the basis for agreement between software client and supplies.

(2) Provides reference for validation of the final product.

(3) High quality SRS act as a prerequisite for high quality software.

(4) High quality SRS reduces the cost of software [6]

5.6 Parameters of EFA

With reference to the above theoretical information, we have formulated the strategies for getting the useful outcome. Initially, we have gathered required modeling information from EFA. Following parameters in the data sheet are created to obtain the information from the non scheduled urban cooperative bank. We have studied the information of technological tools of the bank system. We have received very good response from EFA. After obtaining the data from the various UCB, we have analyzed the data and found the various outcomes.
### Table 08: Parameters of EFA

<table>
<thead>
<tr>
<th>S. N.</th>
<th>Description of Work</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Number of the transactions (Time)</td>
</tr>
<tr>
<td>02</td>
<td>Record checking system</td>
</tr>
<tr>
<td>03</td>
<td>Record keeping system</td>
</tr>
<tr>
<td>04</td>
<td>Working culture</td>
</tr>
<tr>
<td>05</td>
<td>Nature of work (paper &amp; w/o paper)</td>
</tr>
<tr>
<td>06</td>
<td>Effect on turnover</td>
</tr>
<tr>
<td></td>
<td>Profit / Loss</td>
</tr>
<tr>
<td>07</td>
<td>Expenditure on stationary</td>
</tr>
<tr>
<td>08</td>
<td>Expenditure on Electricity</td>
</tr>
<tr>
<td>09</td>
<td>Grade the banks</td>
</tr>
<tr>
<td>10</td>
<td>Number of Customer</td>
</tr>
<tr>
<td>11</td>
<td>Merits of the system</td>
</tr>
<tr>
<td>12</td>
<td>Demerit of the system</td>
</tr>
<tr>
<td>13</td>
<td>Special customers like</td>
</tr>
<tr>
<td></td>
<td>Pensioners /Industrialist/organizations</td>
</tr>
<tr>
<td>14</td>
<td>Customers Feedback</td>
</tr>
<tr>
<td>15</td>
<td>General opinion</td>
</tr>
</tbody>
</table>

### 5.7 Questionnaire and Table (For Customer & Employee)

**For Customer:**

**Following information will be used only for research purpose and kept confidential**

1. Name:
2. Age:
3. Name of the UCB (Non Scheduled) Bank:

4. Category of customer: Service  Businessman  Industrialist  Housewife  Farmer  Unemployed  Student  Labor  Retired person

5. Location: Urban  Rural  Metro/Nashik

6. How the IT transaction system is working?

7. Whether there is a queue for transaction

8. Time taken for transactions (deposit/withdrawal)?

9. Time required checking deposit /clearance of transaction

10. Any other transaction (Balance, loan, etc.) time

11. Whether IT system has reduced your time?

12. Whether IT system has saved your money?

13. Do you think that IT tool is useful for Upgradation of banks status?

14. Have you faced the situation of system failure in bank?

15. How do you accept the situation of machine failure? If occurs

16. Do you have any suggestion for development of atomization in the bank?

**For Employee:**

**Following information will be used only for research purpose and kept confidential**

1. Name :

2. Designation :

3. Age :

4. Name of the UCB (Non Scheduled) Bank:

5. Audited grade

6. Location: Urban  Rural  Metro / Nashik

7. How long have you been working? Year  Month  Days

8. Experience of working with IT system in Bank. Year  Month  Days
9. Experience of working with manual system in Bank, if any

   How many marks to be given (max. 5) = Manual System □ IT system □

10. Working culture with IT system

11. Do you think, there is increase in efficiency in working?

12. How do you face the situation of machine failure while on work?

13. Whether IT tool is useful for upgradation of bank status?

14. Is IT system useful for personal overall development (like motivation) etc.?

15. Do you feel IT system affects badly on health?

16. Have you received any type of training regarding computer awareness program?

17. Has the system reduced your duration for completing particular job?

18. Do you have any suggestion for development of atomization in your institute?

### Preference Table 09
(Marks Approximate)

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Class of Customer</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q5</th>
<th>Q6</th>
<th>Q7</th>
<th>Q8</th>
<th>Q9</th>
<th>Q10</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Service</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>6</td>
<td>7</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>02</td>
<td>Business</td>
<td>2</td>
<td>6</td>
<td>7</td>
<td>6</td>
<td>7</td>
<td>4</td>
<td>5</td>
<td>2</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>03</td>
<td>Farmer</td>
<td>4</td>
<td>5</td>
<td>2</td>
<td>6</td>
<td>2</td>
<td>6</td>
<td>7</td>
<td>6</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>04</td>
<td>Industrialist</td>
<td>4</td>
<td>5</td>
<td>2</td>
<td>6</td>
<td>7</td>
<td>6</td>
<td>4</td>
<td>5</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>05</td>
<td>Unemployed</td>
<td>4</td>
<td>5</td>
<td>2</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td>6</td>
<td>7</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
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<td>Female</td>
<td>4</td>
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<td>2</td>
<td>6</td>
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<td>6</td>
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<td>Student</td>
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<td>5</td>
<td>2</td>
<td>6</td>
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<td>4</td>
<td>5</td>
<td>2</td>
<td>6</td>
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</tr>
<tr>
<td>08</td>
<td>Employee</td>
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<td>5</td>
<td>2</td>
<td>6</td>
<td>2</td>
<td>6</td>
<td>7</td>
<td>6</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>09</td>
<td>Retired person</td>
<td>4</td>
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<td>2</td>
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<td>7</td>
<td>6</td>
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<td>Handicapped</td>
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<td>6</td>
<td>7</td>
<td>8</td>
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<td>4</td>
<td>2</td>
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<td>7</td>
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</table>
### Questionnaires Table 10

<table>
<thead>
<tr>
<th>S. N.</th>
<th>Description of Work</th>
<th>Manual</th>
<th>Computerized System</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Number of the transactions(Time)</td>
<td>03</td>
<td>1</td>
</tr>
<tr>
<td>02</td>
<td>Record checking system</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>03</td>
<td>Record keeping system</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>04</td>
<td>Working culture</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>05</td>
<td>Nature of work (paper &amp; w/o paper)</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>06</td>
<td>Effect on turnover</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Profit / Loss</td>
<td></td>
<td></td>
</tr>
<tr>
<td>07</td>
<td>Expenditure on stationary</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>08</td>
<td>Expenditure on Electricity</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>09</td>
<td>Grade the banks</td>
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<td>1</td>
</tr>
<tr>
<td>10</td>
<td>Number of Customer</td>
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<td>1</td>
</tr>
<tr>
<td>11</td>
<td>Merits of the system</td>
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<td>1</td>
</tr>
<tr>
<td>12</td>
<td>Demerit of the system</td>
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<td>1</td>
</tr>
<tr>
<td>13</td>
<td>Special customers like Pensioners /Industrialist/organizations</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>Customers Feedback</td>
<td>2</td>
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<tr>
<td>15</td>
<td>General opinion</td>
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</tbody>
</table>
For the metrics concept we have prepared model (Table 11) by using the following type category of customers and other relevant parameters.

Table 11

<table>
<thead>
<tr>
<th>Measure</th>
<th>Category of customer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male, female, Industrialist, business man, retire employee Labor, Former , Agriculturalist</td>
</tr>
<tr>
<td>Measurement</td>
<td>Prepare questionnaires/Interviews/ consultations</td>
</tr>
<tr>
<td>Metrics</td>
<td>Marks on questionnaires on the basis priorities of question</td>
</tr>
</tbody>
</table>