A SOFTWARE APPROACH TO ANALYSE INTERPOLATION TECHNIQUES ON BATHYMETRY DATA

Selva Balan¹, Raghak Radhakrishnan², CRS Kumar³

Abstract:

Prediction accuracy of gridded results that are generated from bathymetric surveyed data is of high interest for various hydrological analysis. The data consisting of depth values is collected remotely at various location. For such an unevenly distributed data, choosing a reliable interpolation scheme, is a great challenge as most of them do not provide any means of estimating the interpolation error. The noises present makes it futile for analysis. Noises present may lead to false interpretation of depth profile. The paper presents a GUI (Graphical User Interface) which provide the optimum interpolation from statistical analysis of data.

Keywords—Bathymetry data, Interpolation, Root mean square error.

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1. INTRODUCTION

Bathymetric surveying has undergone many conceptual changes in the last few decades, due to the availability of the echo sounder. Rapid advances continued with the development of multi-beam sounders and laser systems, which can gather high-density data samples and enable the development of a realistic underwater bottom model.[1][2]

Echo sounding method involves application of a type of SONAR used in measurement of the depth of water by transmitting sound pulses into water. The time interval between the emission and reception of the pulse is used for determining the depth of water from the known speed of sound in water at the time. [3]In areas where detailed bathymetry is required, a precise echo sounder need to be used for the work termed as hydrographic survey.

Echo sounders are of two type:single-beam (SBES) or multi-beam (MBES) echo sounders. SBES is still the most commonly used and provides valid results when used correctly. The disadvantage of SBES is that it measures only a narrow portion of the reservoir bed floor. Whereas MBES can provide continuous coverage.[4]Accurate modelling bathymetric models are crucial to interpolate the depths.

In this paper the data is collected from MBES which is a part of Geographical Information System (GIS) in which the data collected is in X, Y, Z format. X and Y are the global coordinates measured by Global positioning system so it is not possible to see and analyse the profile of the water bed from this raw data. Hence some pre-processing is required to bring the data into mesh grid format so it can be visualized as a three dimensional surface. Since the acquired depth samples are at uneven intervals, it is not evenly distributed. Also the reflection of sound waves in water results in noise. This results in addition of noise in the data. Therefore there is a need for developing a system to predict the noise model in bathymetry data. For creating the complete profile with few depth samples, interpolation techniques are used. Finding a reliable interpolation scheme, especially for unevenly distributed data is a great challenge since most of them do not estimate the interpolation error.[5] This paper does a comparative study on the interpolation methods and suggest a base software which will provide
an accurate result based on the statistical analysis.

The rest of the paper is organized as follows. Section II describes the proposed system design.

The components of a bathymetry data analysis system are depicted in. The system receives the bathymetry data set in spreadsheet form, followed by interpolation. Based on the statistical analysis, better combination of interpolation method will be displayed.

II. DATA ANALYSIS SYSTEM

- **Cubic**
  Cubic spline is a piecewise polynomial function that contains n-1 cubic polynomials[9], i.e. interpolating on the partition $x_0, x_1, ..., x_n$, $f$ is a function for which $f(x_k) = y_k$, defined on ranges $[x_k, x_{k+1}]$.

  The basis function for cubic is given by,

$$g(x) = \begin{cases} (a + 2)|x|^2 + (a + 3)|x|^3 + 1 & 0 \leq |x| < 1 \\ (a|x|^2 - 5a|x|) + 8a|x| - 4a & 1 \leq |x| < 2 \\ 0 & 2 \leq |x| \end{cases}$$

- **Nearest neighbour**
  The nearest neighbour interpolation technique assigns the value of the points whose centre is closest to the centre of the output cell. It is the interpolation technique for discrete, or categorical, raster data, such as surface mesh, because it does not change the value of the input cells. In this method the output value on the mesh point is the value of the nearest neighbour to that mesh point[10]

$$g(x) = \begin{cases} 1 & -0.5 \leq |x| \leq 0.5 \\ 0 & \text{otherwise} \end{cases}$$

- **Natural**
  Natural neighbour is a weighted-average interpolation method. It creates a Delaunay Triangulation of input points and selects the closest node that form a convex hull around the interpolation point.[10] When the data points are distributed unevenly, this is the most appropriate interpolation methods.

$$g(x) = \sum_{i=1}^{n} w_i x_i$$

B. Volume and Area Calculation

Finally the volume $V$ (cubic meter) and Area $A$ (square meter) of the 3D plot is calculated by Trapezoidal rule given by[8]
\[ V = \frac{\Delta y}{2} [A_1 + 2A_2 + 2A_3 + \ldots + 2A_{n-1} + A_n] \]  
(5)

\[ A = \frac{\Delta x}{2} [G_{i,1} + 2G_{i,2} + 2G_{i,3} \ldots + 2G_{i,n} + G_{i,n+1}] \]  
(6)

Where \( \Delta x \) represents the grid column spacing, \( \Delta y \) represents the grid row spacing and \( G_{i,j} \) represents the grid node in row \( i \) and column \( j \).

C. Statistical analysis:

Mean, minimum, maximum, Root mean square error and others are the statistical parameters to evaluate the overall performance of the interpolation method[11]. The most widely used is Root mean square error which measures the deviation in the actual value and the predicted value.

\[
\text{RMSE} = \sqrt{\frac{1}{N} \sum_{i=1}^{N} (Z_i(x,y) - \hat{Z}_i(x,y))^2}
\]  
(7)

Standard deviation expressed as:

\[ \sigma = \sqrt{\frac{\sum (X - \bar{X})^2}{n}} \]  
(8)

The expression for variance is given by:

\[ \sigma^2 = \frac{\sum (X - \bar{X})^2}{n} \]  
(9)

Based on the RMSE standard deviation and variance values, the best interpolation method is considered.

III. RESULTS AND DISCUSSION:

The System analysed is based on the data from a reservoir in India consisting of around 25000 values. The entire data is plotted with a grid interval of 1 meter. The user interface is made using OCTAVE 3.0 software. The output of the software after analysis is given:

The analysis is done by choosing the method having the least RMSE value.

![Fig 2. GUI Layout](image)

The Graphical User Interface also provides saving the statistical values in spreadsheet for analysis.

<table>
<thead>
<tr>
<th>Interpolation Technique</th>
<th>Std Dev</th>
<th>Var.</th>
<th>RMSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nearest</td>
<td>0.468</td>
<td>0.516</td>
<td>0.003</td>
</tr>
<tr>
<td>Linear</td>
<td>0.321</td>
<td>0.340</td>
<td>0.005</td>
</tr>
<tr>
<td>Natural</td>
<td>0.318</td>
<td>0.391</td>
<td>0.003</td>
</tr>
<tr>
<td>Cubic</td>
<td>0.363</td>
<td>0.326</td>
<td>0.002</td>
</tr>
</tbody>
</table>

Table 1: Sample Statistical results
The Analysis can be also done by histogram profile of the methods. The density of distribution for various methods can be judge from the analysis of histogram.

![Histogram profile](image)

**Fig 3. Histogram profile**

### IV. CONCLUSION:

Accurate prediction of volume of water is essential for reservoir water management especially for dredging processes. This paper presents a comparative study of various interpolation applied on bathymetry data of a reservoir. Four different interpolation techniques namely linear interpolation, cubic interpolation, nearest neighbour interpolation, and natural interpolation. Based on the results of the study, there is no certainly best interpolation technique but only the optimal choice for the considered bathymetric data based on the statistical analysis. One should first review the characteristic and theorem of each method as well as the property and spatial analysis of data before successfully select the interpolation method which is relatively best in certain situation. The created system has concluded that linear method is better for considered set of data. The volume and area was also calculated for estimating the amount of dredging.

### ACKNOWLEDGEMENT

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ROLE OF SMALL SCALE INDUSTRIES IN RURAL DEVELOPMENT WITH SPECIAL REFERENCE TO MAHARASHTRA STATE & IT’S INDUSTRIAL POLICY 2013

Dr. Subhash Dhone

Abstract:
India has been an agrarian country from time immemorial and happens to be agrarian country even today. The population of India is ever-increasing after every successive year and more so after independence. Though almost 80% of population is directly or indirectly depending upon agriculture for earning their livelihood, their standard of living has not been improved and improving even after 70 years of independence. The growth rate in agriculture has been contained to the average 2.5 to 3% and hence the agriculture has to be supported with industries, if the overall growth rate of the country has to be increased and standard of living of people of the country has to be improved. Maharashtra has been trying to boost the industries and especially, small scale industries along with agriculture, to improve the standard of living of the people in the state. Right from its formation in the year 1st May 1960, Maharashtra has been one of the very important states of the country, contributing a highest Gross State Domestic Product (GSDP) to the national exchequer. It is a second largest state in terms of population after the state of Uttar Pradesh and third largest in terms of geographical area after Madhya Pradesh and Rajasthan, respectively. The state capital i.e. Mumbai is known as Financial Capital of the country. The state is one of the most industrially advanced states, as compared to other states of Indian Union, having its 45.23% population residing in urban areas as compared to 31.16% of all India. The state’s population is 112.3 million which comes roughly to 9.28% of the country. The State’s contribution to the National exchequer is as much as 14.93%, which is much more, as compared to the contribution made by any state in the Country. The state has natural advantage of its 720 kms coastal border in many respects and makes the state industrially advanced states in the country. With all such distinguished features, the state is progressing industrially, right since independence and the role played by small scale industries, in the industrial development and progress of the state is noteworthy. This paper shall attempt to highlight the role played by small scale industries/sector for the development and progress of the state, the problems faced by small scale industries in general and in the state of Maharashtra as special, the provisions made by Maharashtra State in their Industrial Policy Resolution 2013, with some valuable suggestions.

Key words: GSDP, national exchequer, industrialization, technical advancement, fiscal assistance, enhancement, indigenization, contribution, resource mobilization, skill development

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Introduction
Maharashtra State is one of the industrially advanced state in the country having lot of potential for establishment and development of small scale industries, especially agro based industries and that is why it is stated that State of Maharashtra is really boon for the country as a whole, as the state is having lot of unique features over other states of this Indian Union. The Gross State Domestic Production of the state for the year 2011-12 is Rs. 901330/-crores and a per capita income of the state is Rs. 1660/- as compared to per capita income of the country of Rs. 1219/-. As much as 46 % of the state’s population is living in urban area. The presence of Bollywood, Head Offices major all India Institutions, RBI, Major Commercial Banks, LIC of India, Television Industry, Largest Stock Exchange of Asia i.e. Bombay Stock Exchange, IT software parks in the cities of Pune, Mumbai, Navi Mumbai, Nashik etc, making the state as second largest exporter of software with annual export of Rs. 18000/-crores, accounting for 30% of total export of the country, and 1200 units of software based in the state. The state also introduced Jatropha cultivation as a alternative source of Diesel as a fuel used for all commercial as well as private transport vehicles. Ralegan siddhi is a model of environmental conversation. Hivare Bazar, as model of All India Training Institute for Village Sarpancha. Maharashtra state is industrially advanced state, contributing 13% of national industrial output.46% of GSDP is contributed from industry. Veteren textile cities like Nagpur, Solapur, Ichalkaranji, Malegaon, Bhiwandi and of course Mumbai are in the state of Maharashtra. Sugar industries, and that too under co-operative sector as small scale industry, is unique in itself. Vaikunth Mehta National Institute of Co-op. Management (VAMNCOM) and Vasantdada Patil Institute of Sugar,are located in the state. With these unique features, the state is recognized as one of the industrially advanced states in the country. And the strength of it is basically small scale industries and cottage industries, spread over most of the parts of the state through its various Industrial Estates and MIDC. Small scale industries are the backbone of industrialization of the state.

Small Scale Industries in the development of State
In Maharashtra, Small Scale industries are spread over in the production areas of Automobiles, Biotechnology, Consumer durables, Chemicals, Engineering, Electronics hardware, Information Technology, Petrochemicals, Textiles, Food Processing, Sugar, Wineries, Pharmaceuticals, Plastics etc. Productions and manufacturing of 3 wheelers, 2 wheelers, jeeps, commercial vehicles, synthetic fibers, industrial alcohol etc is undertaken by small and medium scale industries of the state. MSMEs are engaged in the production of small parts required for automobile and engineering industries and hence they are also playing very vital role in the industrialization of the state. The role of Micro, Small & Medium Enterprises can be highlighted with following points:

- Eradication of Poverty
- Generation of Employment
- Rural Development
- Removal of Regional Imbalance
- Contribution of 40% output value
- Mobilization of resources and entrepreneurial skill
- Equitable distribution of income & wealth
- Technology up-gradation
- Indigenization – indigenous resources and management skills
• Export promotion
  In all above field and segment, through different activities, the small scale and medium scale industries are giving their utmost contribution for the national as well as state exchequer.
  In the state of Maharashtra, MSMEs are the backbone of industrialization. Much has been done through expansion of MIDCs in urban and semi-urban areas. Many such sectors have been taken over by these industries right from proprietorship business to small ventures in joint stock companies.
  Co-operative movement is spread in almost all the sectors from sugar factories to production on honey and marketing federations to processing industries. Even the Self Help Groups are working on co-operative basis in urban and semi-urban areas.
• Basic Problems of Small Scale Industries
  Small Scale industries, though they are very vital in the industrialization of the state and center, they are facing various problems at various locations. Some of the problems can be generalized as below:
  • Problem of finance and Credit – Since the assets of Small Scale industries are very small in values and the production is also in small quantity, they do not have more valuable assets for mortgage, hence no banks are coming forward to extend credit facilities to SSIs.
  • Infrastructural Constraints – No much infrastructure is required and even affordable by SSIs
  • Constraints of raw material, Especially imported raw material – Costly raw material, especially imported raw material has always been a constraint for the SSIs
  • Machines & Other equipments – Costly machines and costly modern equipments beyond reach of most of the SSIs, owing to different problems
  • Problems of Marketing – Most of the times the local market is not adequate and the marketing activities are to be undertaken out of state or even exports, which is very difficult for SSIs
  • Problems of sickness/non-viability – Most of the SSI units are turning to be sick and non-viable after few years of operations and they are advised to be closed by BIFR
  • Poor Data Base – SSIs are producing various commodities but the data base is very poor and hence no purchasers are approaching to SSIs for purchase of materials from them
  • Adverse effect of Globalization – SSIs are the most and worst affected segment of the globalization as they cannot compete with global giants.

Govt. of Maharashtra’s Industrial Policy Resolution 2013 :
Maharashtra has been enjoying the status of one of the preferred industrial investment destination in the country, right from the formation of the state and even before that as well, and especially after adoption of liberalization policies by the union govt.
Maharashtra is highest in matter of investment and economic growth, which is evident from the fact that the state has registered GSDP of 16.8% as against the GDP of 14.7% of the country during the period 2005-06 to 2009-10.
Maharashtra Govt. came out with a very Comprehensive Industrial Policy Resolution 2013, with many facilities to industries in general and lot of incentives for the small scale industries, in particular.

Salient Features of Industrial Policy 2013
Maharashtra State’s Industrial Policy 2013 focuses on following aspects/parameters:
- Increased focus on less developed regions of the state to bring them on par with mainstream industrial development.
- Customized package of incentives for ultra mega and mega industrial investment
- Holistic approach of MSME development
- Initiatives of encouraging employment incentive industries
- Path breaking initiatives for investor facilitation ease of business
- Optimal utilization of land for industrial development
- Strengthening of industrial infrastructure
- Assistance to unviable sick units for easy exit and viable sick units for revival
- Incentives to bring about sustainable industrial development.

Objectives of Industrial Policy 2013
Govt. of Maharashtra stated following Objectives of Industrial Policy 2013:

- To retain Maharashtra’s leadership position in industrial investment in the country
- To accelerate further investment flow for industrially underdeveloped regions
- To create more employment opportunities

Targets of Industrial Policy 2013
Following are the set targets fixed by the Govt. of Maharashtra for achievement:

- To achieve manufacturing sector growth rate to 12-13% per annum
- To achieve manufacturing sector share of 28% in state GDP
- To create 2 million persons new jobs
- To attract investment of 5 lac crores (5 Trillion)

It is to be noted that this Policy shall be valid up to 2018

Financial Incentives for MSME Projects in Industrial Policy 2013
Following are the incentives given for micro, small and medium scale enterprises in the industrial policy of 2013:

- **Industrial Promotion Subsidy** – Equal to VAT on local sales + CST payable
- **Power Tariff Subsidy** – Re. 1/- per unit consumed in the region of Vidarbha, Marathwada, Konkan, North Maharashtra and Rs. 0.50/- per unit in other region
- **Interest Subsidy** – of 5% to maximum up to value of electricity consumed and bills paid for the year.
- **Food Processing Units** – shall be provided additional 10% incentives in addition to eligibility period by one more year.
- **75% Reimbursement** – of cost of water and energy up to Rs. 1 lakh for water and Rs. 2 lakh for energy would be taken into consideration for such reimbursement.
- **Incentives would be given for improvement of quality** – i.e competitiveness, R & D, Technology upgradation and cleaner production
- **Stamp Duty Exemption** – up to 100% would be given over and above other incentives to eligible MSMEs.
- **Exemption of Electricity Payment** – 100 % exemption of electricity payment in Naxal Affected regions/area in total eligibility period.

**Provision of Finance** – Timely, adequate, low interest finance provision for critical inputs for survival and progress for the units.

Other Incentives in the Industrial Policy 2013
Apart from above incentives, Govt. of Maharashtra also offered some other incentives, especially for the Micro,
Small and Medium scale industries, which are listed below:

- Special incentives for industries in Naxal affected areas
- Amnesty Schemes for un-viable and closed units
- Amendment in Bombay Tenancy & Agricultural Land Act 1948
- Industrial Location Policy in Mumbai Metropolitan Region
- Proportionate recovery from closed units
- Royalty & Non-Agricultural Exemptions

Findings & Suggestions

This is not the only fact that Govt. of Maharashtra has come out with such incentives and the Industrial policy for the state but efforts have also been made for balanced economic development, wiping out regional imbalances, in the past also. However, regional imbalance has always been a reality in the state. It may be deliberately by political reasons or because of natural factor endowments. Konkan area and western Maharashtra has developed tremendously, industrial as well agricultural development reached to the peak but Vidarbha and Marathwada regions are most neglected regions and miles away from development. Though Separate Regional Development Corporations have been established for Vidarbha and Marathwada, the Corporations are starving of funds many a times or the funds are not spent for the purpose of sustainable development. Mega projects are resting around Mumbai, Pune, Nashik, Solapur. But such projects are not going to interior of Marathwada and other places of Vidarbha other than Nagpur. These regions are having lot of potentials i.e. very cheap availability of land and cheap availability of labour also. But due to some infrastructural facilities and strong political will-power, these regions are not being properly developed.

Educational development is also very poor in these regions. Aurangabad and Nagpur are the two cities where still lot potential of industrial and educational development. Other areas of Vidarbha and Marathwada also to be focused, for all round development.

Following are some valuable suggestions:

- Irrigation Projects, small and medium, to be undertaken in the draught affected areas of Marathwada, especially Osmanabad, Latur, Beed districts.
- Educational institutions are having lot of potentials in these regions.
- Agricultural processing units are good potentials.
- Rural areas to be properly connected by Railways in these districts.
- Vidarbha excluding Nagpur, ie. Naxal affected Vidartha to be given more focus
- Employment opportunities should be created in village level to stop migrations.
- Lot of agro-based industries can be set up in backward areas.
- Dairy Development projects can be undertaken in massive scale
- Remaining Vidarbha to be given top priority for industrial development
- Wineries can be developed in the interior Vidarbha.

Conclusion

It is a bitter fact that there is lot of backlog of development in these 2 regions of Maharashtra and the out-cry of the people is being crushed with political and police power. With division of Andhra Pradesh, there is a air created in Vidarbha also and people of Vidarbha are now openly talking of joining in the State of Telangana, even before its
formal creation. If the developmental issues of underdeveloped and undeveloped regions are not settled with proper care and sizeable dose of financial incentives, it is a great threat to the unity and integrity of the nation. Industrial Policy can be a very effective measure to bring about industrial advancement of all the regions on equal footing. Mere policy preparation is not enough, it should be implemented in true spirit and the fruits should reach to each and every segment of the society, irrespective of caste, creed, race and religion.

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A STUDY OF INVESTMENT POLICY OF SELECTED MUTUAL FUND SCHEMES

Prof. Anil Arun Poman¹ Dr. Jadhav Sanjaykumar Janardhanrao²

Abstracts:

Mutual Fund is one of the major financial instruments of the economy. Performance of the Mutual Fund Industry is always the main issue in the front of regulators & ultimately common investors. The Performance is output of Investment Policy adopted by the fund manager to reap the amount invested by the common investors in schemes of the Mutual Fund. This research paper is attempts to study & analyses the Investment Policy of selected schemes of the Mutual fund. Researcher has identified some criteria to measure the Investment Policy of Mutual Fund.

Key Works: Mutual Fund, Investment Policy of Mutual Fund.

Introduction:

Mutual Funds (MFs) are specialized financial institutions which by pooling in droplets of savings of many individuals accumulate a fairly large and well diversified portfolio of investment. MFs are ideally suited to a developing economy like India. This is because there are a large number of small investors who have the ability to save and also willingness to enter into the capital market. Instead of making direct purchase of shares and debentures either through original subscription or stock exchanges, they do so through MFs route by depositing with them their savings. The capital market is greek to small investors and its vagaries and vicissitude scare them and they do not venture into it. MFs help the investors to diversify and reduce the unsystematic risk. MFs, thus, mobilize small savings and channelize these in the avenues demanding funds. The savings pooled together are invested largely in corporate securities to finance long term business requirements mostly by way of direct subscription to their capital. The objective, thus, is to offer the individual small investors, the advantage of the efficient management of the investment portfolio, viz. expertise of portfolio management, spread of risk, diversification of portfolio, automatic investment of dividends, capital gains and freedom from work involved in the maintenance of investment. This
medium has been a well balanced combination of the three criteria like returns, safety and liquidity which are considered crucial for mobilization and employment of savings.

Mutual funds gradually emerged and have become an integral part of the India's capital market assuming a dominant role in the securities market throughout the country. As a result, the number of financial institutions engaged in MF operations, the number of investors, the total assets and various MFs operated by banking and non-banking institutions have shown a tremendous increase. This upward trend in the pattern and size of investment in MF products has made a remarkable increase from almost every part of the country. The Indian capital market experienced a remarkable change after the present liberalization policy announced by the Government of India in early 90's to further promote the development of MFs by widening the canvas also for private sector operations. The opening of MFs to the private sector has been a harbinger to tougher competition, better service to the investors and launching of varied products more suited to the specific needs (income, growth, tax saving, etc.) of the investors. Panigrahi (1996) examined that a significant component of the capital market reforms has seen the shift in focus from individual to institutional investors. With the current economic reforms and liberalization continuing, the investible resources of MFs are expected to grow rapidly. A number of banks and government corporations, besides UTI in the public sector as well as, some leading business houses in the private sector have started their MF operations offering a number of products to the investing public, in the formation and working of MFs various key players involved are -- Sponsors, Trustee, Asset Management Company (AMCQ and Custodian. MF industry is regulated by Securities and Exchange Board of India (SEBI). Association of Mutual Funds in India (AMFI) is a self-regulatory organization (SRO) setup by Mutual Funds.

**Literature Review:**

A thorough survey and review of the literature available on the subject gathered from relevant sources like books, periodicals journals, research dissertations etc. highlighting the development and working of Indian MFs is detailed as under:

Indian MFs is detailed as under:

The launching of MFs in India witnessed a number of financial analysts coming up with their conceptual and empirical studies.

of public sector banks’ entry in the MF sector in 1987. Kumar (1994), Kably (1995) and Jaydev (1995) assessed the significance of uniform valuation of net asset value (NAV). Ansari (1993) studied investment pattern of MF products. The individual investor has little knowledge to guide him and take prudent MF product investment decisions. To meet this challenge a variety of works have been attempted to study the conceptual and contextual understanding of MFs. Accordingly, Lai and Sharma (1991) emphasized MFs in India act as a catalytic agent for economic growth and foster the interest of the investors at large. Sahu and Panda (1993) highlighted the need, role and future prospects of MFs in India as a financial services tool. The study finally concludes that Indian economy has been undergoing a silent revolution towards integration with the global markets. Kulshrestha (1994) attempted a conceptual analysis of MFs to help investor understand the fundamental concepts of MF operations. The study considerably deals with conceptual discussion of the various types of MF products. Though meant essentially for the individual investors, this work has enough food for thought for fund managers and policy makers as well.

Sahadevan, et al (1997) presents a detailed discussion on the evolution, growth and status of MFs in India with a focus on the investor problems and prospects. The study also provides a critical analysis of MF regulations in India and pin points certain inadequacies of the regulatory framework under SEBI (MF) Regulations, 1993. Srivastava (2000) has devoted a complete chapter in his study to Mutual Funds and an attempt has been made to acquaint with the concept, types and significance of MFs. A brief account of MF operations with regard to savings mobilization and investment patterns has also been covered in the study. Bhalla (2000) in his study addressed to the concept of open ended and close ended companies, SEBI guidelines for MFs, money market MFs etc. The study, however, is perspective in nature.

The operations of MFs have been analyzed in different studies Bansal (1995, 1996) made an income analysis and studied income and expenses ratios of MFs. Sadhak (1997) assessed the trends in income and expenses for UTI and other MFs for the four year period (1991-94). Sahadevan, et al (1997) presented detailed data and evaluation of income generated and expenses incurred by MFs. It analyzed the income and expenses of MF industry as a whole and the fund organizations separately for the period 1991-95. The source-wise income and expenses have also been analyzed in respect of MFs operating in private and public sector during the aforesaid period. Jayadev (1998) analysed the MF operations by selecting the ratios like (i) Ratio of operating expenditure to investible funds; (ii) Ratio of operating expenditure to gross income; and (iii) Ratio of Surplus to Gross Income based on the data available with income and expenditure statements of MF schemes for the period 1990-94.

The performance of MF products has been evaluated by employing risk
adjusted measures like Sharpe Index (1964), Treynor Index (1966), Jensen Index (1968) and Fama measure (1972). Barua and Verma (1991) examined the performance of 'Master Shares' using aforesaid portfolio measures suggested in the literature. The study was concluded from the perspective of fund managers, large investors holding the scheme only as a part of a portfolio and from the standpoint of small investors who chose the same as the principal vehicle for investment in equity. Finally, the study concluded that any MF product such as 'Master Share' ought to serve small investors. However, its inadequate performance was a matter of concern. Sahadevan and Thripalraju (1997) compared the average returns of 13 UTI schemes and 32 schemes of four public sector MFs; viz. BOI MF, CanBank MF, GIC MF and Ind Bank MF with the return on BSE National Index. The study covered a period of four years (1992-96) and concluded that some schemes have outperformed the market as against others yielding significantly higher returns than the index.

**Theoretical Background of the Mutual Fund:**

**Concept of a Mutual Fund**

A Mutual Fund is a trust that pools the savings of a number of investors who share a common financial goal. The money thus collected is then invested in capital market instruments such as shares, debentures and other securities. The income earned through these investments and the capital appreciation realized are shared by its unit holders in proportion to the number of units owned by them. Thus a Mutual Fund is the most suitable investment for the common man as it offers an opportunity to invest in a diversified, professionally managed basket of securities at a relatively low cost. The flow chart below describes broadly the working of a mutual fund:-

![Flow chart of Mutual Fund](image)

Savings form an important part of the economy of any nation. With savings invested in various options available to the people, the money acts as the driver for growth of the country. Indian financial scene too presents multiple avenues to the investors. Investment goals vary from person to person. While somebody wants security, others might give more weightage to returns alone. Somebody else might want to plan for his child’s education while somebody might be saving for the proverbial rainy day or even life after retirement. With objectives defying any range, it is obvious that the products required will vary as well.

**TYPES OF MUTUAL FUNDS**
This various type of schemes of Mutual Fund caters diverse need of the investors and also make available different options for investment. Based on your goals and your investment horizon, Mutual Funds give you the option to invest your money across various asset classes like equity, debt and gold. This allows you to diversify your investments and strive to reduce your portfolio risk.

**Why Mutual Fund:**

1. To understand concept of Mutual Fund.
2. To assess Investment Policy with reference to sector wise allocation of selected Equity Debts Schemes of Mutual Funds
3. To assess Investment Policy with reference to asset allocation of selected Equity & Debts Schemes of Mutual Funds
4. To probe into the lacuna, if any and offer suggestions where necessary for the improvement of Mutual Fund operations.

**Research Methodology of the Study:**

The main problem focus of this study was to understand Investment policy of fund manager to develop portfolio, because performance is depend on the investment policy of schemes. The analytical study conducted on secondary data of Mutual Fund for the period April 2012 to March 2016. The population for this study is 45 Mutual fund Asset Management Company (AMC) among which 10 AMC’s has been selected on the basis of highest asset under management, in addition to that Equity & Debts schemes has chosen as sample unit for the study.

The study focuses asset allocation & sector wise allocation investment policy of fund manager of selected schemes of mutual fund. However For generating finding /observations sector wise asset allocation holding less than 50% in top 5 sectors has been considered diversified & More than 50% in top 5 sectors has...
been Considered Conservative, however For Asset Allocation Above 80% exposure in equity considered as Aggressive Investment Policy, 50%-80% exposure in equity considered as Balanced Investment Policy and Less 50% exposure in equity considered as Conservative Investment Policy. The criterion has been considered with prior discussion & consultation with the academicians & industry experts for the effective analysis of the schemes.

**Observations/Findings:**

An analytical Study has been conducted to understand the Investment Policy of the Schemes with reference to asset allocation & sector wise allocation of the schemes. Following observation has been noted related to adopted investment policy of the selected schemes of the Mutual Fund.

**ASSET ALLOCATION (EQUITY SCHEMES)**

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Scheme Name</th>
<th>Scheme Type</th>
<th>Asset Allocation Investment Policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Birla SL Tax Savings Fund</td>
<td>Equity Scheme</td>
<td>Aggressive Equity</td>
</tr>
<tr>
<td>2</td>
<td>DSPBR Tax Saver Fund-Reg</td>
<td>Equity Scheme</td>
<td>Aggressive Equity</td>
</tr>
<tr>
<td>3</td>
<td>Franklin India Tax shield</td>
<td>Equity Scheme</td>
<td>Aggressive Equity</td>
</tr>
<tr>
<td>4</td>
<td>IDFC Tax Saver</td>
<td>Equity Scheme</td>
<td>Aggressive Equity</td>
</tr>
<tr>
<td>5</td>
<td>HDFC Long Term Adv Fund</td>
<td>Equity Scheme</td>
<td>Aggressive Equity</td>
</tr>
<tr>
<td>6</td>
<td>Kotak Tax Saver</td>
<td>Equity Scheme</td>
<td>Aggressive Equity</td>
</tr>
</tbody>
</table>

**DEBT SCHEMES**

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Scheme Name</th>
<th>Scheme Type</th>
<th>Asset Allocation Investment Policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Birla SL Cash Plus</td>
<td>Debt Scheme</td>
<td>Balanced Approach</td>
</tr>
<tr>
<td>2</td>
<td>DSPBR Liquid Fund</td>
<td>Debt Scheme</td>
<td>Conservative Approach</td>
</tr>
<tr>
<td>3</td>
<td>Franklin India TMA</td>
<td>Debt Scheme</td>
<td>Conservative Approach</td>
</tr>
<tr>
<td>4</td>
<td>HDFC Liquid Fund</td>
<td>Debt Scheme</td>
<td>Balanced Approach</td>
</tr>
<tr>
<td>5</td>
<td>ICICI Pru Liquid Fund</td>
<td>Debt Scheme</td>
<td>Conservative Approach</td>
</tr>
<tr>
<td>6</td>
<td>IDFC Cash A</td>
<td>Debt Scheme</td>
<td>Conservative Approach</td>
</tr>
<tr>
<td>7</td>
<td>Kotak Liquid Fund plan</td>
<td>Debt Scheme</td>
<td>Conservative Approach</td>
</tr>
<tr>
<td>8</td>
<td>L&amp;T Liquid Reg</td>
<td>Debt Scheme</td>
<td>Conservative Approach</td>
</tr>
<tr>
<td>9</td>
<td>Reliance Liquid</td>
<td>Debt Scheme</td>
<td>Conservative Approach</td>
</tr>
<tr>
<td>10</td>
<td>SBI Premier Liquid</td>
<td>Debt Scheme</td>
<td>Conservative Approach</td>
</tr>
</tbody>
</table>

**Observations of Asset Allocation:** Asset allocation reflects the fund managers approach to have exposures to instruments of Equity, Debts & cash & cash exposures etc in the
portfolio. It has been observed that all equity schemes have adopted aggressive approach of Investment policy as all schemes have more exposure to equity instruments. Same time Debts Schemes has less exposure to equity instruments and more exposure is in Debts instruments which show the conservative approach of investment policy.

**SECTOR WISE ALLOCATION (EQUITY SCHEMES)**

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Scheme Name</th>
<th>Scheme Type</th>
<th>Sector Wise Fund Allocation Approach of Investment Policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Birla SL Tax Savings Fund</td>
<td>Equity Scheme</td>
<td>Diversified Approach</td>
</tr>
<tr>
<td>2</td>
<td>DSPBR Tax Saver Fund-Reg</td>
<td>Equity Scheme</td>
<td>Diversified Approach</td>
</tr>
<tr>
<td>3</td>
<td>Franklin India Tax shield</td>
<td>Equity Scheme</td>
<td>Diversified Approach</td>
</tr>
<tr>
<td>4</td>
<td>IDFC Tax Saver Fund</td>
<td>Equity Scheme</td>
<td>Diversified Approach</td>
</tr>
<tr>
<td>5</td>
<td>HDFC Long Term Adv Fund</td>
<td>Equity Scheme</td>
<td>Diversified Approach</td>
</tr>
<tr>
<td>6</td>
<td>Kotak Tax Saver Scheme</td>
<td>Equity Scheme</td>
<td>Diversified Approach</td>
</tr>
<tr>
<td>7</td>
<td>L&amp;T Tax Saver Fund</td>
<td>Equity Scheme</td>
<td>Diversified Approach</td>
</tr>
<tr>
<td>8</td>
<td>Reliance ELSS Fund</td>
<td>Equity Scheme</td>
<td>Concentrated Approach</td>
</tr>
<tr>
<td>9</td>
<td>SBI Magnum Tax Gain’</td>
<td>Equity Scheme</td>
<td>Diversified approach</td>
</tr>
<tr>
<td>10</td>
<td>Birla SL Tax Relief Fund</td>
<td>Equity Scheme</td>
<td>Diversified Approach</td>
</tr>
</tbody>
</table>

**DEBT SCHEMES**

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Scheme Name</th>
<th>Scheme Type</th>
<th>Sector Wise Fund Allocation Approach of Investment Policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Birla SL Cash Plus(DAP)</td>
<td>Debt Scheme</td>
<td>Concentrated Approach</td>
</tr>
<tr>
<td>2</td>
<td>Franklin India TMA(G)</td>
<td>Debt Scheme</td>
<td>Concentrated Approach</td>
</tr>
<tr>
<td>3</td>
<td>HDFC Liquid Fund(G)</td>
<td>Debt Scheme</td>
<td>Concentrated Approach</td>
</tr>
<tr>
<td>4</td>
<td>ICICI Pru Liquid Plan-Reg(G)</td>
<td>Debt Scheme</td>
<td>Concentrated Approach</td>
</tr>
<tr>
<td>5</td>
<td>IDFC Cash A(G)</td>
<td>Debt Scheme</td>
<td>Concentrated Approach</td>
</tr>
<tr>
<td>6</td>
<td>Kotak Liquid Fund - Plan A(G)</td>
<td>Debt Scheme</td>
<td>Concentrated Approach</td>
</tr>
<tr>
<td>7</td>
<td>L&amp;T Liquid-Reg(G)</td>
<td>Debt Scheme</td>
<td>Concentrated Approach</td>
</tr>
<tr>
<td>8</td>
<td>Reliance Liquidity(G)</td>
<td>Debt Scheme</td>
<td>Concentrated Approach</td>
</tr>
<tr>
<td>9</td>
<td>SBI Premier Liquid Fund</td>
<td>Debt Scheme</td>
<td>Concentrate Approach</td>
</tr>
<tr>
<td>10</td>
<td>DSPBR Cash Merg</td>
<td>Debt Scheme</td>
<td>Concentrated Approach</td>
</tr>
</tbody>
</table>

**Observations:** Sector wise allocation reflects the investment policy of the schemes that how fund manager has taken approach to design the portfolio. This to be attempts to found does fund manager focus on specific sector or not? It has been clearly observed from the analysis of the information of selected equity & debts schemes of mutual fund. Equity Mutual funds has adopted diversified approach of investment as equity schemes has shown exposures in various sectors, equity schemes has not concentrated on specific sectors only.
Out of 10 equity schemes 9 schemes has shown diversified approach investment policy.

The same time approach of Debts mutual funds is totally different they focus on the specific sectors only, out of 10 debts schemes all schemes has shown concentrated approach of Investment Policy.

**Suggestion & Conclusion:**

The present study is helpful to various stakeholders of the industry. Following are some valuation suggestion from this study to the stakeholders:

- **AMC:** Fund manager need to ensure optimum asset allocation of Debt & Equity & profitable sector wise fund allocation in various sector. Trustee member ensure proper regulation and whether fund manager is applying adherent rules and regulation while making investment.

- **Unit Holders:** Unit holders can shift their investment as per performance of the scheme. Changing dimension and scenario of investment related environment head to understand by unit holders & accordingly shifting, redemption transfer decision need to exercise by unit holders.

- **New Investors in MF:** Before making investment investors need to ensure objectives & Investment Policy, past performance of the scheme.

- **Regulatory Bodies:** tax liability (Exit Tax & long term capital gain tax) of MF should be decreased. This will increase more investment in mutual fund.

**Conclusions:**

This study creates awareness that the mutual funds are worth investment practices. The various schemes of mutual funds provide the investors with a wide range of investments options according to his risk bearing capacities and interest. Besides they also give a handy return to the investors.

In India Mutual funds are playing important role. The mutual fund Companies pool the savings of small investors and invest those collected huge amount of funds in different sectors of the economy. They are performing like intermediary between small investor and the Indian capital market. In recent years many mutual fund companies are established. Through this competition is increased among the companies. To encounter the competition the different companies are introducing different types of mutual fund schemes with attractive returns and low risk. So it is an advantage to the investors.

**References:**


STUDY ON PREFERENCES OF DATA SECURITY MEASURES

Dr. Babasaheb J. Mohite

Abstract:
Now a days, individuals and organizations are highly rely on automated computer systems to store, retrieve and process information. Organizations use’s the information stored on these systems to conduct vital business operations. Therefore, organizations need to protect the information from unauthorized access and probable destruction.

Earlier, an organization, computer system was developed, used and maintained in isolation from other areas of business. Also huge use of electronic data processing and electronic business conducted via Internet, along with different terrorism, increased the need for better methods of protecting the computers and the information they store, process and transmit. Different technical members associated to EDP section facing increasing challenges of managing and protecting information and network resources from unauthorized access. So to preserve data securely every IT user must know the benefits and losses about the computer security, what are the different threats to computer data and which are the different security controls and policies required to maintain data security?

In view of the above, the present research work entitled “Study on preferences of data security measures” has come up for further in-depth study.

Keywords: Threats, Integrity, Virus, Password, Hacking, Biometrics, Fire extinguisher.

1. INTRODUCTION
Security is a measure or act to prevent any system from any type of damage and Security measures are invented to prevent or minimize the loss after the attack of any type of danger with least loss of assets [1].

Knowing about major possible threats to any system is important, but understanding ways to defend against these threats is equally critical. Defending a system is not simple or inexpensive mission due to some reasons [2] like-

- Hundreds of possible threats exist and the cost of preventing hazards can be very high.
- System resources may be situated in different locations.
- Many personal use system assets.
- Rapid technological changes make some control absolute/ unused as soon as they are installed.
People tend to violate security procedures because the procedures are inconvenient.
Many criminals who are caught go unpunished.
Therefore, organizing an appropriate defense system is one of the major activities of any functional manager, who controls any system resources.

2. STATEMENT OF THE PROBLEM:
Today’s booming world is now referred as High Speed world due to storing data in digital form using computer system and accessing and processing the data with minimum cost, effectively & efficiently to generate different types of information. So to preserve that data securely every IT user must know the benefits and losses about the computer security. In view of the above, the present research work entitled “Study on preferences of data security measures” has come up for further in-depth study.

3. OBJECTIVES OF THE STUDY
1. To study and analyze the data security measures adopted by the organization.
2. To study in detail about structures of databases and security measures adopted.
3. To examine the awareness level among users about benefits and losses of data security.
4. To suggest measures for efficient database & general security measures.

4. HYPOTHESIS
1. Organizations do not differ significantly in awareness of different security measures in the vicinity
2. Most of the security measures for data and computer are not implemented by the users.

5. SCOPE OF THE STUDY
1. Geographical Scope-
The present study is limited to only three units of Datta Udyog Samuha, Shirol.
The topical scope of the present study is restricted to security measures and awareness level of users in the different co-operative units.

2. Analytical Scope-
This study covers all the aspect of the objectives preset for the study.

3. Functional Scope-
The functional scope is confined to offering a set of meaningful suggestions about data security policies and data security.

6. VALIDITY OF THE STUDY
1. Present research focus on the current situation of computerization and data security measures adopted at selected units of Datta Udyog Samuha.
2. This research will help to know the fact that how awareness of security plays an important role in securing valuable assets of organization.
3. This research helps the organization in deciding the security policies regarding the Data security.
4. This research is also the measurement of the present scenario of the awareness level of data security to the users and it will help to improve the same.
7. METHODOLOGIES ADOPTED

In order to study the selected problem in details, the researcher has made use of different resources to collect the reliable information pertaining to data security systems used in following units of Datta Udyog Samuha.

- Shree Datta Sahakari Sugar Factory Ltd.
- Datta Sahakari Bank
- Datta Co-operative Grahak Bazaar

7.1 Sampling Method

Researcher has chosen three co-operative societies as listed above

These organizations have been selected on the basis of the following parameters:

- Organization having more than 10 computers.
- Organization having more than 80% computers in network.
- Organization having different sections or sub-units.
- Organization having more than 25 computer users.

7.2 Sampling technique

For the present research work, proportionate convenient sampling technique \(^3\) is used and accordingly of the total 343 IT users’ 69 users representing 20% of universe has been considered as sample. The method thus considered is convenient sampling because during present research work, while collecting data, those respondents who were willing to take part in the research study and prepared to divulge with the required information were finalized. This process was continued till the sample size of 69 was arrived at.

7.3 Breakup of sampling size

The sample size is restricted to 69 IT users. The detail breakup of the sample size is depicted bellow –

Thus, sample selected constitute complete figure 69.

8. DATA ANALYSIS AND INTERPRETATION

From the Chart 1, it is significantly noticed that, out of total respondents most of the employees have completed their computer courses from private institutes, and very few employees has completed their computer courses from Universities.

(Source – Primary Data collected from Operators)
It is observed from chart 2 that, Majority of the IT Users are of the opinion that, the existing UPS facility is well enough to carry out daily work.

(Source – Primary Data collected from Operators)

From the chart 3, it is observed that, out of total respondents about 81% of respondents remembers password by memorizing, 15% of respondents keep password in written form and 4% respondents keeps password in text file.

(Source – Primary Data collected from Operators)

From the Chart 4, it is observed that, out of total respondents 61% of respondents updates antivirus programs regularly, 11% respondents do not updates antivirus programs regularly and 28% respondents updates antivirus programs occasionally. It implies that, majority of respondent’s updates Antivirus programs regularly.

(Source – Primary Data collected from EDP Head)

**Hypothesis:** Organizations do not differ significantly in awareness of different security measures in the vicinity [4]

<table>
<thead>
<tr>
<th>Security facilities</th>
<th>Ban k</th>
<th>Sugar Factory</th>
<th>Bazaa r</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire Alarm System</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Smoke Detectors</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Fireproof Ceiling, doors &amp; furniture</td>
<td>3</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>A.C. &amp; Humidity measuring Equipment</td>
<td>3</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Access Control Device</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Motion Detectors</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Intrusion Alarm on all accessible openings</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Separate arrangement for electricity &amp; N/W cable</td>
<td>3</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Fire Extinguisher</td>
<td>3</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Appointed Watchman</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Maintained entry &amp; exit record for visitors</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

(Source – Primary Data collected from EDP Head)

**Table 1: Status of different Security facilities adopted**

Tj = T1=12, T2=12, T3=4 : T=28

nj : n1=11, n2=11, n3=11 : N=33

\[ \bar{x}_j = 1.090, \bar{x}_2 = 1.090, \bar{x}_3 = 0.3636 \]

\[ \bar{X} = 0.8484 \]
\[ SSC = \sum_{i=0}^{n} \sum_{j=0}^{c} n_j (\bar{x}_{ij} - \bar{X})^2 \]
\[ = 11(1.090-0.8484)^2+11(1.090-.8484)^2+\ldots+11(0.3636-0.8484)^2 \]
\[ = 0.6420+0.6420+2.58534 \]
\[ = 3.870177 \]

**SSC = 3.870177**

\[ SSE = \sum_{i=0}^{n} \sum_{j=0}^{c} (x_{ij} - \bar{x}_{ij})^2 \]
\[ = (0-1.090)^2 + (0-1.090)^2 + (3-1.090)^2 + \ldots + (1-0.3636)^2 \]
\[ = 14.9091+14.9091+2.5454 \]
\[ = 32.3636 \]

**SSE = 32.3636**

\[ SST = \sum_{i=0}^{n} \sum_{j=0}^{c} (x_{ij} - \bar{X})^2 \]
\[ = (0-0.8484)^2+(0-0.8484)^2+\ldots+(1-0.8484)^2+\ldots+(0-\ldots)^2 \]
\[ = 32.2419 \]

**SST = 52.2419**

**Degrees Of Freedom**

\[ dfc = c-1 = 3-1 = 2 \]
\[ dfe = N-C = 33-3 = 30 \]
\[ dft = N-1 = 33-1 = 32 \]

**Mean Sum of Squares**

\[ MSC = \frac{SSC}{dfc} = \frac{3.870177}{2} = 1.935885 \]

**M S C = 1.935885**

\[ MSE = \frac{SSE}{dfe} = \frac{32.3616}{30} = 1.07878 \]

**M S E = 1.07878**

Here we use ‘F’ test, since MSC > M SE

\[ F_{test} = \frac{1.935885}{1.07878} = 1.7945 \] at (2, 30) degrees of freedom

**ANOVA Table**

<table>
<thead>
<tr>
<th>Sources of Variance</th>
<th>d.f</th>
<th>s.s</th>
<th>M.S.S</th>
<th>F Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>2</td>
<td>3.871</td>
<td>1.9358</td>
<td>1.7945</td>
</tr>
<tr>
<td>Error</td>
<td>30</td>
<td>32.36</td>
<td>1.0787</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
<td>52.24</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table value for F ratio for (2,30) d.f is 3.32

Thus calculated value is less than given table value, gives the conclusion that Organizations do not differ significantly.

**Table 2: About Security Measures implemented by the Users**

<table>
<thead>
<tr>
<th>Security Measures</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Security training programmes</td>
<td>0</td>
<td>62</td>
</tr>
<tr>
<td>Signed confidential agreement</td>
<td>0</td>
<td>62</td>
</tr>
<tr>
<td>Sufficient password length set</td>
<td>17</td>
<td>45</td>
</tr>
<tr>
<td>Got training about privacy of password</td>
<td>0</td>
<td>62</td>
</tr>
<tr>
<td>Use of fire extinguisher</td>
<td>7</td>
<td>55</td>
</tr>
<tr>
<td>Installation of Antivirus program</td>
<td>62</td>
<td>0</td>
</tr>
<tr>
<td>Upadation of Antivirus regularly</td>
<td>30</td>
<td>12</td>
</tr>
<tr>
<td>Scanning of secondary storages</td>
<td>57</td>
<td>5</td>
</tr>
<tr>
<td>Having unique logon &amp; private area of data storage</td>
<td>0</td>
<td>62</td>
</tr>
<tr>
<td>Auto log off or lock capability</td>
<td>56</td>
<td>6</td>
</tr>
<tr>
<td>Screen saver password facility</td>
<td>37</td>
<td>25</td>
</tr>
<tr>
<td>Deletion of internet cookies</td>
<td>16</td>
<td>46</td>
</tr>
<tr>
<td>Database backup facility</td>
<td>49</td>
<td>13</td>
</tr>
</tbody>
</table>

(Source – Primary Data collected from Operators)

**Hypothesis:** Most of the security measures for data and computer are not implemented by the users.
Using Yale’s correlation, using the Pooling techniques \(^4\)

\[
\chi^2 = \sum_{i=1}^{n} \frac{(O_i - E_i)^2}{E_i} = 0.043036
\]

Table value for \(\chi^2\) for 8 degrees of freedom at 5% level of significance is 2.73.

We accept the hypothesis that, Most of the security measures for data and computer are not implemented by the users.

9. FINDINGS

1. Units are having essential licensed system & application software installed on all machines with adequate UPS facility for power conditioning and surge protection. Also not a single unit has an Intrusion Detection Systems for network.

2. All the units under study do not have facilities like- Fire alarm system with emergency power off system, smoke detectors, fireproof ceilings and furniture’s. Also they can’t maintain entry and exit records for visitors to department.

3. Antivirus programs are installed on almost all machines of different organization, but updation process is carried out infrequently. Also some times the secondary storage devices are used before checking for viral infection.

4. It is found that, in all organization one computer used by more than one user with unique username and password.

5. In all organization only username and password method of user identification is used, in which most of the user uses more than 8 character passwords and remember their password by memorizing. But no special training about importance and privacy of password, access control rules and rights for each user clearly stated and documented.

6. When an employee is terminated or leaves for any reason the access to that user is not revoked.

10. SUGGESTIONS

To carryout proper and rigid security plans some suggestions on the basis of findings are –

1. Organizations are having 100% network facility carried out with the help of UTP cables with only security measure of login user name and password to secure from the unauthorized access. Hence, to increase data security level the organizations should –
   a) Use Fiber Optic cable instead of UTP cables, because the data communication speed and more transmission security as compare to other cables.
   b) Implement firewall to secure the network from outside world or unauthorized requests.
   c) Use Server Operating systems like Linux or Novell which are most secure from virus attack or difficult to hack for outsider intruder.
   d) Use workstations operating system as Windows-XP or windows 2003, which has inbuilt firewall facility instead of using Windows 98 operating system.

2. From findings it is found that, all organizations are having and installed licensed copies of system & application software’s on all machines; also they have Internet facilities and installed antivirus software on most of the machines. Hence to increase the security, accuracy and work capacity some suggestions on the basis of findings are –
a) Regularly schedule for updates to antivirus software against the latest viruses and spasm.
b) Install different latest patches and service packs of system and application software’s.
c) Strictly restrict staff to access different web based services which are irrelevant to their work using Routers and Proxy servers.
3. Suggestions for selecting, training and creating user of system on the basis of findings are-
a) Conduct the background check on selection of IT staff.
b) Select IT staff that has completed at least 1 Years University / private degree or certificate course in Computer
c) Create separate logins for each user and allocate private area for data storage.
d) Make compulsory or arrange conferences, refreshers, trainings or seminars on essentials of data security.
e) Get signed on confidential agreement about data security.
f) Give training to use different security or preventive measures like fire extinguishers, use of antivirus program and its updation facility, data backup facility programs and deletion of cookies etc.
4. To secure workstations and servers from intentional or accidental disclosure some suggestions on the basis of findings are-
a) Install Dry powder as well as CO₂ type fire extinguishers.
b) Maintain entry and exit records for visitors to each department and also escort the visitor up to the concern personnel.
c) Set auto logoff or lock capabilities after predetermined time of inactive.
d) Implement facility to intimate newly logged user or attempts of unauthorized access.
5. Design a software which helps you to –
a) Create log files for manipulation of sensitive data.
b) Take data backup in encrypted form and Restore backuped data in normal form.
c) Generate audit logs for un-authored access attempts or manipulation of data containing details about date, time, changes made and user ID when an event occurs.

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A COMPREHENSIVE STUDY ON CONSUMERS SWITCHING BEHAVIOUR TOWARDS MOBILE NUMBER PORTABILITY IN INDIA

Dr. Sontosh Apte¹, Dr. Amod Markale²

Abstract:
The telecom industry is one of the fastest growing industries in India. India has about 200 million telephone lines making it the third largest network in the world after China and USA. With a growth rate of 45 per cent, Indian telecom industry has the highest growth rate in the world (www.telecommunications.com). The mobile communication plays a major role in telecommunication industry. Researcher is tried to study consumer switching behavior and reason behind switching.

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BUSINESS ENVIRONMENT
Indian telecommunication sector is prosperous as Indian economies are considerably good. Mobile network comes under the service sector, which is experiencing a rapid development which in turn is supporting the growth in Indian economy, provides ample chances employment and self employment generation. As mobile number portability has been introduced in India, retaining existing customers is now a very tough job for network providers. After the introduction of mobile number portability in India, the mobile user’s switching turnover is more. This paper brings to light the reasons behind that Mobile Number Portability on Switching Behavior-Indian Mobile Market. Mobile Number Portability is the process by which, one can move to another operator of one’s choice, but one can retain the old number. The advantage is that one need not have to go through the problem of informing all your friends & family that your number has changed- it stays the same. Subscriber can keep with the same technology, GSM/CDMA. Also shift to CDMA or vice versa. Both post-paid & prepaid subscribers can use it. Globally, the introduction of MNP across markets has witnessed a mixed response from customers. The push for MNP implementation has always been led by market regulators in an effort to provide mobile customers with the freedom to move between service providers and drive healthier competition. Globally, among the major countries, Singapore was the first to implement MNP in 1997, followed by Hong Kong, Australia, Germany, US and France etc., MNP has been introduced in India, in two phases. It has been introduced first in Indian metro city and group A telecom zones, on December 31, 2009, and afterward in the remaining part of the country, by March 20, 2010. Subscribers have to pay up all due bills before making an application for MNP. The mobile porting fee is to be paid to the latest operator.
LITERATURE REVIEW

Keaveney, (1995) established that Customer switching behavior damages market share and profitability of service firms. Researching a critical incident among more than 500 service customers, the authors identified more than 800 critical behaviors of corporate that made customers leave the services. Customers' reasons for defection were classified into eight general categories, varying from demographic to attitudinal.

Swait & Sweeney, (2000) found that value has been widely portrayed by retailers as a major determinant in consumers' store selection and product purchase decisions. Observing the impact of consumers' perceived value on the attitude to purchase and resulting behavior they found 26 consumers' value orientation i.e., their predisposition towards quality and price actually affects their choice behavior in-store. The buying of products from a specific retailer is associated with the consumer's demographics. This analysis was based on a survey of over 1000 shoppers actively searching for an electrical appliance in different retail stores.

Nguyen & Leblanc, (2001) argued that in the present competitive environment, corporate reputation and corporate image can exhibit a strong influence on customer loyalty toward the firm. Data was collected from three service industries including 171 clients of a major long-distance company towards exploring the nature of the relationship between corporate reputation and corporate image and their impact on the customers' retention. The study found that the higher customer loyalty follows positive perceptions of corporate reputation and corporate image.

Gerpott Rams, & Schindler, (2001) in their study discovered that customer retention, customer loyalty, and customer satisfaction were set as objectives by telecommunication network operators in German market. Data from a sample of 684 subscribers resulted in revealing that customer retention, customer loyalty, and customer satisfaction could be treated as causally inter-linked constructs. Customer satisfaction had a significant impact on customer loyalty which had an impact on customer’s decision making regarding his stay with mobile cellular network operator. Price sensitivity’s perceptions combined with mobile number portability between various cellular operators were identified as supply-related variables with the strongest effects on customer retention, while customer care had no significant impact on customer retention.

OBJECTIVES OF THE STUDY

Problem Identification

- Consumers have every chance of switching the mobile service provider due to industry expansion.
- Mobile industry is growing technically and becoming economical due to competitor’s innovative and attractive services.
- Number of players in this sector is increasing, so each one of them wants to overplay others to attract the consumers.
- Mobile industry has become economic with the end result that consumers have less switching cost.

OBJECTIVES

- To identify the factors that affects the consumers into switching the service provider.
To find the most preferred service provider in Pune.
To find the major influences that goes into the decision of purchasing a SIM card.
To find the likeliness of switching the service provider.

HYPOTHESIS

Customers are satisfied with the promotional offers of their service provider

RESEARCH METHODOLOGY

Research Design
Research design for this research paper is Descriptive Research..
Single Cross Sectional Design:- In single cross sectional designs, only one sample of respondents is drawn from the target population and information is obtained from this sample only once. These designs are also called sample survey research design.

Data collection Method:
Primary Data Collection Method:
- Survey method is used for primary data collection.
- Used structured questionnaire as an instrument for survey method.
2. Secondary Data
These are sources containing data which have been collected and compiled for another purpose. The secondary sources consist of readily compendia and already compiled statistical statements and reports whose data may be used by researchers for their studies.
Secondary Data Collection method:
- Internet

Sampling Detail
1. Target Respondents: Respondents from PUNE city.

2. Sampling unit: Sampling unit are Non probability convenience sampling.
3. Sample size: 40 samples.

Statistical Tools Used

Graphs, pie chart and bar diagrams have been used for statistical analysis due to their benefit of being easily understandable by the analyzers.

DATA ANALYSIS AND INTERPRETATION

Q1. Are you switched from any other provider or planning to switch?

<table>
<thead>
<tr>
<th>Response</th>
<th>Respondent</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>30</td>
<td>75%</td>
</tr>
<tr>
<td>No</td>
<td>10</td>
<td>25%</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table No. 1

Interpretation:
75% respondent is interested in switching their previous provider to new provider. 25% respondent still want remain with their existing service provider.

If Yes, Q2. Name the service providers you switch from?

<table>
<thead>
<tr>
<th>From</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airtel to other</td>
<td>5%</td>
</tr>
<tr>
<td>Vodafone to other</td>
<td>10%</td>
</tr>
</tbody>
</table>

Fig. No. 1
Idea to other 15%  
Docomo to other 15%  
Reliance to other 10%  
BSNL to other 20%  
Other 25%  
Total 100%

Table No. 2

<table>
<thead>
<tr>
<th>Customer Switching Pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reliance to Other 10%</td>
</tr>
<tr>
<td>BSNL to Other 20%</td>
</tr>
<tr>
<td>Docomo to Other 15%</td>
</tr>
<tr>
<td>Vodafone to Other 15%</td>
</tr>
<tr>
<td>Idea to Other 15%</td>
</tr>
</tbody>
</table>

Fig. No. 2

Interpretation:
From the above graph we can see that minimum rate of switching is for Airtel.

Q3. How do you come to know about the new plans of various service providers?

<table>
<thead>
<tr>
<th>Response</th>
<th>Respondent</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retailers</td>
<td>20</td>
<td>50%</td>
</tr>
<tr>
<td>Internet</td>
<td>10</td>
<td>25%</td>
</tr>
<tr>
<td>Advertising</td>
<td>10</td>
<td>25%</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table No. 3

Through the survey it was found that the 50% of customers getting an information from the retailers.

Q7. Likelihood of switching the service provider?

<table>
<thead>
<tr>
<th>Response</th>
<th>Respondent</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very unlikely</td>
<td>6</td>
<td>15%</td>
</tr>
<tr>
<td>Unlikely</td>
<td>6</td>
<td>15%</td>
</tr>
<tr>
<td>Neutral</td>
<td>8</td>
<td>20%</td>
</tr>
<tr>
<td>Likely</td>
<td>1</td>
<td>30%</td>
</tr>
<tr>
<td>Very likely</td>
<td>8</td>
<td>20%</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table No. 4

Interpretation:
The above chart and analysis shows the maximum customers are like to switch but that not mean those who unlike switching are not switch they are also switch may be due to no availability of options.

Q8. What is the main reason for your switching behavior?

<table>
<thead>
<tr>
<th>Reasons</th>
<th>No. of respondent</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network coverage &amp; strength</td>
<td>12</td>
<td>30%</td>
</tr>
<tr>
<td>Call rates / message rates</td>
<td>5</td>
<td>12.5%</td>
</tr>
<tr>
<td>Subscription plan price</td>
<td>5</td>
<td>12.5%</td>
</tr>
<tr>
<td>Better offers/ promotion</td>
<td>6</td>
<td>15%</td>
</tr>
</tbody>
</table>
Better customer service  |  2  |  5%
3G technology          |  1  |  25%
Total                   |  40 |  100%

Table No. 5

Interpretation:
From the above graph we can see that maximum customers are switching due to 3G technology and network coverage and strength.

Q9. What Major influences that swing the decision to purchase a SIM card?

<table>
<thead>
<tr>
<th>Influences</th>
<th>No. of respondent</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self</td>
<td>21</td>
<td>53%</td>
</tr>
<tr>
<td>Family &amp; friends</td>
<td>11</td>
<td>27%</td>
</tr>
<tr>
<td>Unsatisfied form provider</td>
<td>5</td>
<td>13%</td>
</tr>
<tr>
<td>Advertising</td>
<td>3</td>
<td>7%</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table No. 6

Fig. No. 5

Q10. Are you satisfied with Promotional offers of your service provider?

<table>
<thead>
<tr>
<th>Rank</th>
<th>No. of respondent</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>6</td>
<td>15%</td>
</tr>
<tr>
<td>Good</td>
<td>12</td>
<td>30%</td>
</tr>
<tr>
<td>Average</td>
<td>18</td>
<td>45%</td>
</tr>
<tr>
<td>Poor</td>
<td>4</td>
<td>10%</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table No. 7

Interpretation:
In this graph it is cleared that majority of customers prescribed to purchase new SIM card from influencing family and friends.

Q12. In your opinion mobile number portability option is more useful for customer or service provider?

<table>
<thead>
<tr>
<th>Response</th>
<th>No. of respondent</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer</td>
<td>30</td>
<td>75%</td>
</tr>
<tr>
<td>Service provider</td>
<td>10</td>
<td>25%</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table No. 8

Fig. No. 6
Interpretation:
From the above graph it is clear that maximum customers think that portability is more beneficial for customers.

HYPOTHESIS TESTING
As we mentioned the two possible hypotheses are:
H₀: Customers are satisfied with the promotional offers of their service provider.
Hₐ: Customers are not satisfied with the promotional offers of their service provider.

Now we are going to test these hypotheses by using t-test as follows.

T-test for Hypothesis Testing.
Computing the sample variance

\[
X' = \frac{\sum X}{n} \quad \text{Where} \quad (n = 4) = \frac{40}{4} = 10
\]
\[
S_x^2 = \frac{(X - X')^2}{n} = \frac{120}{4} = 40
\]
\[
t = \frac{X' - \mu}{\sqrt{S_x^2/n - 1}} = \frac{10 - 0}{\sqrt{40}/(4 - 1)} = 10 / 3.65 = 2.7386
\]

Critical value at significance level = 0.05 and degree of freedom= n-1=3 is 2.353

Hence,
The calculated value (2.7386) is greater than critical value (2.353) so we reject the null hypothesis and accept the alternative hypothesis that customers are not satisfied with promotional offers of their service provider.

FINDING AND RECOMMENDATIONS

- From the above analysis more than 50% of customers are of age between 21 to 30 years
- From the graph, it is observed that the majority of the Customers are using Airtel, Vodafone and Idea SIM card.
- The above analysis and chart shows that the main 75% customers are switched or plan to switch.
- The above chart and analysis shows that the customer switching rate from Airtel, Reliance and Vodafone is low.
- From the analysis it is cleared that major source of information for new plans for customer is retailers.
- The above analysis shows that the 50% customers like switching the service provider.
- The above graph shows that most of the Customers influence from self or influence from family and friends.
- From the analysis the most customers are not satisfied with promotional offers of their service provider
- From the above analysis the chart shows most of the customers prefer network and services.
- From the above analysis and chart it shows that the more customers think that mobile portability is useful for customers.

CONCLUSION
The present paper identifies factors affecting the consumer brand switching behavior in telecommunication industry and also explores whether these factors vary among males and females. On the basis of questionnaires administered to consumers in telecommunication
industry, the study reveals that Value added services and Pricing strategies are the two important factors that influence the consumer behavior while switching the brands in telecom sector. So by providing best value, establishing good relationship with customers through efficient customer services, enhancing brand loyalty and simply by keeping the price fairness of services compatible a telecom service providers can control consumer brand switching behavior and can retain the customers while establishing long term profitable relationship with customers.

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MAJOR ISSUES OF RURAL & BALANCED DEVELOPMENT IN INDIA

Dr. Subhash Dhone¹ Ch. Sahyaja²

Abstract:
India is a country where 70% of its population is living in villages and totally dependent upon agriculture for earning it’s livelihood. The villages are suffering from various problems and some of them have become very chronic, as they have not been addressed effectively even after 70 years of independence by any government, irrespective of their political party affiliation. Though agriculture is main occupation and major source of livelihood for 80% of village population, directly or indirectly, the share of agriculture in Indian GDP has been continuously dwindling un-arrested. It was about 56% in 1950-51, which has been reduced to mere 14% presently. Service sector has been contributing something more than 55% of GDP’s share, but villagers are hardly accommodated in such sectors. Industries are mostly localized in urban areas and no industries are willing to go to rural areas, in spite of various incentives offered to them by the state governments. Agro-based industries, to a very little extent are localized in semi-urban areas but they have their own limitations in absorbing village population as their employees. The farmer’s community is victim of evils and has been committing suicides in large numbers, not only in the states of Maharashtra alone but agricultural rich states like Punjab, Haryana and Andhra as well. There are various issues of rural development which are unresolved even after 70 years of independence. Rural masses are suffering from various problems like shortage of water, unemployment, non-connectivity, less agricultural productivity and shortage of food grains, inadequacy of means of livelihood, migration towards cities, unproductive population residing in villages with lot of difficulties, droughts and famines after quick successions, malnutrition, high ratio of child mortality, high ratio of mothers mortality, inadequacy of health care/ medical facilities, continuously depleting purchasing power, inadequacy of government help, flaws in implementation of the schemes, drains in the funds at various level till it reaches to the actual beneficiaries etc. are the major issues related to rural and balanced development.

This paper shall attempt to throw adequate light upon the major problems faced by the rural masses, and suggest certain measures for implementation by the govt. authorities, towards making sincere efforts of solving these problems permanently

Key Words - Agrarian, livelihood, dwindling, localization, unviable, mal-nutrition, inadequacy, Migration, inclusive growth, exclusion, indebtedness, globalization

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²Research Scholar, KL University, Vaddeshwaram, Andhra Pradesh,India.

Introduction:
As per the observation and statement hereupon by Eleventh National Development Plan, as much as 2/3rd population is living in rural areas and 1/3rd of country’s population is still living below poverty line. Poverty of the villages has one of the major issues of rural development and the biggest
hindering factor as well. Eleventh National Development Plan also observes that out of the total rural poor, the poverty, amongst the members of SCs and STs is deepest. And the basic cause of poverty among India’s rural people is lack of access to productive assets and financial resources. At the same time there is unequal distribution of landed property (agricultural land for cultivation) and wealth of the nation amongst various communities and regions. Very high level of illiteracy, inadequacy of healthcare facilities and extremely limited access to social services, is a common feature of rural people, irrespective of communities. India is a country of villages. There are 6.5 lakh villages in the country. It was contention of one of the makers of modern India late Mahatma Gandhi that villages should be the focusing point of our planning process and all the plans and schemes should reach to villages. Dr. A.P.J. Abdul Kalam also opines the same, in Gandhian lines, in his Neo-liberal economic philosophy of P.U.R.A., which stands for Providing Urban Facilities to Rural Areas. There is a continuous migration of people from villages to cities and towns for want of these facilities. Instead of making the village people to migrate towards the cities and towns, it is needed to take these facilities to the villages, is the requirement of today and our planning to be centered on these lines, if we want to have the real and all round development of the country.

After Globalization it was expected that the country shall have inclusive growth but unfortunately it did not happen even after 25 years of Globalization. We have been excluding the rural masses from the fruits of growth and development, coming out of globalization. Our villages were suffering from various deficiencies in the past, they continue to suffer presently and shall keep on suffering in future as well, if the villages are not made the focal points of development and not included in the pace of development, with equitable allocation of resources to all the regions in the planning process.

Objectives

Following are the broad objectives of the present paper:

- To highlight the major issues of rural development.
- To highlight the fact of imbalance and disparities in development of regions
- To highlight the problem of migrations of village people in search of livelihood
- To highlight the measures taken by the State/Union governments
- To highlight the inadequacy and flaws in implementation of these measures
- To suggest certain remedies for improvement of rural India

Common problems faced by Rural People in Villages

For generations together, it is evident that there is wide gap in the life style of villages and urban areas. It is said that villages are the paradise of problems and mismanagement of all government schemes and programs. Villagers are facing many problems and the governments (state as well union) are also announcing various programs, policies and schemes for rural development, in almost every year in annual budgets, five year plans etc. But there is hardly any change in the living conditions of the villagers. All the problems are very much there and shall continue to be there for many years to come. Different regions are having different problems with different severity but some of the common problems faced by the villages/regions are highlighted as below:
• Overdependence upon agriculture with its low productivity
• Very low per capita income and low purchasing capacity of villagers
• Very high propensity to consume and very low propensity to save
• Indebtedness of farmers and farmers suicides on increasing
• Chronic unemployment and large scale disguised unemployment
• Mal-nutrition, mal-nourishment and high child/mother mortality rate
• Non connectivity, by roads and rails, to most of villages, in all seasons
• Illiteracy, superstitions, discrimination on basis of caste and religion
• No educational, medical and recreational facilities in the villagers
• No adequate, safe and clean drinking water for people and animals
• No adequate means of livelihood and migration of youths towards cities
• Shortage of electricity and load-shading for any numbers of hours
• Uneven distribution of agricultural land, rendering many landless
• Compulsions of hereditary occupations and no fair wages of the work done
• Inadequacy of employment guarantee schemes and works carried out thereof
• Feeling of insecurity in absence of social security measures
• High population below poverty line and no sincere efforts by the govt. to curb population growth
• Very high degree of regional imbalance in the development and resource allocation to the different regions, by the government.

Though different problems are faced by different regions, some of the very common problems had been highlighted above and these problems have become very chronic, because of non-addressing of these issues even after 65 years of independence and after completion of 11 five year plans by the country. All the governments, irrespective of their political affiliations, do not appear to be very serious in solving these basic problems and the media of this country is not taking the govt. to the task to the satisfaction of the masses and this is most unfortunate on the part of media of the country.

Sacrifices of Villagers/Rural India for Urban Elites

It is a open secret that villagers are made to suffer for the betterment of the cities and urban development. Villages are deprived for many things and the resources are diverted to urban areas. History is full of instances of the sacrifices made by villagers for the development of this country and for the development of urban areas and big cities. Rather, it would not be an exaggeration if we say that the towns and cities are developed at the cost of villages and unfortunately it is a fact

Some of the contributions made by villages, for the development of country, are highlighted as below:

• Load-shading and total darkness in villages for any number of hours whereas provision electricity to urban elites. 24 hours
• Funds allocated for rural development are most often diverted to urban development without any hesitation.
• Villages are made to vacate forcefully their agricultural land for big irrigation projects, dams or electricity generation but water and electricity goes to cities
• All infrastructural facilities are provided to urban elites at the cost of rural poor.
• Banking and credit facilities are provided to urban areas rather than villages.
• Villagers feed the cattle but milk and ghee goes to urban elites
• Agriculture provides food-grains to urban elites but farmers are always hungry.
Agriculture provides raw material to urban industries
Agriculture is the important purchaser of industrial products.
All the plans, policies and programs chalked out are urban centered/oriented.
No new investment is coming to villages and for agro-sector
The list is endless. There can be ‘N’ number of parameters, which clearly reveals that there has always been a discrimination between villages and urban areas on the issues of development. It is based on the “Theory of Percolation” that means provide everything to urban elites first and thereafter it percolates automatically to villages, no matter how much time period it takes, in the process.

Migrations of village People towards cities for Livelihood

Though it has always been pretended that much attention is always been paid in the past and is being paid presently, towards this issue, it is going to be very critical and it shall become more and more in the near future, if proper attention is not paid to resolve the issue of rural development in true spirit. we have studied and surveyed many villages and found that only unproductive population, below the age group of 15 and above 60, is residing in the villages and rest has migrated towards cities, in search of livelihood. This is not the problem of the villages concerned but the migrated population is going to be the big burden on the cities. Civic facilities like transportation, accommodation, water, sanitation, education, healthcare etc. are becoming stressful for municipal administration/state governments.

If adequate job opportunities are made available in the villages level itself, this type of migration can be avoided, if not totally but to a very large extent. It will serve dual purpose. On one hand the work force can be utilized for the development of villages itself and on the other hand the over-burden of population and providing extra civic facilities can be avoided by the municipal and govt. authorities. This is for uneducated people mostly. As far as educated migrations are concerned, there are no much job opportunities and educational facilities in rural areas and migration shall be an unavoidable phenomena.

Govt. Measures for Village/Rural Development

Union Govt. and various state Govts. Are coming out with various schemes, policies, plans for rural development, through various programs, but somehow the problems faced by the villages are not eased and in spite of all these measures, the problems are there where it were in the past. Some of the measures and plans of the govt. are as below:

- National Rural Employment Guarantee Scheme/Act (MNERGA) Sept. 2005
- Forthcoming Food Security Bill – which is yet to be cleared from the Parliament
- Sampoorna Grameen Rozgar Yojna (SGRY) Sept. 2001
- Pradhan Mantri Gram Sadak Yojna (PMGSY) December 2000
- National Food For Work Program (NFWP) November 2004
- Grameen Awas Yojna/ Indira Awas Yojna, 1985
- Swarnajayanti Gram, (Through Self Help Group) April 1999
- District Rural Development Agency (DRDA) April 1999
- Accelerated Rural Water Supply Program 1972
- Central Rural Sanitation Program (CRSP) 1986

All the above plans and programs are specifically meant for rural areas and
rural development. But having spent huge sums and much time by the govt. machinery, the problems has not been addressed properly, as a result of which, some of the problems aggravated over a period of time, causing serious problems of regional imbalances in development.

It is either because the measures taken are untimely, inadequate in itself or misimplementation of the programs. Governments are coming and going, plans and policies are being formulated, but the problems are very much intact, and gives a clear cut indication for suspicion in the minds of village people that governments are only interested in the development of urban elites, at the cost of rural poor, and there is nothing wrong in their suspicion that the governments are being formed on the majority votes of villagers but villagers are being neglected afterwards. And because of this very fact, their suspicion is very much legitimate. The media should take the govt. to task with a very bitter criticism and make the govt. to implement pro-rural development policies in their governance.

Social Media & Rural Problems

Social media in India occupies a very pivotal place in the democratic set up of governance of the country. Though the administration of the country is looked after by 3 different organs and pillars i.e. Legislature, Executives and Judiciary, looking after different aspects, **Media is treated to be the FOURTH and very strong pillar of Indian democracy.** Media makes the public opinion either in favor of or against a particular issue and can make the govt. to mould their decisions to honor public opinion. Wherever wrong things are happening, the interests of public are at stake, the representatives elected by the people are keeping mum and not reaching the people’s voice in the respective houses of parliament and state legislature, in all such occasions it becomes the responsibility of media to highlight the things, taking it on their shoulder to carry on an audit of govt. in true spirit and correct the govt. actions and inactions in favor of public opinion. The flaws of governance, inadequacies of the plans and programs, mis-implementation of these programs, encroachment on public interest, undue self gains by the representatives, undue benefits to nears and dears by the government officials or representatives etc are the subjects not only of highlights by the media but continuous and rigorous follow up of such issues is expected from the media. But unfortunately media today is miserably failing in their utmost duty under the name of TRP and sensation. There is total commercialization of Indian Media. **Acharya Atre, Bal Gangadhar Tilak, Dr. Ambedkar, Balshastri Jambhekar etc. were the people who reached the print media to a different height in history of India. In comparison of these great people, today’s journalism is a subject of self-introspection.**

Suggestions & Conclusion

We would like to offer following suggestions which can go a very long ay in resolving Rural India’s problems and disparities in balanced development on permanent footing

- Villages/rural area should become focal point of all the development plans
- Adequate resources to be allocated for rural development (monetary/non-monetary)
- There should not be any diversion of allocated funds for rural development
- Govt. machinery should strictly monitor the schemes of rural development
- Periodical reviews of implementation of programs of rural development
• If not totally but to a large extent, the migrations towards the cities to be controlled
• Adequate employment opportunities to be made available in the villages itself.
• Provision of education, health and employment facilities to be made on top priority.
• There should be more resource allocation for undeveloped regions.
• If not totally, but regional imbalance of the development to be wiped out.
• There should not be any political tricks in the developmental issues of rural areas.

If above suggestions are implemented in true spirit, there is no reason as to why the villages would be left out of development. If the country has to be developed in the real sense, all the regions of the country in general and the villages specially, should get their due share, because India is country of villages, and development of villages would be the development of this great country, as dreamt by our great makers of modern India. If the regional imbalance of the development country persists for such a long period, even after 70 years of independence, there is a great danger for the integrity of the country because the voices of disintegration shall start coming from deprived corners. It is high time for the Union Government to consolidate all the resources of the country and utilize them in the best manner so that the unprivileged and underprivileged regions get more share and opportunity of development. This is the only way to mitigate the discontent of the people and keep the country united.

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CASH LESS TRANSACTIONS: OPPORTUNITIES & CHALLENGES

Dr. Manisha R. Khaladkar

Abstract:
The demonetization drive is a tool to tackle the problem of black money and fake currency. A cashless transaction is really a good for the country. It would be for the government to turn India into a cashless economy by 2020. India has a large amount of black money. According to recent estimates around 1/4th of Indian GDP (gross domestic product) is the shadow economy of India, which is like a parallel dimension slowly sucking out energy and matter from our dimension (economic ecosystem). However, one thing needs to be made clear that of all the black money in India only 10% of it is in horded cash and the rest is in floating in the market or is in form of gold, stocks or real estate. The success or failure of demonetization as a means to curb black money and fake currency can only be determined after a couple of months but the fact that digital economy is good for the country, is overwhelmingly accepted as true. The purpose of this study is to find out and discuss how it can be beneficial for our country and what are the challenges in front of India in going cashless.

Key words: cashless transactions, opportunities, challenges

Introduction:
Prime Minister Narendra Modi, in a bold move to eradicate black money (or was it to promote cashless transactions), announced the demonetization of 500 rupee and 1000 rupee note in November 2016. As 86 percent currency in circulation was withdrawn, Indians resorted to means such as online payments and net banking (RBI). A cashless economy is one where cash flow is minimal or non-existent. In a cashless economy, electronic channels like debit card, credit card, electronic merchants, payments such as IMPS are mode of transaction. India has been a cash-dependent economy, with 97-98% of all transactions still in cash. Only half the nation’s adult population i.e. around 233 million, possess a bank account, a precursor for a cashless economy. Most retailers don’t accept cards, or don’t have the infrastructure for online payments limiting the ability to use cards. Bank accounts or online banking are not of any use even when people have access to it, if retailers want the payment in cash bank accounts or online banking are of no use. After the news of demonetization, the online payment services went into advertising overdrive, bombarding the media with ads to move onto online platforms. But wealthier urbanites or younger generation used most of the services. India being an agrarian economy we have to take them into consideration too. Banks are still doing poorly in rural areas. According to World bank, there are only 18 ATMs per 100,000 citizens in India, compared to 129 in Brazil. Only 17 percent have smartphones and 22 percent use the Internet according to a Pew Research Center report. India will witness $500 billion worth of transactions by 2020, which is 10 times the current level. The country’s smartphone users are expected...
to increase to 520 million. Internet users will increase to 650 million, encouraging people to move towards cashless transactions. Banks have stepped on to the mobile banking arena as well. At the same time, non-banking companies like Airtel, Vodafone, Paytm, Mobiwik are offering wallet services already. To make this transition possible, the government will need to work on digital infrastructure. It also has to waive the service tax on digital payments. The RBI has to resolve issues on cross-border digital payments and shed their conservatism.

Motive of cashless economy needs digital infrastructure and technology to support it. Another big challenge is cyber security. With increase in online transactions, cyber crime is likely to see an increase. There will be a need for competent encryption technologies at the physical point of sale. Also, efforts have to be made to retain consumers if they face failures on transactions.

Objectives
1) To know the cashless transactions.
2) To study the opportunities of cashless transactions.
3) To study the challenges of cashless transactions.

Research Area
There are number of opportunities and challenges of Cashless transactions in India, researcher wants to know these opportunities and challenges of cashless transaction.

Methodology
This study is based on secondary source of data provided by different journals (National and International), articles, publications, books and websites.

Opportunities of cashless transaction
By midnight of November 8th, 2016 total Currency Notes(Rs. 500 and Rs. 1000) were not legal tender worth 15.86 lakh crore.

When we calculate cashless paper based transaction (cheque) for financial year 2015, it was 85 lakh crore while online transaction was 92 lakh crore. FY 2015 cashless transaction was 177 lakh crore. It was almost 10 times of total currency notes available in India.

Cashless transaction is good for below reason:
1. **Accountability:** We can track our expenses any time, banking transaction also be tracked. Online shopping transaction can be tracked. Our monthly expenses can be tracked easily.
A cashless India will not only curb unaccounted wealth, but also to reduce instances of tax avoidance. Direct wiring of money to the user will give greater efficiency and transparency to the system. It will also tackle, to some extent, the fear of counterfeit currency. Small SMEs and digital India will evolve with an improvement in credit access and financial inclusion.
Demonetization has been a shocker for the Indian economy. Whether it succeeds in helping the transition to a cashless economy, or drags the economy down enough, is something only time will tell.

2. **Transparency:** Transaction is transparent. Clean and more transparent business transactions and money transfers. It will increase the taxation base. It will also reduce the instances of tax avoidance.
It will curb the parallel shadow economy (black economy) which runs majorly on cash basis. Cashless transactions are trackable and more transparent. Efficiency in welfare programs as money can be easily transferred to the accounts of the recipients.

It will eliminate the role of intermediaries who usurp the share of welfare money spent on people.
3. **Less corruption:** Everything is transparent which leads to lower corruption. Reduced money laundering due to easy traceability of transactions. This cashless regime represents transparency and people will get all the benefits directly in their account without paying any bribe to anyone. Improved financial inclusion and credit access through the linkage of all welfare activities with bank accounts. It will not only increase welfare for the people but would assist in creating a sense of belonging and faith in the banking system.

Control on the issuance of fake currency and counterfeiting. (An estimated 250 out of every million Indian Bank notes were fake).

4. **Safe and Secure:** More safety feature needed still cards are safe in compare to cash. In a country like India where poverty, illiteracy and unemployment are the major issues, cash in hand symbolized safety, security and respect.

5. **Reduced Maintenance Costs:** The logistics and supply chain of cash is costing the exchequer a fortune. The amount of money required in printing cash, its storage, transportation, distribution and detecting counterfeit currency is huge.

6. **Transparency in Transactions:** Needless to say, electronic transactions or plastic money always leaves a digital proof beneficial for both the taxpayer (consumer) and the tax collector (government).

7. **Higher Revenue:** A derivative advantage of transparent transactions is collection of tax will increase. Thus generating higher revenue for the government, this in turn will be converted into public welfare policies and schemes.

8. **Financial Inclusion:** The will to have a cashless economy will promote financial inclusion of the people. It will compel the government to connect all the households with a bank and plastic economy.

9. **Lower Transaction Costs:** Digital transaction is a boon in terms of processing costs and waiting time. If implemented properly, it will increase the consumption and production rates, thereby improving the economy.

### Challenges of cashless transaction

However, in a country of 1.3 billion people, not all is perfect and not all is rosy. Going cashless must be an exponential curve, slow initial buildup then fast paced in later stages, not a digital step signal. That could be counterintuitive to the whole process. India is a large country that needs a change that is systemic and systematic. Here is a list of challenges-

1. **High Cash Dependency:** India has a high cash penetration in almost all of its transactions that happen as B2C transactions. Total cash flow in the market accounts for 12.04% of the GDP, which is among the highest in developing countries. This goes to show our dependence on cash is acute and it requires time to tackle it.

2. **Lack of Digital Infrastructure:** The first and foremost requirement of a digital economy is the penetration of internet and smartphone. Although a billion mobile subscriptions (not users), only 30% of subscribers use...
smartphones. With 370 million mobile internet users, over 70% of them are in cities while 70% of Indian population lives in villages.

3. Skepticism in Merchants: Small time merchants as well as users have high amount of suspicion over plastic money and they need to be educated over the potential benefits of using it. One cannot expect an overnight change in the perception of a majority of Indians over the use of plastic money. Government needs to come out with awareness and incentive schemes to promote digital economy.

4. High Merchant Discount Rate: These are the percentage deducted from each purchase a merchant makes by the card issuing authority or bank. These are volume dependent and are more economical if the merchant is able to sell a large amount of products, thereby beneficial for big merchants. For smaller merchants, it does not provide enough incentive to make the shift from cash.

5. Currency dominated economy: High level of cash circulation in India. Cash in circulation amounts to around 13% of India’s GDP.

6. Transactions are mainly in cash: Nearly 95% of transactions takes place in cash. Large size of informal/unorganised sector entities and workers prefer cash based transactions. They don’t have required digital and fintech literacy.

7. ATM use is mainly for cash withdrawals and not for settling online transactions: There is large number of ATM cards including around 21 crore Rupee cards. But nearly 92% of ATM cards are used for cash withdrawals. Only low level of digital payment using ATM cards. Multiple holding of cards in urban and semi-urban areas show low rural penetration.

8. Limited availability of Point of Sale terminals and poor transaction culture in POS: According to RBI, there are 1.44 million POS terminals installed by various banks across locations at the end of July 2016. But most of them remains in urban/ semi-urban areas.

9. Mobile internet penetration remains weak in rural India: For settling transactions digitally, internet connection is needed. But in India, there is poor connectivity in rural areas. In addition to this, a lower literacy level in poor and rural parts of the country, make it problematic to push the use of plastic money on a wider scale.

Government should assure the basic necessities and focus on developing infrastructure especially in rural areas.

Special drives through schools, colleges, panchayats etc. can help create awareness about cashless/banking transactions.

Financial Literacy is a must for bringing more and more people to digital platform. Digital payment or payment through banks, instead of paying cash should be encouraged.

Linkage of all welfare activities with bank account is very appreciative step.

According to an estimate, urban areas contribute about 70% in GDP. So, initially more focus can be given to urban areas to make them cashless, where infrastructure is already developed. Rural areas can be covered gradually.
A strong banking base is the basic prerequisite for the cashless economy, cyber safety of the internet. Lack of which creates fear even literate people are not comfortable in doing money transactions online.

Findings

A cashless India will not only to curb unaccounted wealth, but also to reduce instances of tax avoidance. Direct wiring of money to the user will give greater efficiency and transparency to the system. It will also tackle, to some extent, the fear of counterfeit currency. Small SMEs and digital India will evolve with an improvement in credit access and financial inclusion.

Demonetization has been a shocker for the Indian economy. Whether it succeeds in helping the transition to a cashless economy, or drags the economy down enough, is something only time will tell.

Conclusion

A cashless India will not only to curb unaccounted wealth, but also to reduce instances of tax avoidance. Direct wiring of money to the user will give greater efficiency and transparency to the system. It will also tackle, to some extent, the fear of counterfeit currency. Small SMEs and digital India will evolve with an improvement in credit access and financial inclusion.

Demonetization has been a shocker for the Indian economy. Whether it succeeds in helping the transition to a cashless economy, or drags the economy down enough, is something only time will tell. No doubt the rise in cashless transaction has increased because of demonetization but the rise indicates one thing: if instead of pushing digital economy like what happened after demonetization with less cash availability, government adapt pull strategy then there will be more acceptability of cashless economy .And in this cashless economy lies the great opportunity for everyone, be it government or business parties.

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Abstract:
CBS (Core banking solution) system in a bank could easily solve their technology connected issues and can more determined on their basic banking business and efficiently employ their manpower for delivering efficient services to customer and other work such as recovery, product promotion, marketing etc.
The study provides the facts about CBS advantage and it could be present in a very organized way by appropriate representation, So that other bank may adopt the CBS for effective business operation and expect smooth banking operation anywhere, anytime, any type, any place with any bank and customers would be more satisfied with their services and speedy work.
Consumers of the banks are the real stalk holders and getting satisfied with improved services by banks. The study proves how because of CBS (Core banking solution) system, customer receives fast, efficient & rapid services could be provided to customer. Customers are also get benefited of these services leads to customer satisfaction.
Hypotheses for this research paper is proved using SPSS tools, chi-square test used.

Keywords: - CBS (Core Banking Solution) System, KPI (key Performance indicators)

1) INTRODUCTION
The study is mainly based on how the impact on KPI (Key performance Indicators) because of implementation of CBS (Core banking solution) in certain selected Urban co-operative banks which leads to its positive impact on customer services.

Important Key Performance Indicators (KPI) of Urban Cooperative bank - Total Deposit, Total Advances, Investment, Profit/Profitability, Working Capital, Net NPA %, Emp. Productivity, Share Capital, Net Worth, Reserves

A) Origin of the research problem
The top management could not get benefited by chalking out the strategic decision making as a whole for their organization because of inadequate & insufficient information available from current establishment. Unable to analyze the profitability relation to the customer & services of banks & to help the retention of customer forever with the banks because of CRM (Customer relation management) & then extension of various services & business to the customers in absence of CBS (Core banking solution) system.

B) Inter disciplinary relevance
There are many banks that are maximizing profits, paying good dividends and financially doing well. Does that mean there is good financial discipline existing in the bank? The answer may not be positive necessarily. For example a bank which is paying good dividends to share
holders may be a defaulter in other RBI norms or there may delay in statutory obligations. In this case the shareholders shall be happy but the customer of the bank and services shall rate the firm differently. Thus a discipline means conformity to willingly accepted self imposed restrictions. Generally, in the report of auditors some parts of such factors of discipline are covered. For instance monitoring current ration and maintaining it at its standard continuously is a part of discipline. It throws light on continuous monitoring of short term funds as well as long term funds. It is something like stitch in time saves nine.

C) Review of research and development in the subject:-

**International Status**
All most all the commercial foreign banks as well as local banks from USA and Europe are adopted (Core banking Solution) CBS system and rest of eastern countries such as Japan, Korea and china are adopted such centrally data concepts some part of Asian countries some are still yet to adopt (Core banking Solution) CBS system by all types of banks and lots of research going on from each part of the countries ,new concept like (Core banking Solution) CBS system with help of cloud computing is emerging and researchers working on it.

**National Status**
Most of the nationalized banks in India for example: State Bank of India, Punjab National Bank, Allahabad Bank, HDFC, ICICI Bank today supports core banking. As of 2007, many Cooperative banks in India such as REPCO Bank, Jain Urban Cooperative Bank, Kangra Central Cooperative Bank, Udaipur Urban Cooperative Bank, Kollam District Cooperative Bank, Kerala State Cooperative and Panchsheel Mercantile Cooperative Bank have started to use and offer centralized Core Banking too.

**Public sector banks - 27, Private sector banks –22,Foreign banks -30,Local area banks –4,Regional rural banks -91, Urban co-operative banks – 1770,Co-operative credit institutions over 100 thousand. Some of the Cooperative banks out of it 572 Urban co-operative banks are in Pune and Mumbai region & 21 RRBs have migrated fully to core banking solutions (CBS) and implementation of CBS is in progress in the remaining RRBs. RRBs are having CBS installations, but they are on their way to go for CBS and very soon they will also be under the roof of the umbrella of Core Banking Solution in mass.***(*) Data from RBI Report 24 August’10 VI. Regulation and Supervision of Financial Institutions)

Still lots more work on various issues of (Core banking Solution) CBS system and new concept like (Core banking Solution) CBS system with the help of cloud computing.

**SIGNIFICANCE OF THE STUDY**

- Identifying the impact of CBS on KPI (key performance Indicators) and to make analysis study out of it for further inferences.
- Analyze the key issues and problems while adopting CBS by banks, so it can be help full for other banks to eliminate or reduce it further.
- Funding out the customer satisfaction index and delivery channel management system by CBS adopted banks as against TBA to evaluate the correct solution in the processes.

The real Significance of this study is to make aware of all the cooperative banks about the benefit of CBS by means of research study.

**III) OBJECTIVES OF THE STUDY**
The study will focus on the following objectives in selected urban cooperative...
banks (UCBs) having CBS (Core banking solution) system implementation.

1. To assess the problems and troubles after adoption CBS (Core banking solution) system in urban cooperative banks.

2. To investigate and estimate the adoption of CBS (Core banking solution) system of UCBs, so that banking products and services are performed and delivered in effective way to customers.

Hypotheses

1. The CBS (Core Banking Solution) system positive effect and its efficient utilization in Urban Cooperative banks will result into prompt customer services.

Methodology

I) Research Design

Since it is an inquiry into determination of the term financial discipline and computer technology up gradation for banking to that extent it shall be conceptual and exploratory.

II) RESEARCH METHODOLOGY

Data Analysis Tools

Published and unpublished data such as secondary data would be used for conceptual and exploratory analysis and the statistically primary data will be processed on a Personal Computer (PC) with the help of spreadsheet application software like MS Excel and SPSS software (Single user) to generate tables, charts and graphs.

b) Selection of Sample

The total number of banks under ‘CBS’ (Core banking solution) system in Maharashtra are minimal till date, Most of these are from Pune and Mumbai. Some of the banks were multistate cooperative banks, schedule urban cooperative banks and small urban cooperative banks. The total population sample size would be appropriately selected for analysis. Sample size will be large enough to make the study conclusive and reach the objectives of the study.

c) Sampling Method

Sampling method would be Non-Probability convenience sampling method. The above mentioned objectives of the study will be fulfilled by adopting the following methodology. Every effort will be made while choosing the appropriate sample techniques if required.

Survey Method:

The survey method will be adopted to obtain the relevant information customer services of selected urban cooperative banks in CBS (Core banking solution) system environment. I) Structured questionnaire, II) Random interviews of customers of the bank who adopted CBS (Core banking solution) system and III) Random interviews of bankers who adopted CBS.

Types of Questions & Scaling Techniques:

Following types of questions will be used in the questionnaire.

1. Open-ended questions
2. Dichotomous questions
3. Multiple-choice single response
4. Multiple-choice multiple response

In addition, a Likert Scale will be used for obtaining rankings.
**Primary Data:** The primary data will be collected through a structured questionnaire & will be collected from respondents through interviews. (Customers, EDP manager, GM, CEO etc.)

**Secondary Data:** The secondary data comprise of existing published literature which will be used for laying the conceptual framework.

**Sources – Data**

Published data of cooperative banks would be used in the form of annual reports, The availability of secondary data to be collected from Prowees Database of CMIE, Annual Reports, published Research, Reports and Research Organization, Books, periodicals and Website etc.

- Pune District Urban Cooperative Banks Association Ltd, Pune.
- Urban Banks department (RBI) ,Wadala, Mumbai
- Maharashtra Urban Co-operative Banks Federation, Wadala,Mumbai
- Brihan Mumbai Nagari Sahakari Banks Association Ltd, Wadala,Mumbai

Primary data would be the questionnaire and interviews of customers Front desk users, EDP manager, BM, CEO etc multistate /Schedule Urban cooperative banks where having CBS.

**HYPOTHESIS TESTING**

H0- The CBS (Core Banking Solution) system positive effect and its efficient utilization in Urban Cooperative banks will not result into prompt customer services.

H1- The CBS (Core Banking Solution) system positive effect and its efficient utilization in Urban Cooperative banks will result into prompt customer services.

**Statistical Analysis**

Q:XIII. Rate your opinion on following parameter about customer services offered by the bank to bank with?****

A. Services efficiency is increased due implementation of CBS(Core banking solution) System *

Q: XVII. Finally what is your general opinion about services offered by the bank?***

<table>
<thead>
<tr>
<th>Q: XVIII. Rate your opinion on following parameter about customer services offered by the bank?***</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
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<td>----------------</td>
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<tr>
<td>Strongly Agree</td>
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<tr>
<td>Expected Count</td>
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<td>% of Total</td>
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<tr>
<th>Q: XVII. Finally what is your general opinion about services offered by the bank?***</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neither Agree/Disagree</td>
</tr>
<tr>
<td>Count</td>
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<tr>
<td>Expected Count</td>
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<td>% of Total</td>
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<th>Total</th>
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<tbody>
<tr>
<td>Count</td>
</tr>
<tr>
<td>Expected Count</td>
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<tr>
<td>% of Total</td>
</tr>
</tbody>
</table>

**Chi-Square Tests**

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>13.186</td>
<td>4</td>
<td>0.011</td>
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<tr>
<td>Likelihood Ratio</td>
<td>15.425</td>
<td>4</td>
<td>0.004</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>6.385</td>
<td>1</td>
<td>0.012</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>186</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sr. no</td>
<td>Hypothesis</td>
<td>Accept/Reject</td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>------------</td>
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<td></td>
</tr>
<tr>
<td>1</td>
<td>H0 - The CBS (Core Banking Solution) system positive effect and its efficient utilization in Urban Cooperative banks will not result into prompt customer services.</td>
<td>Reject</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>H1 - The CBS (Core Banking Solution) system positive effect and its efficient utilization in Urban Cooperative banks will result into prompt customer services.</td>
<td>Accept</td>
<td></td>
</tr>
</tbody>
</table>

**Symmetric Measures**

<table>
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<th>Interval by Interval</th>
<th>Value</th>
<th>Asymp. Std. Error</th>
<th>Approx. T</th>
<th>Appr. Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson's R</td>
<td>-1.16</td>
<td>.066</td>
<td>-2.565</td>
<td>0.010</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ordinal by Ordinal</th>
<th>Value</th>
<th>Asymp. Std. Error</th>
<th>Approx. T</th>
<th>Appr. Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spearman Correlation</td>
<td>-2.15</td>
<td>.067</td>
<td>-2.987</td>
<td>0.003c</td>
</tr>
</tbody>
</table>

| N of Valid Cases     | 186   |                  |           |            |

b. Using the asymptotic standard error assuming the null hypothesis. c. Based on normal approximation.

**Infer-3: Inferences :- (Cross tabulation Analysis)**

The SPSS software analysis the researcher get the Chi-Square value is **13.186a** and degree of freedom is **4** hence as per the Carl-Pearson the p-value (Pearson Value) as **0.011** Since P value is very smaller than 0.05 which is the Standard value of Chi-Square test, so from the above result researcher conclude “Implementation of CBS (Core banking solution) system has increased the competitiveness of the bank” having definite some association with implementation of CBS (Core banking solution) system& its enhancing the overall efficiency of the bank in daily operations.

**Ordinal by Ordinal Spearman Correlation = - 0.215 Approx. Tb = - 2.987. Approx. Sig. = 0.003c** The approximate significance value of each measure is equal to **0.003c**. Since this is less than **0.05**, so can be concluded that there is a statistically non-significant relationship between Implementation of CBS (Core banking solution) system and enhancing the service efficiency of the bank in daily operations like fast and efficient.

**KNOWLEDGE CONTRIBUTION TO THE SOCIETY**

This study make a conceptually comprehensive determination of financial discipline and technological approach and its impact on Key performing indicators of banking organization shall be built and availability of a tool to banking and RBI for assessment and improvement in overall and financial performance.

**a) Banks and Financial institution:**

a) Expansion & modernization will help the co-operative bank to provide services to the customers and society.

b) CBS (Core banking solution) system would help the organization in customer retention and stay in the competition.

**b) Society:** Co-operative sector is penetrated in mass to the society and people is getting benefited out of it. Customers can avail the latest IT infrastructural facilities and will enjoy smooth services from the banks.

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