Chapter VII: RESULT AND ANALYSIS

The significant components used in this research studies are literature reviews, techniques of software engineering, questionnaires, consultations with the management, employee, different categories of customers, interviews, data sheet’s etc. We have gone through all these components. After analyzing the required information and we have found significant outcomes those are mentioned here. We have applied chi-square test on the category wise data for the justification of hypothesis. Different types of graphs are created for representing the performance of the system in various levels.

7.1 Introduction

The major technical and economical changes are undergoing in the present scenario. Technology development provides specific ownership advantages to financial institutions. Many problems in various disciplines which are still waiting for the solutions. Most of the significant services like medical, military, telecommunications, industrial, entertainment transportation, education, the list is almost endless which embedded software in the system and provides services to the people with their satisfaction level. It means that, in most of the sensitive systems, software uses for carrying out the work and obtains the desired outcome which is having huge amount of risk. Therefore for making of software product people requires well planning, discipline, carefulness and serious consideration of other dependent parameter by using engineering approach. An engineering approach, it includes various methods, technologies, scientific methods to solve the complex problem efficiently and obtain optimistic solution by using available resources.

The business of cooperative bank has increased phenomenally in recent years due to the sharp increase in numbers of urban co-operative banks. This exponential growth of Co operative Banks in India is attributed mainly to their much better local reach, personal interaction with customers, and their ability to catch the nerve of the local clientele.

⇒ On the basis of collected data and available information resources, we have summarized it and display it on pictorial representation. It represents the overall
performance of the system which is presently used in External Field Application (EFA) and similar types of representation is as follows in this chapter.

**Graph-I**

Analysis on IT transaction system

![Graph-I](image)

Series 1 => Satisfaction levels  
Series 2 => Improvement required  
Series 3 => Comments on the system  

**Inference:** Graph-I is used to display at a glance, towards trends of system performance level. It is prepared on the basis of category wise data analysis. Each line in the graph shows the system view level on IT module system. Series 01 level indicates more than seventy 70% percent people satisfied with IT system in urban non scheduled banks. Series 02 level indicates more than twenty 20% percent people required in improvement in the system. Series 03 level indicates 10% percent people have given no comments.

The following literature providing significance and valuable concepts which has been supporting towards achieve our goals.

**7.2 Present role of IT in Business**

The way of business all over the world has changed by computerization. Mostly, all the sector of business covered by Information Technology (IT). Shipping, Manufacturing, Customs and Excise matters, Port operations etc. these are mainly
activities in International Business. IT techniques are more useful for doing transaction of these activities. Excellent development has been done in large amount with our approach by Information technology. It produces several opportunities at the same time produces different threats which should be analyzed cautiously. Due to impact of latest technology, transaction of information takes very less time as compared to earlier

7.2.1 IT Utility

IT finds large amount of facility between two nations in today. Electronic media has been developed in all sectors. It provides quality number of advantage in present competitive market. The benefits avail by the concern people by applying the IT applications like reduction of manpower, increase the operation speed, reliability, time etc. The geographical barrier for the business should overcome by using this technology. Graphically representation of product, company information and other relevant information open on the website. Information can be exchange for the proper execution of operation with certain objective. [64].

7.3 Existing Merits of System

There are a number of benefits of computer applications in business. These benefits can be presented in a variety of ways. The published material on the subject lists out several success stories of organizations who have implemented computer based solutions. Some of the benefits of computer applications can be measured or quantified such as reduction in inventory carrying cost or reduction in clerical manpower requirement to maintain statutory records etc. At the same time, there are certain benefits of computer applications, which are perceived but cannot be measured in direct terms. In general, the benefits of computer applications can be classified in major categories as follows.

Improvement in White Collar Productivity

The functioning of business organizations involve documents such as customer orders, delivery documents and invoices, vouchers, goods receipt notes, store issue slips etc. Many times, the volumes of such documents are large and their processing involves “white collar workers” such as clerks and typists. In a number of business organizations, the transactions volumes are substantial. There are a number of such organizations, the transaction volumes are substantial. There are a number of such white-collar workers that
are required to handle the high transaction volumes. The productivity of white-collar workers can be measured in terms of number of documents processed per person or number of person person-hours or person-days required to complete the particular task. Using computer systems more work can be accomplished with same or less manpower. In other words-white collar productivity can be improved by using computer applications.

**Cost Reduction**

When white-collar productivity improves the cost of wages and salaries do come down. In addition to the simple savings in the wage bill, there are other cost reductions opportunities that computer applications provide. Cost reduction due to computer applications is manifested in wide variety of forms. Cost reduction may be seen in terms of reduced inventory carrying cost, reduced cost due to faster recovery of outstanding from customers, reduction in stationary consumption, and reduction in work. In business organizations, paperwork involves multi-copy documents with copies being sent to different departments for information or suitable action. If the computer application can reduce the number of copies of such documents, there is an opportunity for reduction in stationary cost. With the increasing competition, business organization is facing an unprecedented situation where cost reduction is imperative for survival. The newly emerging concept of reengineering is providing dramatic results in terms of productivity improvement and cost reduction through appropriate use of information technology.

**Improvement in Efficiency, Accuracy and Speed**

In addition to improvement in white-collar productivity and cost reduction, computer applications in business provide other benefits as well. These benefits are in terms of improvement in efficiency, accuracy and speed.

With computerized system for money management, the time required for transfer of funds from one city to the other can brought down. By the conventional method of mail transfer or telegraphic transfer of funds, banks used to take a couple of days for funds transfer. The efficiency of this activity can be improved through computerization. The funds transfer can be achieved within one day.

**Introduction to Reengineering Concepts**

Reengineering is one of the concepts that have taken the corporate world by storm. Even though the concepts are relatively new, it has generated keen interest and a number of
business organizations have adopted reengineering to their advantage. Reengineering is spreading like wildfire in the corporate world irrespective of the size of the organization or the products or services offered.

Using the information technology solutions, reengineering declares certain age old rules as outdated and sets new rules. Reengineering challenges some of the fundamental assumptions that are reflected in business operations. For example, in the past, one of the fundamental assumptions was “information is available at a given place at a given time”. If one wants to get the information, one has to look for it at the right place. With the availability of information technology tools, this rule is considered as outdated. With computer networking features, information can be accessed simultaneously from as many places as required by the organization. Another age-old rule is that the business organization must decide between centralized and decentralized operations. The information technology tools available today permit business organization to have a blend or combination of centralization and decentralization. Business organization can get the benefits of centralization as well decentralization at the same time.

Concept of reengineering has wider ramifications in a business organization. Computer applications are just one of the many areas which are witnessing change due to reengineering. Information technology has an enabling role in reengineering the business processes. With this role, the impact is felt the way computers are being used for business applications. Typically, business applications of computers are built around the requirements specified by the users.

A number of standard business applications are built around given rules and specifications. Computer applications are generally oriented around the departments, which is the user of the application. In the conventional wisdom, the information technologist would not challenge the procedural steps that are defined by the users. The steps or the procedure details may be discussed and slightly modified during the design phase of the project. However, the modifications to existing procedures are not of major nature.

The orientation of computer applications earlier was mainly towards departments or functions. Reengineering cuts across the departmental boundaries and addresses the issues through business processes. Business process of activities that together produce a
result that is of value to the customer. Business organizations achieve their goals and objective through these business processes. With this change in orientation, the orientation of computer application too is undergoing change. The concepts of Reengineering are oriented around business processes. The objective is to streamline the processes to make them more efficient and to eliminate waste wherever possible, in order to reduce cost and improve the performance. Effective and efficient processes are responsible for producing goods and services of the right quality at the right cost. As a result, computer application designed for such business processes also are not confined to individual departments but have a wider orientation towards a business process [23].

7.4 IT-enabled Services

The phenomenal growth of information Technology (IT) in India has brought to the force the growing significance of the country as a knowledge powerhouse. This along with other services sectors is increasingly contributing to the high growth rate of the economy over the last three to four years. Now, India has emerged major service providers for IT services. The Dynamic IT industry is supporting to the global profession performance for upgrading and modifying the available resources. The sectors like industry, finance, insurance, communication and transport are applying this technology at a larger scale. It is only the agricultural sector that is lagging behind in the utilization of the IT services. Trade in information technology (IT) and information technology enabled services (IT-ES) is the main driver of India’s growth of trade in services. The planning commission has made the forecast of the Indian IT and ITES exports during the period 2007 to 2012. It is expected that the exports from IT and ITES services exports will cross 86 billion US dollars while for 2007-08 the exports will be of 37.6 billion dollars. This indicates that the exports will cross 86 billion US dollars while for 2007-08 the exports will be of 37.6 billion dollars. This indicates the export the export will increase by 130.35 over the period of 5 years from the export of IT and ITES services. The export forecasts are highly significant for the country showing the role to be played by the IT vibrant sector in India at the international level [78].
### Table 15 Growth of IT-ITES professionals- Indian It sector: Knowledge professional Employed (in '000)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>IT, Engineering, Software</td>
<td>162</td>
<td>170</td>
<td>205</td>
<td>296</td>
<td>390</td>
<td>513</td>
</tr>
<tr>
<td>Product exports</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITES sector</td>
<td>70</td>
<td>106</td>
<td>180</td>
<td>216</td>
<td>316</td>
<td>409</td>
</tr>
<tr>
<td>Domestic sector</td>
<td>198.114</td>
<td>246.25</td>
<td>285</td>
<td>318</td>
<td>352</td>
<td>365</td>
</tr>
<tr>
<td>Total</td>
<td>430.114</td>
<td>522.25</td>
<td>670</td>
<td>830</td>
<td>1058</td>
<td>1287</td>
</tr>
</tbody>
</table>

Source: compiled from Government of India, planning Commission, Eleventh Five-year plan (2007-12)

#### 7.5 Information Technology in the banking sector

Information Technology has transformed the functioning of business all over the world. It has enabled better decision-making based on the latest and accurate information reducing cost and improving efficiency. The banking sector in India like other developed countries is also a major gainer from the technology. The sector is provider of many new products and services which are IT-centered. There has been an effective integration of business practices with technology. There is a growth of new delivery channels to the customers like Automated Teller Machine (ATM), which is widely used by a common man in India and even in the rural areas this is in practice. There is internet banking system. The RBI has played a major role in the implementations of IT in the banking sector. There has been a focus on the better housekeeping, improved customer service and overall increase in the efficiency of the system.

There is another development called electronic banking (e-banking). This encompasses internet banking, telephone banking and mobile banking. It is the methodology of distribution of banking services and products by using electronic medium.

Legal recognition of electronic transaction and other means of electronic commerce provided by Government of India enacted the IT Act of 2000. The concepts that is also growing in India and elsewhere is E-money, called electronic money which will switch over the use of paper money this is a new product developing

#### 7.5.1 How to meet the Challenge of Competition?
Banks need to develop and offer new products and services commensurate to those developed and offered by their counterparts in a more cost-effective manner. Banks will have to diversify their operations into merchant Banking, Custodial services, Mutual Fund Management, Leasing, Hire purchase, etc. Banks will also, have to resort to increasing use of technological innovations made in the field by rapidly increasing the use of computers and telecommunication technology and introducing products / value added services such as ATMs, Telebanking, Anywhere Banking, Virtual Banking, Credit/Debit Cards, Banks will have to reduce the cost of their operations so as to offer better rate to their customers for retaining/purchasing business.

To establish global presence banks will need to:

- Update their technology and computerize their operations, improve payment, delivery and settlement systems, as well as greater access to Information about their operations and customers;
- Improve their work-culture and remove labour practice rigidities that have inhibited change;
- Have an alert and assertive management to give direction to their operations;
- Adopt new systems and procedures to enable them to cope in the changing milieu;
- Improve their service orientation and update skill levels to match customer requirements;
- Restructure their operations at branch levels and redefine role of branches with greater emphasis on specialization. Create special skills to anticipate and handling problems in specific areas and limit the role of the branch to specific market segments; and
- Become market driven and innovate new products and services to meet customer requirements.

Thus, facing the competition is the main challenge before the banks in future.

7.6 The Emerging Role of Bankers

The changing scenario in the financial field indicates that bank’s role in payment transmission services will gain more importance because the payment mechanism for all investments works through banking instruments like cheques and drafts. This service of the banks will increase rapidly. The increase in products and services of the financial
intermediaries will cause growth of demand and short-term deposits of the bank at higher rate than the long term deposits. As the present trend shows, the business of banking is going to be quite different in the future. With the changes in the economy, the banking sector has to re-orient itself. Banks will have to take steps to retain their existing customer base and will have to create and develop new customers. Some of the areas where changes may take place are mentioned below:

- **Customer Service**: Customer service needs priority. In bank’s agenda for business growth. Apart from providing service with a smile, banks may have to provide some other facilities like payment of bills, quickening the pace of their activities, and providing information service to their clients as per requirements under Banking Codes and Standards Board on India.

- **Mechanization**: For improving efficiency and reducing delays, computerization of operations inescapable.

- **Advertising**: To compete with non-banking financial instruments, banks have to pay more attention to advertise their schemes properly, particularly in rural and semi urban areas and to improve communication channels with such branches.

- **Interest Rates**: Banks their interest rates as determined by the market forces from time to time.

- **Working Hours**: Banks will have to fix working hours in such a manner that they may be able to serve clients of the branch/area in the best possible way. They have extended the period of working hours by resorting in double shift, seven days working or 112 hours banking (8 A.M. to 8 P.M.)

- **Service Charges**: With the expansion of payment transmission services through banks the banks will have to evolve suitable mechanism for charging service charges to their customers by precisely working out the cost of their services.

- **Deposits**: Banks have evolved new / innovative flexi deposit products to suit the needs of savers in different sections of the security.

- **Advances**: Under the new environment where the demand of bank credit may reduce banks will have to search for new areas / sectors for deployment of funds with a clear focus on profitability. Banks have to keep focus towards product areas suitable for corporate such as working capital, term loans, foreign currency loans and also towards
other retail products such as consumer loans, retail trade financing, housing finance etc. Banks will also have to look towards financing to such areas, which have so far remained untapped such as infrastructure sector, services sector etc. [21]. Thus in short, we can say that the focus of banking in the emerging scenario will change from transaction banking to relationship banking and will target to achieve total customer satisfaction and long-term relationships.

7.7 Testing Hypothesis

H0 => Software Engineering techniques not used for external field application for research study and to improve the overall performance of the system using IT tools.

H1 => Software Engineering techniques used for external field application for research study and to improve the overall performance of system using IT tools.

Following data accumulated from the various category of customers and staff of the urban cooperative (non scheduled ) bank. With reference to the prepared questionnaires we have gathered information and applied to the statistical method for the inference.

Table 16: Customers views on IT transaction system
Statistical testing

We have tested the data with reference to formulated hypothesis. After analyzing the data from the total population, it is found that calculated value of chi-square test is 1441.758. The calculated value is located at (n-1) degrees of freedom where n is number of dimensions i.e. (5-1) = 4

Chi-square is normally tested at 5% level of significance. i.e. The value is tested at 4 (degrees of freedom at 5%) significance level.

From chi-square table the value at 4 degrees of freedom at 5% is 9.488
Since calculated value is more than tabulated value then we should reject the null hypothesis and accept the alternative hypothesis.

<table>
<thead>
<tr>
<th>Category Of Customer/Grade</th>
<th>Excellent</th>
<th>Best</th>
<th>Good</th>
<th>Average</th>
<th>Poor</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service class</td>
<td>305</td>
<td>270</td>
<td>215</td>
<td>30</td>
<td>10</td>
<td>830</td>
</tr>
<tr>
<td>Industrialist</td>
<td>140</td>
<td>145</td>
<td>115</td>
<td>0</td>
<td>0</td>
<td>400</td>
</tr>
<tr>
<td>Housewife</td>
<td>16</td>
<td>19</td>
<td>17</td>
<td>3</td>
<td>0</td>
<td>55</td>
</tr>
<tr>
<td>Labor</td>
<td>28</td>
<td>40</td>
<td>62</td>
<td>0</td>
<td>0</td>
<td>130</td>
</tr>
<tr>
<td>Agriculturist</td>
<td>78</td>
<td>298</td>
<td>560</td>
<td>130</td>
<td>40</td>
<td>1106</td>
</tr>
<tr>
<td>Retired person</td>
<td>40</td>
<td>60</td>
<td>65</td>
<td>15</td>
<td>0</td>
<td>180</td>
</tr>
<tr>
<td>Business</td>
<td>83</td>
<td>172</td>
<td>115</td>
<td>60</td>
<td>0</td>
<td>430</td>
</tr>
<tr>
<td>Total</td>
<td>690</td>
<td>1004</td>
<td>1149</td>
<td>238</td>
<td>50</td>
<td>3131</td>
</tr>
</tbody>
</table>
Table 17: Customers views on Time reducing using by IT system

<table>
<thead>
<tr>
<th>Customers Class</th>
<th>Yes</th>
<th>Average</th>
<th>Sometime</th>
<th>Neutral</th>
<th>No</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service class</td>
<td>521</td>
<td>0</td>
<td>270</td>
<td>16</td>
<td>31</td>
<td>838</td>
</tr>
<tr>
<td>Industrialist</td>
<td>289</td>
<td>0</td>
<td>31</td>
<td>31</td>
<td>39</td>
<td>390</td>
</tr>
<tr>
<td>Housewife</td>
<td>31</td>
<td>2</td>
<td>15</td>
<td>9</td>
<td>8</td>
<td>65</td>
</tr>
<tr>
<td>Labor</td>
<td>71</td>
<td>9</td>
<td>30</td>
<td>11</td>
<td>9</td>
<td>130</td>
</tr>
<tr>
<td>Agriculturist</td>
<td>671</td>
<td>79</td>
<td>186</td>
<td>81</td>
<td>83</td>
<td>1100</td>
</tr>
<tr>
<td>Retired person</td>
<td>97</td>
<td>9</td>
<td>31</td>
<td>3</td>
<td>40</td>
<td>180</td>
</tr>
<tr>
<td>Business</td>
<td>277</td>
<td>7</td>
<td>115</td>
<td>8</td>
<td>23</td>
<td>430</td>
</tr>
<tr>
<td>Total</td>
<td>1957</td>
<td>106</td>
<td>678</td>
<td>159</td>
<td>233</td>
<td>3133</td>
</tr>
</tbody>
</table>

Source: Compiled from the questionnaire

Table 18: Statistical Tabulation on the above table

<table>
<thead>
<tr>
<th>Category</th>
<th>Observed Values (O_i)</th>
<th>Expected Values(E_i)</th>
<th>O_i - E_i</th>
<th>(O_i - E_i)^2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>1957</td>
<td>626.6</td>
<td>1330.4</td>
<td>1769964</td>
</tr>
<tr>
<td>Average</td>
<td>106</td>
<td>626.6</td>
<td>-520.6</td>
<td>271024.4</td>
</tr>
<tr>
<td>Sometime</td>
<td>678</td>
<td>626.6</td>
<td>51.4</td>
<td>2641.96</td>
</tr>
<tr>
<td>Neutral</td>
<td>159</td>
<td>626.6</td>
<td>-467.6</td>
<td>218649.8</td>
</tr>
<tr>
<td>No</td>
<td>233</td>
<td>626.6</td>
<td>-393.6</td>
<td>154921</td>
</tr>
<tr>
<td>Total</td>
<td>3133</td>
<td></td>
<td></td>
<td>2417201</td>
</tr>
</tbody>
</table>

Calculated Value = 3857.646; Degrees of freedom = 4

Chi-square distribution 0.05 = 9.488

We have tested the data with reference to formulated hypothesis. After analyzing the data from the total population, it is found that calculated value of chi-square test is 3857.646. The calculated value is located at (n-1) degrees of freedom where n is number of dimensions i.e. (5-1) = 4
Chi-square is normally tested at 5 % level of significance. i.e. The value is tested at 4 (degrees of freedom at 5% ) significance level.

From chi-square table the value at 4 degrees of freedom at 5% is 9.488.

Since calculated value is more that tabulated value then we should reject the null hypothesis and accept the alternative hypothesis. We have tested the end result in the formulated hypothesis. Tested the various techniques of software engineering for studying the external field application. We have found satisfactory results with respect to hypothetical consideration and granted the alternative hypothesis i.e. Software engineering techniques used for external field application for research study and to improve the overall performance of system using IT tools.

7.8 Data Analysis

Source: Compiled from the questionnaire

Inference: Graph -2 is represented views of IT transaction system from different customer categories. Graphically it appears that the, Column 1 shows “Excellent” category from the customers feedback, Column 2 shows “Best ” category from the customers feedback, Column2 shows “Good” category from the customers feedback, Column 4 shows “Average ” category and Column 1 shows “poor” category from the customers feedback. Hence it is confirmed that IT transaction system significant valuable for overall performance of the Urban co-operative banks (Non-scheduled).
Question: Whether there is a queue for transaction?

Source: Compiled from the questionnaire

Inference: From the above graph shows that, the pattern 3 indicates very less time taken for the overall transaction in UCB through IT system from total population. Pattern 5 indicates that population selected “Neutral” option. Pattern 2 indicates that, population found no queue in the transaction system. Population found pattern 4 is average in transaction system and in pattern 1, population found queue in transaction system.
Table 19: Whether IT system has reduced your time?

<table>
<thead>
<tr>
<th>Q.11</th>
<th>Yes</th>
<th>Average</th>
<th>Sometime</th>
<th>Neutral</th>
<th>No</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service class</td>
<td>521</td>
<td>0</td>
<td>270</td>
<td>16</td>
<td>31</td>
<td>830</td>
</tr>
<tr>
<td>Unemployed</td>
<td>75</td>
<td>07</td>
<td>62</td>
<td>09</td>
<td>75</td>
<td>165</td>
</tr>
<tr>
<td>Industrialist</td>
<td>289</td>
<td>0</td>
<td>31</td>
<td>31</td>
<td>289</td>
<td>400</td>
</tr>
<tr>
<td>Student</td>
<td>41</td>
<td>04</td>
<td>16</td>
<td>04</td>
<td>41</td>
<td>70</td>
</tr>
<tr>
<td>Housewife</td>
<td>31</td>
<td>02</td>
<td>15</td>
<td>09</td>
<td>31</td>
<td>55</td>
</tr>
<tr>
<td>Labor</td>
<td>71</td>
<td>09</td>
<td>30</td>
<td>11</td>
<td>71</td>
<td>130</td>
</tr>
<tr>
<td>Agriculturist</td>
<td>671</td>
<td>79</td>
<td>186</td>
<td>81</td>
<td>671</td>
<td>1100</td>
</tr>
<tr>
<td>Retired person</td>
<td>97</td>
<td>09</td>
<td>31</td>
<td>03</td>
<td>97</td>
<td>180</td>
</tr>
<tr>
<td>Business</td>
<td>277</td>
<td>07</td>
<td>115</td>
<td>08</td>
<td>277</td>
<td>430</td>
</tr>
</tbody>
</table>

Source: Compiled from the questionnaire

**Inference:** Data collected from the available resources, the above graph reflected that (series 01 level) more than 60% population has given the consent to reduce the time due to IT tools is used in External Field Application. Series 03 levels indicates that more than 20% population has consented only sometime reduction of time and Series 05
levels marks the average, it means not every time and some time but little bit time is reduced during transaction. Series 04 levels population has given the consent in neutral. They are not positive either in remaining levels and series 02 levels strictly indicates there negative consent regarding time reducing.

- Time reducing is one of the important parameter for the development in any sectors. Reducing time can be channelized in any other positive valuable activities for overall development. From the above survey, it shows that use of IT tools makes time availability and that can be utilized in self development, ultimately the social and National development.

Table 20: Whether IT system has saved your money?

<table>
<thead>
<tr>
<th>Q.12</th>
<th>Yes</th>
<th>Average</th>
<th>Sometime</th>
<th>Neutral</th>
<th>No</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service class</td>
<td>265</td>
<td>05</td>
<td>489</td>
<td>31</td>
<td>40</td>
<td>830</td>
</tr>
<tr>
<td>Unemployed</td>
<td>65</td>
<td>08</td>
<td>71</td>
<td>07</td>
<td>14</td>
<td>165</td>
</tr>
<tr>
<td>Industrialist</td>
<td>41</td>
<td>18</td>
<td>279</td>
<td>33</td>
<td>29</td>
<td>400</td>
</tr>
<tr>
<td>Student</td>
<td>14</td>
<td>03</td>
<td>43</td>
<td>03</td>
<td>07</td>
<td>70</td>
</tr>
<tr>
<td>Housewife</td>
<td>13</td>
<td>0</td>
<td>25</td>
<td>07</td>
<td>10</td>
<td>55</td>
</tr>
<tr>
<td>Labor</td>
<td>16</td>
<td>0</td>
<td>69</td>
<td>13</td>
<td>32</td>
<td>130</td>
</tr>
<tr>
<td>Agriculturist</td>
<td>261</td>
<td>14</td>
<td>669</td>
<td>85</td>
<td>71</td>
<td>1100</td>
</tr>
<tr>
<td>Retired person</td>
<td>38</td>
<td>42</td>
<td>99</td>
<td>06</td>
<td>05</td>
<td>180</td>
</tr>
<tr>
<td>Business</td>
<td>89</td>
<td>0</td>
<td>164</td>
<td>73</td>
<td>104</td>
<td>430</td>
</tr>
</tbody>
</table>
Inference: The economic view is a very sensitive parameter with respect to customer’s satisfaction levels. Series 03 indicates the highest level and it indicates that more than 50% population has consented for money save option. Series 01 levels indicates, customers feels some time to save the money.

Question: Do you think that IT tool is useful for up gradation of banks status?

Source: Compiled from the questionnaire

Inference: From the above graph, it shows that more than 50% people showing their consent that IT tools are useful for the up gradation in External Field Applications(EFA) i.e. Urban Co-
operative Bank (Non-scheduled). We have taken the consent from the various categories of customers like Service people, Industry people, Agriculture people, Retired persons and Business persons. The study has been taken on the basis of software engineering techniques this provides one of the end results from the available data. Eventually, it indicates the IT tools are the significant parameters and provides the key role for the upgradation in the system.

Question: Working culture with IT system

![Graph q10- Employee Views]

**Inference:** Information gathered from questionnaire which is filled from the employee of External Field Applications (EFA). It indicates from the above graph, people doing the work in IT culture system showing their consent more than 50% people that IT tools are “Best” while working in the system. More than 20% people showing their consent as a "Excellent” remarks for the IT Tools in the system. The study has been taken on the basis of software engineering techniques this provides one of the end results from the available data. Eventually, it indicates IT
tools are the significant parameters and provides the key role for the upgradation in the system as per the employee’s perceptions.

Question: Do you think, there is increase in efficiency in working?

Inference: The above graph reflected the efficiency of work in the system. It indicates, more than 80% population consented that, the IT tool uses in the EFA, it increases the efficiency level. Due to increasing number of customer in the EFA, it does not make any remarkable impact on efficiency.
Question: How do you face the situation of machine (IT system) failure while on work?

**Inference:** During the working time, it is required to consider mental position of the employee while IT system goes to fail. On the basis of information from questionnaire, it has been found that pattern 05 indicates, around 50% people handle the situation very peacefully if the machine failure incidents occurred. The second largest consent has given to pattern 03 which is manageable. If the machine failure situation occurs then employee can handle it and makes it manageable. Pattern 01 represents that, such situation handle in very hard mental position. Very less people want system should be failure and it represent in pattern 02. Pattern 04 indicates, population has not given any comments with respect to machine failure occurs.
Question: Whether IT tool is useful for upgradation of bank status?

**Inference:** In the present business competition scenario in the various financial sector IT tool is useful for upgradation of bank status. But, at the same time we definitely considered other parameters like speed of system, storage capacity, backup, security etc.
Question: IT system useful for personal overall development (like motivation) etc.?

**Inference:** From the above graph represent that IT tool not only used for upgradation of bank status but it also gives the motivation for personal overall development. While working on IT system, it feels that the system is very efficient and useful. It shows that the thinking of population should going to transfer and preferred the atomization system.
Question: Do you feel IT system affects badly on health?

Inference: Health is very important parameter while working on the system. Therefore, we have called the views of employee through questionnaire. It has found that around 40% (series 01) people consented IT system not affect on health and no physical problem occurs during working on IT system. Series 04 indicates, sometime employee feels IT system affect on health. Series 03 represented, system neither reflected nor affected. Series 02 indicates peoples are neutral on the question, no comments gas given and lastly series 05 represented system affects on health.
Question: Has the system reduced your duration for completing particular job?

Inference: the consent has given more than 80% population that time duration has been reduced for completing the job. Series 04 indicates, people have not given any consent and series 02 indicates reflected as neutral. Its good moment to reduce the timed for completion of task in schedule period or within the period. It reduces the load of the work. It is increases the motivation level and efficiency of the staff. The working culture can also be improved. The utilization of saved time is the opportunity to develop their skill and make it all rounder development. In other words-white collar productivity can be improved by using modern system.
7.9 Findings

- Overall operations are more efficient and reliable by introducing technological developments in the system and are providing services to their customers.
- The role of decision makers is significant in cooperative banks on Information Technology for deployment of IT system.
- Senior employees are not fully familiar with IT system, therefore it affect the efficiency of work but their experience makes useful.
- It is observed that most of the customer requires, improvement and updating in the system.
- Culture of working methodology by using IT tools in the system is satisfactory and increases working efficiency.
- Most of the customers has given the consent to reduce the Time by using IT system.
- Customers views on IT transaction system is on satisfaction level.
- Population has given positive consent for saving the money.
- IT tool is useful for up gradation of banks status.
- The situation is manageable when machine (IT system) failure while on work.
- IT system useful for personal overall development (like motivation) etc.
- Majority of people has consented that IT system not affects badly on health.
- IT system reduced time duration for completing particular job.
- Analyzed the overall performance of the system using IT tools in Urban Co-operative (Non-Scheduled) Bank by using techniques of software engineering model.
- Computerization as a mean to improve customer service in the system and welcome it in that spirit.
- The Urban Co-operative Bank (Non-Scheduled) are lagging behind sectors of banking area and by implementing this method the status of bank will be upgraded in less price.
• Enhanced the capabilities of UCB (non scheduled) to fight foreign Competition.

7.10 Recommendations

• To enhance the base of computerization in the IT system,
  Computerization is no doubt investment oriented, when the entire financial sector in the country is marching ahead with computerization, non schedule cooperative banks cannot be lag behind.
• The design of IT management functions should be precise.
• To reduce the complexity of IT functions in the system.
• The level of technical informative gap should be reduced for speed and efficiency in the IT system.
• The Time frame technical advancement requires for deployment of existing IT set up.
• Serious thought should be given on use of wireless technology aspects.
• Requires precise technological advancement with respect to monitoring and controlling.
• Staff training is needed in order to increase the efficiency. This will lead to provide Urban Cooperative Banks to play significant role in Indian banking sector.
• Connectivity to all branches to be required
• Speed should be enhanced
• Wireless system should be adopted
• ATM & SMS banking facility should be adopted
• Software of banking system should be update, it should be latest and updated version
• Supplier of software and hardware should be provided by the one organization to save the time and money
• IT system used specific transaction purpose
• Separate counter/branch should be for senior citizen for giving special facility and warm welcome.
• Training gives for specific purpose
• It should be all people
• RTGS system should be there
• Transaction should be all corners
• Database information should be provided by the software
• *Software should be same for all Urban co-operative non scheduled bank*
• There should prepare on IT related information brochure which should reflect latest relevant IT information of UCB(non scheduled).

7.11 Conclusions

Software Engineering methodology includes the disciplinary way of development of software productions which will make it efficient and cost effective. The most of the subject areas around us are relevant to development of human being. For accepting today’s challenges and tomorrow’s opportunities, people can use software engineering methodology for getting precious outcomes. To remove the clutter (confusion), vague in the study and to get step by step improvement in the study area and obtaining quality outcome, this techniques are very lucrative as compared to conventional methods. Its proposed way of methodology and discipline used for External Field Application(EFA).

• Extracted techniques of software engineering model as a tool or methodology for studying external field application. Eventually, it is observed that such techniques used for studying external field application (EFA).

• To remove the clutter (confusion), vague in the external field study and to get step by step improvement in the research area and obtaining quality outcome, software metrics techniques are very lucrative as compared to conventional methods.

• This techniques which can be convenient for keeping it as a role model for obtaining significant outcome from the external field study work. Its right way of methodology and discipline used for external field study.

• Speed, efficiency, customization occurred due to adoption of new technology in the system
Productivity and efficiency level increases by using IT Tools in the system.

The efficient levels have been achieved without increasing the number of Staff.

The various transaction and services provides by the co-operative finance system to the various type of customer class. The customer like employee people, Industarlist, student etc. they accesses the services for their financial requirement.

Improved and efficient functioning in the organizations.

Technological progress and infusion brings major changes in the overall functioning of organizations.

In this modern era of ever-increasing competition, survival and growth of nations, and business firms, depends upon successful management of the following:

- Technology
- Innovation
- Change

7.12 Future Enhancement

This thesis suggests future directions to further enhancement by using another techniques of software engineering. The future directions are related to Clean Room Software Engineering (CSE) concept. The scope till remains to use this techniques for enhancement. We can use Clean Room Software Engineering (CSE) for further enlargement of project objectives. Here we are giving the fundamental theory and model of CSE for future scope.

Clean Room Software Engineering (CSE)

A model of clean room process is shown in figure 21. The objective of this approach to software development is zero-defects software. CSE is an approach that stresses the need to build correctness into the software as it moves through product and project life cycle. It rejects the classical model of development i.e. analysis, design, code,
test and debug. The philosophy of CSE is: write the code first time so perfect and verify its correctness before testing.

The clean room approach to software development is based on five key strategies:

1. **Precise Specification** The product to be developed is precisely specified. A state transition model that shows system responses to stimuli is used to express the specification.

2. **Incremental Development** The software is partitioned into increments that are developed and validated separately using the Clean room process. These increments are specified, with customer input, at an early stage in the process.

3. **Structured programming** Only a limited number of control and data abstractions constructs are used. The program development process is a process of stepwise refinement of the specifications. A limited number of construct are used and the aim is to systematically transform the specification to create the program code.

4. **Static verification** The product is statically examined by using strict software inspections. There is no unit or module testing process for code components.

5. **Statistical testing of the system** Reliability determine by using the statistical methods for software. With the support of System specification, the statistical testing depend on operational file as shown in figure 20.0 [75]

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**Figure 20**: The Cleanroom Development Process

Source: Software Engineering by Sommerville, p.557
7.13 Value of Techniques

The technology available with us to mould it as per the system requirement. The merits of the modern techniques of the system should get when to plan the activities precisely. Though the technology is very fast, reliable, efficient and cost effective but use should be as per the work priority. It communicates the status of the task so that alertness is possible.

Today’s Technology is changing very fast. Globalization is an significant movement of integration of various world policies and the world is undergoing a, technical revolution, through the new information-processing technology of communication. Therefore, it is necessary to adopt modern technological techniques in finance institution system. Due to increasing the number of customers of various urban cooperative banks systems it is needed to use such type of modern techniques. To accept the change for development it is necessary and to face the challenges of present system the proposed system can be used as per the requirement to reduce the vast load. The system can be modified to make it more efficient so that the database should be properly maintained and the result got effectively.

**Tangible benefits:**
- Improves the business process and personnel
- Revenue increases
- Cost reductions in the Paper and postage
- Stock obsolescence reduced
- Reduction in money and time
- Service provided to other organization
- Automation increases
- Less time in specified transaction process
- Working efficiency increases
- Enhance motivation level

**Intangible benefits**
- Increases transaction transparency and responsibility
- Accurate and faster access to data for timely decisions
- Improved customer response
- Saves enormous time and effort in data entry
- More controls thereby lowering the risk of mis-utilization of resources
- Facilitates strategic planning
- Uniform reporting according to standards