IMPACT OF TOURISM IN HARYANA ECONOMY

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Abstract

This paper coins how tourism sector is significant for Haryana economy. Developing state like Haryana tourism has become one of the major sectors of the economy, contributing to a large proportion to GDP and employment opportunities. Tourism is one of the fastest growing service industries in the state with great potentials for its further expansion and diversification. Tourism industry plays a major role in any state's economic development. It helps significantly to the state for creating the employment opportunities to the large number of people. Moreover, it is also one of the important engines to attract more foreign exchanges with its potential. We need to concentrate to have liberal policies, relaxation in taxes, comprehensive package and so on to influence tourist and foreign investment. There is also a need to increase the government's role to make Haryana flourishing in tourism and established in the global market. Haryana has rich source in tourism for the establishment of the brand. Of course Haryana has been launched the Incredible Haryana to make tourism better.

INTRODUCTION

Tourism has become the Haryana's largest industry, generating wealth and employment, opening the minds of both visitors and the visited to different ways of life. Haryana has strong signs of becoming one of the emerging giants in Haryana tourism. The most imperative factors for successful tourism development include product enhancement, marketing, regulations and human resource development. Haryana's tourism is one of the flourishing sectors in terms of its scope. Tourism in Haryana is growing continuously to generate employment and earn large amount of foreign exchange in order to stabilize the state's economic and social development. It also helps in preserving and sustaining the diversity of the Haryana's natural and cultural environments. We should develop tourism industry with government supports, new initiations, actions and plans to influence foreigners to sustain our position strongly. This paper explains the impact of tourism in Haryana economy. Tourism in Haryana is a key growth driver and a significant source of foreign exchange earnings. The tourism sector in Haryana is flourishing due to an increase in foreign tourist arrivals (FTA) and a larger number of Haryana travelling to domestic destinations. Haryana has a dramatic growth of tourism and it is one of the most remarkable economic changes. Tourism activity has long lasting socio-economic impacts on the host economy and community. Though the industry has great opportunities, but the there is a need to make it positive in terms of its future.

The tourism industry is one of the largest segments under the services sector of the Haryana economy.

Objectives of the Study

➢ To understand the opportunities in tourism industry

➢ To realize the prospects of tourism industry

➢ To identify the challenges involved in this sector

➢ To aware different forms of tourism industry

➢ To know the Positive impacts of Tourism in Haryana

Research Methodology

This paper is prepared with the support of secondary sources like magazines, newspapers, reports, dissertations, thesis and the like.

Opportunities in Tourism industry

Haryana's size and massive natural, geographic, cultural and artistic diversity offers enormous opportunities for the travel and tourism industry. The promotion and aggressive marketing measures undertaken by the government is expected to aid influx of tourists. The industry would also benefit from introduction of new forms of tourism and development. Medical tourism in Haryana has gained considerable popularity in recent years. Haryana has a major cost advantage in this field compared with other countries. In addition to cost advantages, Haryana healthcare industry offers state-of-the art equipment, technological advancement, qualified and experienced medical personnel and a blend of modern and traditional medicines.

Thus, medical tourism has immense potential in Haryana. Opportunities also exist in ecotourism, adventure tourism, and cruise tourism. Eco-tourism is increasing in popularity, evident in the development of eco-friendly hotels and tour packages. With increasing environment awareness and consciousness among tourists and given efforts undertaken by the government and private players, the ecotourism segment is expected to record handsome growth in the coming years. Haryana holds immense potential in adventure and cruise tourism. Haryana's greatest adventure tourism assets are Himalayas and its mighty rivers. The peak period for adventure tourism is the "lean period" of cultural tourism. Development of adventure tourism can make Haryana a round-the-year tourist destination.

The cruise industry is one of the most promising industries in Haryana. However, strong efforts need to be made to develop this industry. Other forms of tourism such as agri tourism, pilgrimage tourism, heritage tourism, and MICE tourism also hold enormous potential.

Prospects in Tourism Industry

Healthy economic growth recorded in past few years, especially in the services industry, has led to increase in business travel. Higher disposable income and affordability have increased domestic leisure travel in Haryana. Foreign tourist arrivals in Haryana have also grown. However, the industry has shown signs of recovery in the first half of 2010. This is a clear indicator that the long-term prospects for the Haryana travel and tourism industry are bright. Haryana is expected to witness increased tourist activity both in the business and leisure segments in the coming years. Haryana has been identified as one of the fastest-growing countries in terms of tourism demand. The tourism and hospitality industry is one of the largest segments under the services sector of the Haryana economy. Tourism in Haryana is a key growth driver and a significant source of foreign exchange earnings.

In Haryana, the sector's direct contribution to gross domestic product (GDP) is expected to grow at 7.8 per cent per annum during the period 2013-2023. The tourism sector in Haryana is flourishing due to an increase in foreign tourist arrivals (FTA) and a larger number of

Haryana travelling to domestic destinations. The role of the Haryana government, which has provided policy and infrastructural support, has been instrumental in the growth and development of the industry. The tourism policy of the government aims at speedy implementation of tourism projects, development of integrated tourism circuits, special capacity building in the hospitality sector and new marketing strategies. Haryana's tourism industry is experiencing a strong period of growth, driven by the burgeoning Haryana middle class, growth in high spending foreign tourists, and coordinated government campaigns to promote 'Incredible Haryana'. In fact Haryana has a rich source in tourism sector to influence GDP, employment, image, foreign investments, new projects and the like to make our position comfortable in globally.

Challenges in Tourism industry

Tourism industry in Haryana is growing and it has vast potential for generating employment and earning large amount of foreign exchange besides giving a fillip to the state's overall economic and social development. But much more remains to be done. There are challenges involved in tourism industry.

Lack of Proper Infrastructure

Infrastructure needs for the travel and tourism industry range from physical infrastructure such as ports of entry to modes of transport to urban infrastructure such as access roads, electricity, water supply, sewerage and telecommunication. The sectors related to the travel and tourism industry include Airlines, surface transport, accommodation (hotels), and infrastructure and facilitation systems, among others.

Access and Connectivity

The infrastructure facilities like air, rail, road connectivity, and hospitality services are still needs to be improved to connect various cities across the state. This remains a major issue for the development of tourism. Tourists largely depends on road network rather other mode. Despite numerous efforts will be taken to modernize the road facilities connectivity remains a major challenge. There is a greater need to improve road and rail network to connect various locations across different regions in the state.

Amenities:-

Amenities available at various tourist locations and en route need to be improved. These include basic amenities such as drinking water, well maintained and clean waiting rooms and toilets, first aid and wayside such as lounge, cafeteria, and parking facilities, among others. Haryana scores poorly in terms of availability of these infrastructure facilities. Inadequate infrastructure facilities affect inbound tourism and also could lead to an increase in the outflow of domestic tourists from Haryana to other competitive neighboring states.

Human Resource

To sustain growth in the tourism industry trained manpower is required at various levels such as managerial, supervisory, skilled or semi-skilled. At mid and senior management levels, the industry faces talent crunch and at the front-line staff level, although human resources are adequate, a boom in other service industries such as banking, retail, airline and BPO have resulted in shortage of manpower at this level for the travel and tourism industry. Thus, we have a demand-supply mismatch with respect to manpower in the tourism sector in Haryana. Attrition, shortage of tourism training infrastructure, qualified trainers, and lack of proper

strategies and policies for human resource development also affect the industry. The industry needs to address these problems at the earliest.

Different forms of Tourism

Tourism industry has contributed enormously in the flourishing graph of Haryana's economy. Tourism industry is the backbone of any state's economic position. It raises the living conditions of the citizens of the state. It will be helpful in raising the GDP of the state. Self employment gives a new boost to the state. Infrastructure development is another advantage of tourism industry. Cultural exchange is also possible only through tourism. There are different types of tourism. The recent trend is moving toward niche segments of tourism:

Medical tourism

Medical tourism also known as health tourism has emerged as one of the important segments of the tourism industry. The term has been coined by travel agencies and the mass media to describe the rapidly-growing practice of travelling across international borders to for healthcare. Travelers typically seek services such as elective procedures as well as complex specialized surgeries such as joint replacement (knee/hip), cardiac, dental, and cosmetic surgeries. Psychiatry, alternative treatments, and convalescent care are also available.

Wellness tourism

Wellness tourism is regarded as a sub-segment of medical tourism. Here, the primary purpose is achieving, promoting or maintaining good health and a sense of well-being. Haryana with widespread presence of Ayurveda, Yoga, Siddha, and Naturopathy, complemented by its spiritual philosophy, is a well-known wellness destination. Wellness tourism includes Ayurveda therapies, spa visits, and yoga meditation. The government is promoting this form of tourism with publicity and promotional activities.

Heritage tourism

Heritage tourism is defined as "travel undertaken to explore and experience places, activities, and artifacts that authentically represent the stories and people of the past and present". It is oriented toward cultural heritage of the tourist location. It involves visiting historical or industrial sites, religious travel or pilgrimages. Haryana is well known for its rich heritage and ancient culture. The state's rich heritage is amply reflected in the various temples, majestic forts, pleasure gardens, religious monuments, museums, art galleries and urban and rural sites which are citadels of civilization. All these structures form the products of heritage tourism.

Eco tourism

Eco tourism, also known as ecological tourism, is travel to natural areas to appreciate the cultural and natural history of the environment, while not disturbing the integrity of the ecosystem and creating economic opportunities that make conservation and protection of natural resources advantageous to local people. It involves travel to destinations where flora, fauna and cultural heritage are primary attractions. Ecotourism also minimizes wastage and the environmental impact through sensitized tourists. It can be one of the medium to preserve local culture, flora and fauna and other natural resources.

Rural tourism

Rural tourism encourages rural life, art, culture and heritage of rural locations, benefitting the local community economically and socially as well as enabling interaction between the tourists and locals for a more enriching tourism experience. Haryana's rural, geographical and cultural diversity enables to offer a wide range of tourism products and experiences. Increasing levels of awareness, growing interest in heritage and culture, improved accessibility to rural areas, and

environmental consciousness are playing an important role in promoting rural tourism.

Positive impacts of Tourism in Haryana

Generating Income and Employment:

Tourism in Haryana has emerged as an instrument of income, employment generation, poverty alleviation and sustainable human development. It contributes 6.23% to the national GDP and 8.78% of the total employment in Haryana. Almost 20 million people are now working in the Haryana's tourism industry.

Preservation of National Heritage and Environment:

Tourism helps preserve several places which are of historical importance by declaring them as heritage sites. For instance, the Taj Mahal, the Qutab Minar, Ajanta and Ellora temples, etc, would have been decayed and destroyed had it not been for the efforts taken by Tourism Department to preserve them. Likewise, tourism also helps in conserving the natural habitats of many endangered species.

Developing Infrastructure:

Tourism tends to encourage the development of multiple-use infrastructure that benefits the host community, including various means of transports, health care facilities, and sports centers, in addition to the hotels and high-end restaurants that cater to foreign visitors. The development of infrastructure has in turn induced the development of other directly productive activities.

Promoting Peace and Stability:

Honey and Gilpin (2009) suggests that the tourism industry can also help promote peace and stability in developing state like Haryana by providing jobs, generating income, diversifying the economy, protecting the environment, and promoting cross-cultural awareness. However, key challenges like adoption of regulatory frameworks, mechanisms to reduce crime and corruption, etc, must be addressed if peace-enhancing benefits from this industry are to be realized.

Conclusion

Tourism has become the Haryana's largest industry, generating wealth and employment, opening the minds of both visitors and the visited to different ways of life. In Haryana wide this industry currently employs more than 200 million people.Moreover tourism is one of the best instruments of economic development in all the way. Tourism sector plays a vital role in the way of helping poor countries to provide employment opportunities in an increasing rate. It is one of the important

Foreign exchange earning industries has manifested great potential of growth under liberalized Haryana economy. To attract the foreign tourists in Haryana, liberal policies and reduction in taxes along with a comprehensive package for hour. There is also a need to increase the government's role to make Haryana flourishing in tourism and established in the global market. Haryana has rich source for tourism for the establishment of brand. Of course Haryana has been launched the Incredible Haryana to make tourism better. Haryana's tourism industry is experiencing a strong period of growth, driven by the burgeoning Haryana middle class, growth in high spending foreign tourists, and coordinated government campaigns to promote 'Incredible Haryana'. Nevertheless this campaign truly helped our stand to become colorful in the minds of the people all over the Haryana, and has directly led to increase in the interest among tourists. The tourism industry in Haryana is substantial and vibrant and the state is fast becoming a major global destination. Moreover tourism industry is significantly supported to grow horticultures, handicrafts, agriculture, construction, poultry and the like. Today, tourism has become more inclusive of new concepts which require the support of the government to develop and flourish. There is a need to propagate these concepts with dedicated policies formed for the development of tourism. Effective

Implementation of the policies will help in the growth of the industry overall.

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A STUDY OF AWARENESS LEVEL AMONG THE EMPLOYEES REGARDING HR POLICIES & PRACTICES WITH SPECIAL REFERENCE TO PARLE FACTORY

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Abstract

Every organization is conjured of people and function through people called the human resource who come from different walks of life & who are different from one another in their psychological makeup. With the help of acquired information and talents, a human being is capable of producing new ideas, developing and improving capital goods and amending the available physical and financial resources in order to satisfy his needs and the objectives set by an organization. Environmental factors like education, training and development are also amended by quality & quantity of Human resources.

Keywords: Human resources, Capital, Training

Introduction

Human resource policies are way of codified decisions, founded by an organization, to carry administrative personnel functions, employee relations, performance management and resource planning. Each organization has a different set of situations, and so develops an individual set of human resource policies. The competitive advantage that any organization enjoys is headed for its human capital. Policies are common statements that direct an action in decision making process. HR policies are general policies that guide the managers on a number of issues like recruitment, selection, training, motivation promotion and compensation.

Features of HR Policies are:

- derived from the personnel objectives of an organization
- provide useful guidelines to the managers
- Personnel policies and procedures.
- clear and easily understood
- comprehensive
- Flexible
- Stable
- Periodic review
- must be reasonable and capable of being accomplished

Manpower planning

Manpower planning is determination of right number and right skills of human resource to fulfil the present and future needs. Objective of manpower planning is to make sure optimum use of human resources employed. To measure future skills requirement, to provide control measures to ensure that essential resources are available as and when required, to conclude requirement level, to anticipate redundancies and avoid unnecessary dismissals and assess training and development needs.

Vision

Vision and mission statements are often developed and used together for the same purpose. This confuses many people into thinking that vision and mission could be used interchangeably, when actually they can't.

Mission

A Mission Statement defines the company's business, its goals and its approach to reach those goals.

Objectives

Objectives are more specific and easier to measure than goals. Objectives are basic tools that underlie all planning and strategicactivities.

Review of Literature

Singh (2010) assessed the impact of the HRM practices represented by planning, recruitment, selection, training and development, career management, performance evaluation, and rewards on managerial effectiveness in public sector organisations. Four organisations were studied for this research. This study revealed that the HRM practices along with organisation culture play a significant role and influence the managerial effectiveness of the organisation. Training and development was found to be a significant predictor of managerial effectiveness in public sector organisations.

Pule et al. (2014) in their study titled "Human Resource Policy and Job Satisfaction of Employees in Knowledge-Based Enterprises: A Comparative Study of the Indigenous and Expatriate Teaching Staffs of Kampala International University, Uganda" The study revealed a low variation in human resource policies of between the indigenous and expatriate academic staffs of KIU. However, a significant difference in job satisfaction was reported among the two groups which in favour of the expatriate teaching staff.

A strong civilization is a common denominator among the most flourishing organizations. All have harmony at the top regarding cultural priorities, and those values have center of attention not on individuals but on the organization and its goals. Leaders in flourishing organizations live their cultures every day and go out of their way to communicate their cultural identities to employees. They are comprehensible about their values and how those values define their organizations and determine how the organizations run.

(Xanthopoulou et al., 2007) highlighted thatconsistentency with job recourses, personal resources are functional in achieving work goals and they reduce job demands and the associated physiological and psychological costs, and helps in stimulating personal growth, learning, and development.

Shoaib et al., (2013) in their research article extensively studied organizational culture and had identified individuals and groups within an organization.Organizations are as dynamic as systems and would have the best performance when their components act coordinately and efficiently.

## Objectives of the Study

The main objectives of the study are:

1. To study the awareness level among the employees about the vision statement of the organization.
2. To study the awareness level among the employees about the mission statement of the organization.
3. To study the awareness level among the employees about the objective statement of the organization.

Research Methodology

For the present study data are collected from the primary sources. A well structured questionnaire is prepared to the check awareness of the employees in the Parle Factory in the Bahadurgarh area of the Jhajjar district in the Haryana state.

A questionnaire is prepared to check the awareness of employee on mission and vision, objectives and goals and working procedure of the organization. A total of 100 employees will be taken in the study and 64% of them said that they are aware about the vision of the organization, whereas 6% of them did not reply well and 30% of them said that they are not aware about the vision of the organization.

Figure 1 shows the Awareness level of the employees with regard to the vision statement
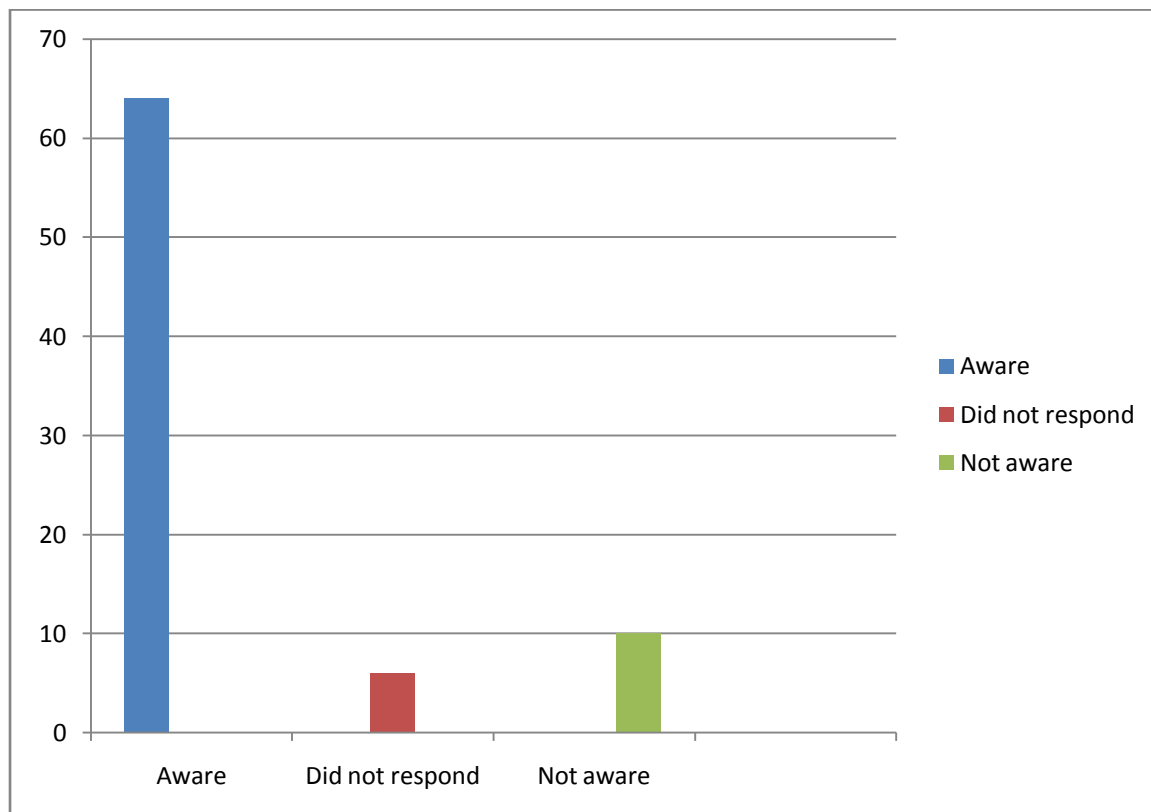
A total of 100 employees will be taken in the study and 70% of them said that they are aware about the vision of the organization, whereas 5% of them did not reply well and 25% of them said that they are not aware about the mission of the organization.

Figure 2 shows the Awareness level of the employees with regard to the mission statement
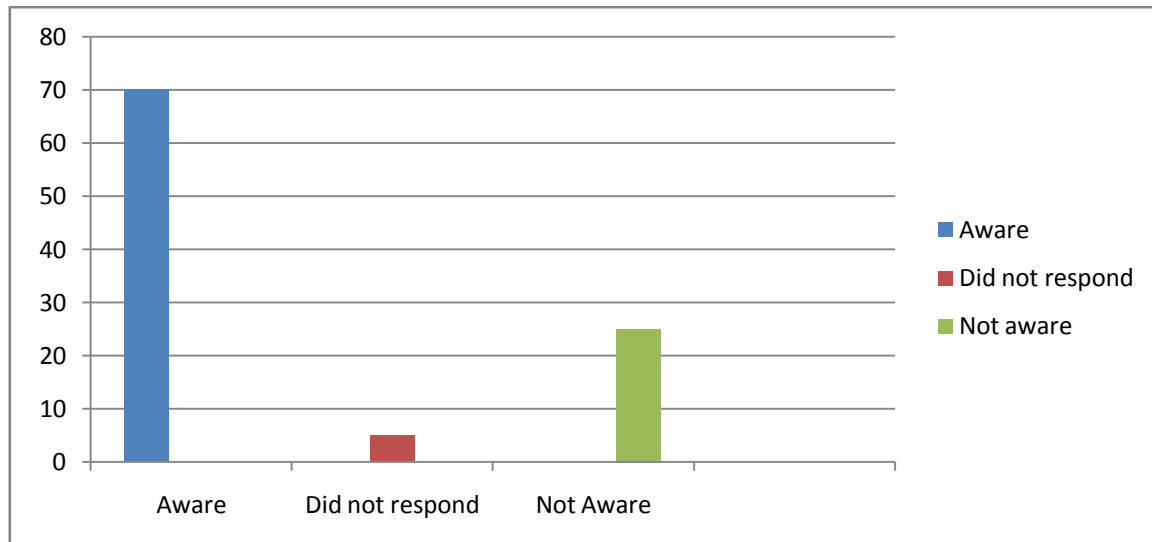
A total of 100 employees will be taken in the study and 80% of them said that they are aware about the vision of the organization, whereas 5% of them did not reply well and 15% of them said that they are not aware about the mission of the organization.

Figure 3 shows the Awareness level of the employess with regard to objectives
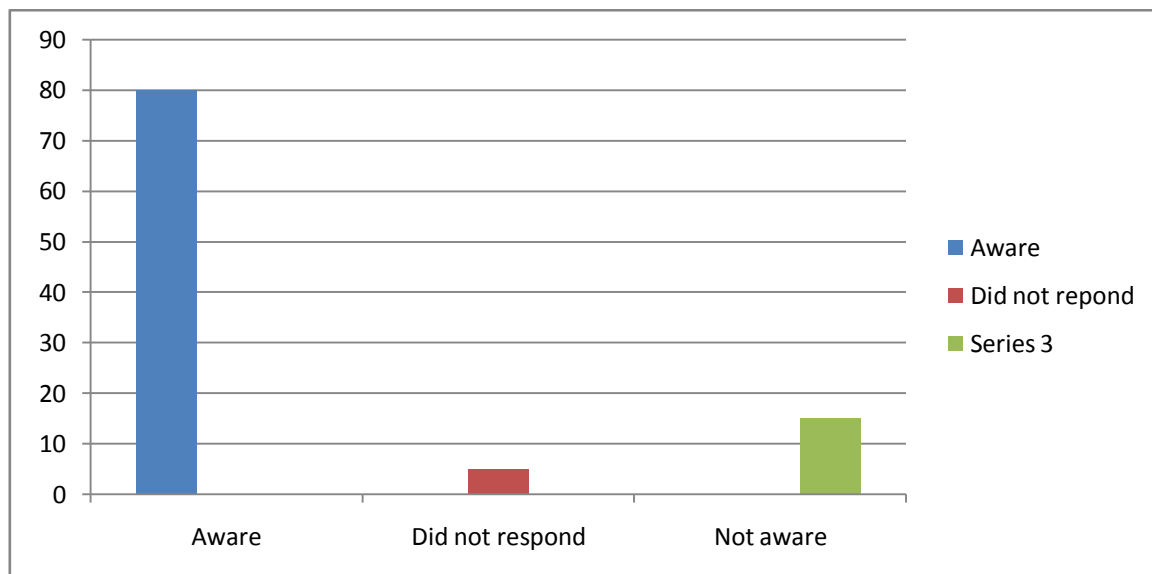
From the above study it is clear that employees of the Parle factory which is located in the Bahadurgarh area of the Jhajjar district of Haryana state were more aware about the objectives of their organization whereas they were less aware about the vision statement of the organization.

Conclusion

From the above study it is concluded that employees of the Parle factory which is located in the Bahadurgarh area of the Jhajjar district of Haryana state were more aware about the objectives of their organization whereas they were less aware about the vision statement of

the organization. Vision and mission statements are often developed and used together for the same purpose.

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IMPACT OF E- MARKETING ON CONSUMER BEHAVIOR

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Abstract

Today is the era of digitalization, in this modern era everyone wants to save his/ her time so that they move towards traditional shopping to online shopping. E-Marketing means company efforts to inform buyer, communicate, promote and sell its product and services over the internet. E-marketing means marketing through electronic devices.E-marketing not only include sale of goods over the internet but also include provide better services to customer. Online market open for 24 hours and 7 days. Now Customer purchase anything through online marketing by just clicking on electronic devices. The paper deal with impact of e marketing on consumer behavior. Data for this investigation were collected from primary as well as secondary sources. Primary data have been collected through online questionnaire and response are presented through graph and charts. Secondary data have been collected from books, journal and internet.

Keywords: online marketing, electronic marketing, internet.

Introduction:

E-marketing also known as online marketing, virtual marketing or internet marketing is a system which enables marketing activities with the help of electronic devices like smart phone personal computers. Any firm which wants to survive successfully in the market, has to identify the opportunities and treats thrown by ever changing environment and has to use its internal strength to have smooth sailing of all the forces. All the technological forces are fast changing especially information technology. As a result certain changes have to take place in the field of marketing. Thus the concept of e marketing introduced. E marketing means conduct of marketing activities on internet or extranet, not only buying and selling but also serving to customers. The main aim of e marketing is establish and maintain long term relationship with customers (CRM). E-marketing provide facilities for 24*7*365. It is a part of direct marketing. Direct marketing means selling directly to the customers without any intermediary. Online marketing compete among themselves in term of three key aspects of a transaction:

1. Customer interaction with website
2. Delivery of product
3. Ability to address problems when they arise.

Objective of study

- To understand the concept of E-marketing
- To study the consumer behavior while purchasing over the internet.
- To study the difference between traditional and modern marketing.
- To find out if education level effect on usage of E-Marketing

Advantages of E-marketing

1. Continuous sales 24 hours* 365 days

There is no fixed schedule or time for work, as marketing of products and services is at any hour throughout the day the week and even the year. This means that we reach our customers in their spare time and in the middle of their work.

2. Reach customers in distance geographical areas

E-marketing is not based on geographic location and this means that we can complete a purchase transaction with the customer who lives in one country and a seller in another country. So, we have overcome one of the most important difficulties in e-marketing which is the long distance difficulty.

3. E marketing means less cost

When anyone wants to present a product and services, then they are worry about the cost of building and expenses of employee. So these problems can be eliminate by e marketing.in e marketing no need to establish building. Through this customer find the product at low cost

4. Save the time

In modern time, no one has more time to go to store and purchase product and consuming more time on this activity. E marketing provide variety of product, persons choice the product and save their precious time.

5. Offer the right product to the right customer

E-marketing will help us know the behavior patterns of the customers through data mining and therefore we can offer a particular products and services for each group of customers. This means the increase the purchase by offering the right products to the right buyer.

Disadvantages of e marketing

1. Depend on technology

E marketing is totally depend on technology. Some time network problem arise while using website. Electronic marketing is limited by the ability of the consumer to access and use Internet services. Although there is an increased popularity of Internet services in the modern world, a large number of consumers are unable to use or have no access to Internet services.

2. Security and privacy issues

Various types of security issue arise while using websites like unauthorized access, theft and fraud and leak of personal details.

3. Lack of personal approach

 From the buyer's perspective, no one totouch, to smell, to taste tangible goods before making an online purchase.

4. More competition

  A lot of competition for your product in online marketing. When your visitor finds you then it means they have been checked many links already. Until and unless they can find what they are looking for quickly, they are gone.

Method of E-Marketing

1. **E-Mail Marketing**

Marketing through the email is the best method of e-marketing due to its low cost and simplicity of use.Email marketing is the act of sending a message, typically to a group of people, using email. It refers to sending email messages with the purpose of encouraging customer for purchase, acquiring new customers and convincing current customers to purchase something.

2. **Search Engine Marketing**

Search Engine Marketing (SEM) is a method of electronic marketing that involves the promotion of websites by increasing their visibility in search engine results pages (SERPs). SEM may incorporate search engine optimization (SEO), which adjusts or rewrites website content and site architecture to achieve a higher ranking in search engine results pages to enhance pay per click (PPC).

3. **Social Media Marketing**

In present time, social media is the best method of e marketing. It is a type of communication with your customer in order to highlight the value of company's product and services and increase the name and fame of company. Social media marketing (SMM) is a form of Internet marketing that utilizes social networking websites as a marketing tool. The goal of SMM is to produce content that users will share with their social network to help a company with broaden customer reach.

4. **Content Marketing**

Content marketing is a method of E-Marketing focused on creating, publishing, and distributing content for a targeted audience online. A type of marketing that involves the creation and sharing of online material (such as videos, blogs, and social media posts) that does not explicitly promote a brand but is intended to stimulate interest in its products or services.

Differencebetween Traditional Marketing and E-Marketing

E-Marketing	Traditional Marketing
It save the time of consumer	It consume more time
It is economical method of marketing the product	It is very expensive process of marketing
In e marketing market open for 24*7*365	This is not possiblein traditional marketing
It wholly depend on technology	This is not depend of technology
Various security and privacy issues arise in E marketing	No privacy and security issues arise in traditional marketing

4 S's of E-Marketing

1. **Sell**- increase sale and attract business using modern technology
2. **Serve**- Add value through the benefits of the internet such as speed
3. **Speak**-get closer to customers by making the business available tothem at home, work place with the help of mobile technology
4. **Save**- reduce cost by using information technologies to make business more efficient

Research Methodology and Data Collection

The paper mainly concern with evaluating the customer behavior and finding the scope of e marketing services. The data used was collected from both primary and secondary sources.

Primary data: The primary data collected was done through questionnaire

Secondary data: secondary data was collected from books, journals and internet.

Sample Size

The study consist of a total of 53 respondent which consist male and female both.

Finding and Conclusion

The primary data was collected the online questionnaire method from different age group of people from different educational background. Questionnaire was sent to 80 persons while we receive 53 responses.

Gender of respondent: From the pie chart, it can be seen that out of 52 responses, 38.5% were males whereas 61.5% were femalesthis show that majority of respondents were females.

Gender:

52 responses
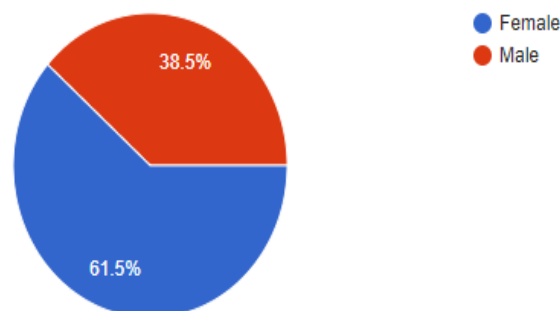
Age of respondent: From the pie chart, it can be seen the majority of respondents were age of 18 to 36 years

Age:

53 responses
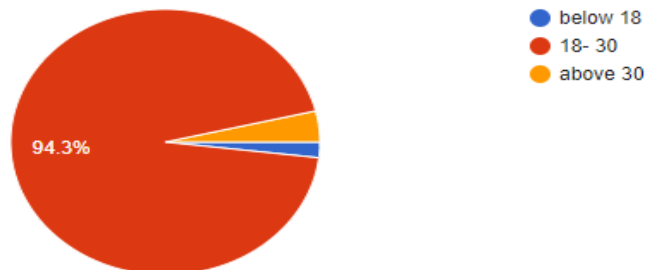
Education level of respondents: this study investigate the education level of the respondent and education level distribution as follow:
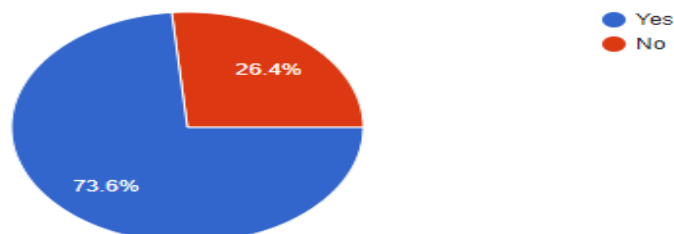
Qualification

52 responses
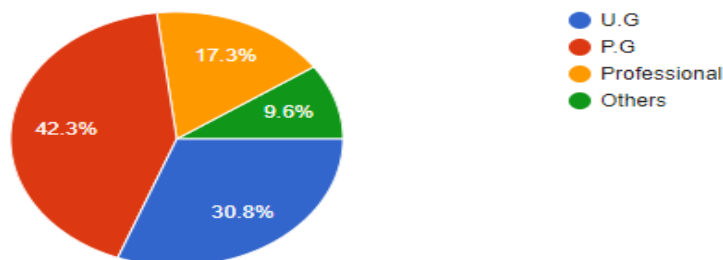
E-Marketing usage: From the following data find that 73.6% persons purchase product through internet and only 26.4% persons not purchase online products

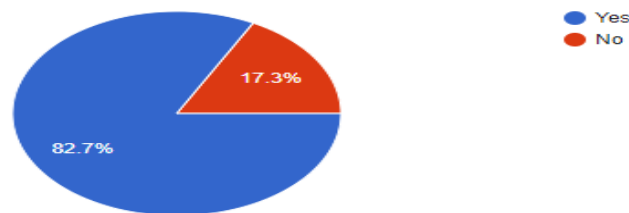## Have you had any experience in buying products through internet

53 responses

Satisfaction level: most of the respondents are satisfied with online marketing.from pie chart, it can be find 82.7% respondents satisfied and 17.3% respondents not satisfied.

Are you satisfied with online marketing?

52 responses

Best method of marketing: From pie chart, most of respondents' select online marketing is the best method of marketing.

According to you which method of marketing is best

52 responses
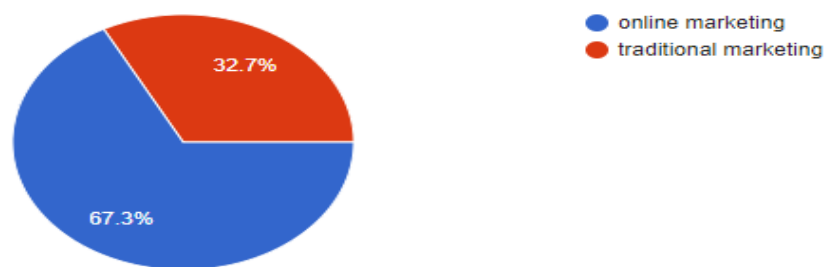
Conclusion:

It can therefore be conclude that E-Marketing is integral part of modern marketing. The study reveal that customer are aware about E-Marketing. More than 50% of customers prefer online marketing. E-marketing services available any time at any place. Online market open for 24*7*365. The only challenges to e- marketing is privacy issue.

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AGRICULTURAL CREDIT AS A TOOL OF FINANCIAL INCLUSION: A CONCEPTUAL VIEWPOINT

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Abstract

Agricultural credit is a way to finance agricultural transactions through notes, loans, bill of exchange and bankers' acceptances, *etc*. This method of financing is used to meet the specific financial needs of farmers, which are emerged with planting, harvesting and marketing cycles. This study is an attempt to describe the trends of agricultural credit flow in India and issues faced while disbursement of credit for agriculture activities. To achieve the said objectives, secondary data were collected from annual reports of the Ministry of Finance, Web sources of NABARD, RBI, World Bank, *etc*. The data was analysed through a set of simple techniques of statistics. The results were interpreted in a fruitful and simplest manner. Consequently, it is found that the credit flow for agriculture sector is increasing, but a lot of efforts are required to be taken by GoI, RBI and NABARD.

Keywords- Banks, Farmers, Schemes, Financial inclusion, Initiatives.

1. Backdrop

Agriculture is known as the backbone of an Indian economy. As per Census 2011, about 68.8 per cent people belong to rural areas and they depend upon agriculture directly or indirectly for their livelihood. The performance in agriculture depends upon various production factors and agricultural credit is one of them. Agricultural credit is one of the critical input for agricultural development. It enables farmers to make use of new technologies in farming. Since independence, multi agency approach has been adopted to provide adequate and cheaper credit to the farmers. Various formal institutional agencies such as Regional Rural Banks (RRBs), Non-Banking Financial Institutionals (NBFIs), Agricultural Cooperatives Societies, Self-help Groups (SHGs), *etc*. provide the short-term and long-term credit to the farmers. The Government also framed policies to strengthen the farm credit delivery system with an emphasis on small and marginal farmers and weaker sections of the society to increase agricultural productivity.

2. Review of literature

Mohan(2004) explored the progress in agricultural credit and problems faced in agricultural lending. The study described a changing pattern in agriculture with the use of secondary data. It was found that during the year 1970-71 to 2001-02, the total direct institutional credit has increased and also, agriculture share in GDP is decreasing from 1991 to 2001. The study reflected changes in the consumption pattern in rural areas. The researcher recommended that

there is an urgent need of green revolution, strong agricultural financial institutions to build marketing infrastructure, designing of regionally disaggregated nation wide major mission programs for different agricultural activities to ensure smooth credit flow among farmers.

Golait(2007) studied the trends in agricultural credit in India through secondary data. The scholar found that there is inadequacy among the credit delivery to the agriculture sector as well as high transaction costs, low volume of loans with high risks, requirement of more manpower, issues related to credit worthiness and disparity among marginal, small, large farmers, *etc*. The scholar suggested that there is a need to promote micro finance, innovation in product design and delivery methods, *etc*.

Rahman(2011)found the challenges and proposed remedial measures of agricultural financing in Bangladesh. The scholar evaluated the relationship of agricultural credit and farm production. Also, the impact of policy shift on performance of lenders' agricultural credit programs was examined. Under this study, time series data was used and analyzed by using linear and exponential equation. Hence, it was found that there is a strong positive correlation between the credit disbursement and agricultural production. However, it was also noticed that there are various challenges like biasness inselection of borrowers, increasing rate of defaulting farmers and political interference. Therefore, the researcher suggested that a close supervision on credit delivery system and incentives for financial intermediaries be done so that sustainability in financing to agriculture sector be ensured.

Abdullah, *et al.* (2015) described the trends of agricultural credit flow in Pakistan and problem in disbursement of agricultural credit. They found an upward trend in agricultural credit disbursement and reduction in credit disbursement to agriculture sectors, whereas it was increased to non-agriculture sectors. They also found an increasing trend in institutional credit. They also noticed various problems like lack of efficiency in disbursement of agricultural credit, excessive documentation and political pressure arise in agricultural financing. Lastly, they suggested to focus on group financing system, easy recovery process, low rate of interest and simple procedure for obtaining loans to ensure proper utilization of agricultural credit.

Dev (2006) examined the issues and challenges in reducing financial exclusion. The scholar examined different issues like farmers' indebtedness, dependence of marginal farmers on informal sources, inadequate awareness, low financial literacy and concluded banking institutions, self-help group movement, microfinance institutions must have play their significant role to boost financial inclusion.

3. Research Objectives

a). To know the recent trends of agricultural credit flow in India.

b). To identify the initiatives taken by the Government for increasing agricultural credit flow.

4. Research Methodology

The study is of descriptive in nature. The study is based on secondary data compiled from annual reports of the Ministry of Finance, websites of NABARD, RBI and World Bank and existing studies.

5. Trends of Agricultural Credit in India

In June, 2004 the Government decided to double the flow of agricultural credit in three years with reference to base year 2003-04. An annual target for ground level agriculture credit by Scheduled Commercial Banks, Cooperative Banks and Regional Rural Banks (RRBs) has been decided by the Government to promote the agriculture sector through effective agriculture credit.

The flow of agriculture credit has consistently exceeded the target since the year 2003-04. This is evident from the fact that agriculture credit flow, which was at Rs.86,981 crore in the year 2003-04 reached to Rs.4,68,291 crore in 2010-11. As against the annual target of Rs.4,75,000 crore was fixed for the year 2011-12, ground level credit disbursement of Rs. 5,11,029 crore was achieved (registering 107 per cent of the target). During the year 2012-13, as against the annual target of Rs.5,75,000 crore, achievement/credit disbursement was Rs.6,07,376 crore (exceeding 105 per cent of the annual target). The target for the year 2013-14 was decided at Rs. 7,00,000 crore and achievement was Rs. 7,11,621.47 crore. During the year 2014-2015, agricultural credit of 8,45,328.23 crore was disbursed against the target of Rs. 8,00,000 crore. The annual target during the year 2015-16 was fixed Rs.8,50,000 crore and achievement was Rs.8,77,527 crore. The target of Rs. 9,00,000 crorehas been set for the year 2016-17 and a sum of Rs. 10,65,755.67 crore has been disbursed (118.42 per cent of the target). The target for the year 2017-18 was decided Rs. 10,00,000 crore and achievement was 11,685 billion. During the year 2018-19, the Government decided an annual target of Rs. 11,000 billion as an agricultural credit flow.

Table 1:Credit flow to agriculture				
(Rs. billion)				
Year	Banking sector (includes RRBs and co-operative banks)		Commercial banks	
	Target	Achievement	Target	Achievement
2010-11	3750	4683	2800	3459
2011-12	4750	5110	3550	3686
2012-13	5750	6074	4200	4325
2013-14	7000	7116	4750	5090
2014-15	8000	8406	5400	5997

Source:https://rbi.org.in

Table 2:Targets and Achievements for Agricultural Credit								
(Rs. billion)								
Year	Commercial Banks		Co-operative Banks		RRBs		Total	
	Target	Achievement	Target	Achievement	Target	Achievement	Target	Achievement
1	2	3	4	5	6	7	8	9
2016-17	6,250	7,998	1,500	1,428	1,250	1,232	9,000	10,658
2017-18 *	7,040	8,772	1,560	1,504	1,400	1,410	10,000	11,685
*:Provisional. Note: Figures might not add up to the total due to rounding off of numbers.								

Source: https://rbi.org.in/

6. Issues in Agricultural credit flow

6.1 Farmers' suicide

As per the Agriculture Census (2010-11), 117 million (85 per cent) farming holdings out of the 138 million are small and marginal holdings in the country. During the year 1970-71, the number of farmers holding marginal sized land were 36 million, which rose to 93 million in the year 2010-11, which highlights that due to hereditary practices, lands are continuously fragmented. Small farm holdings result in low labour productivity and more cost due to lack of mechanization. Small and fragmented holding farmers face agrarian stress as their income get reduced due to heavily dependence on middlemen to sell their agriculture produce. As per National Crime Records Bureau, from the year 2000 to 2012, more than 2,14,000 farmers of the country committed suicide.

6.2 Dependence on non-institutional credit

The major proportion of small and marginal farmers is dependent on non-institutional sources of credit. The banking sector is still averse to small borrowers who are seen as higher risk. One of the main reasons of the agrarian distress among the farmers istheir excessive dependence on noninstitutional sources that charges high interest rates.

6.3 Excessive cost

The cost in terms of various schemes and relief packages announced by the Government, loss of human life due to suicides is very high. For example, during theyear 2006, Prime Minister's agricultural relief package amounting to Rs. 17,000 crore and in 2007, under the agricultural loan waiver scheme with an estimated cost of more than Rs. 60,000 was given to provide relief to farmers.

6.4 Indebtedness of farmers

The All India Debt and Investment Survey (2013) reveal that more than half of the rural households own less than one hectare of land and they are marginal farmers. Their

indebtedness is inverse proportionate to their land holdings. According to survey findings, in case the land holding is less than 0.01 hectares, then credit from formal banking institutions is accessed by only 13 per cent farmers, while 64 per cent access credit from private moneylenders and in case, the landholding is more than 10 hectares, over 60 per cent of rural households borrow credit from formal banking institutions, and only 16 per cent access credit from private moneylenders.

6.5 Other reasons

Disparity in credit flows among the villages, districts and states, the problem of non repayment of the loan by the marginal farmers also create hindrance in the agricultural credit flows.

7. Initiatives taken by the Government to increase agricultural credit flows

7.1 Kisan Credit Card Scheme (KCC)

During the year 1998-1999, to ensure timely and adequate credit support fromthe banking system to the farmers for their agricultural operations, an innovative credit delivery system known as Kisan Credit Card (KCC) scheme was introduced. The scheme is being implemented by all Regional Rural Banks (RRBs), Cooperative Banks and Public Sector Commercial Banks. Under this scheme, oral lessee, sharecroppers, tenant farmers and marginal farmers are eligible to be covered. Monitoring of the scheme in respect of Commercial Banks is done by RBI, whereas scheme in respect of Cooperative Banks and RRBs is monitored by NABARD. To provide short term credit for post harvest expenses,cultivation of crops, farmer households' consumption requirement, working capital for agriculture allied activities such as inland fishery and dairy animal, sprayersare the aim of this scheme. In 2012, RBI and NABARD circulated the revised scheme for Kisan Credit Card. On 31st March, 2016 the cumulative number of live KCCs issued by Cooperative banks, Commercial banks and Regional Rural Banks were 752.72 lakh. On 31st December, 2016 the Prime Minister makes an announcement that under Rupay Kisan Credit Cards, 3 crore Kisan Credit Cards would be covered within next three months. The total number of 3.71 crore Kisan Credit Cards were converted to Rupay Kisan Credit Cards (RKCCs) on 31st March, 2017 and 4.70 crore KCCs were converted on 3rd January, 2018. The progress of the Kisan Credit Scheme for the last two years is presented in the table.

Table 3:Kisan Credit Card (KCC) Scheme			
(Number in million, Amount in Rs. billion)			
Year	Number of Operative KCCs	Outstanding Crop Loan	Outstanding Term Loan
2016-17	23.37	3,851.89	498.13
2017-18*	23.53	3,911.34	419.80
*: Provisional.			

Source:https://rbi.org.in/

7.2 Financing of Joint Liability Group (JLG)

During the year 2005-06, NABARD started the scheme of financing of Joint Liability Groups of tenant farmers.From the year 2009 onwards, JLGs extended to non-farm sectors. A Joint Liability Group (JLG) is an informal group of 4 to 10 people belongs to similar locality and socioeconomic background, and coming together for the purpose of availing loan from a bank against the mutual guarantee on an individual basis or through group mechanism. It serves as collateral substitute for providing credit to small and marginal farmers, tenant farmers, oral lessee, landless labourers and artisans. It also builds confidence between groups and banks and mitigate the credit risk in the loan portfolio for the banks by way of group dynamics, peer education, cluster approach and credit discipline. JLGs facilitate technology dissemination in activities such as testing of soil, providing common access to market information. During the Union Budget announcements in 2014-15, Bhoomi Heen Kisan Scheme was launched by the Indian Government with the aim of financing 5 lakh Joint Farming Groups (JFGs) through NABARD. On 30th September, 2016 total number of JLGs financed were 18.21 lakh and Rs. 18005.79 crore as total loan amount was provided.

7.3 Relief Measures for Natural Calamities

Widespread damage to standing crops is caused by the periodical occurrences of natural calamities. It also takes a heavy toll of human lives in some parts of the country. Such devastation due to natural calamities calls for massive rehabilitation efforts by all agencies (including banks). During the year 2017-18, natural calamities were declared by five states, *viz.*, Andhra Pradesh, Rajasthan, Madhya Pradesh, Odisha and Gujarat. In order to capture the data on relief measures extended by banks, a dedicated portal was developed. During this tenure, as per RBI reports, a total of Rs. 13.68 billion finance was provided against 10,000 account holders as relief measure for natural calamities.

Table 4:Relief Measures for Natural Calamities				
(Number in million; Amount in Rs. billion)				
Year	Loans restructured/ rescheduled		Fresh finance/ Relending provided	
	No. of accounts	Amount	No. of accounts	Amount
2017-18*	0.10	11.88	0.48	13.68
*: Provisional.				

Source:https://rbi.org.in/

7.4 Digitization of land records

A mission mode project, 'Land Records' has been introduced by the Department of Electronics and Information Technology, Government of India, which include records, such as the register of tenancy and crop inspector, lands, Record of Rights (RoR), mutation register and disputed cases register. In this context, the Government of Andhra Pradesh State has digitized the land record. Many branch users have been createdfor viewing the land records of any village in the state. A technical help desk to send feedbacks by the banks has

been created.

7.5 Interest subvention to farmers

An interest subvention scheme of 2 per cent per annum for providing short term crop credit to farmers upto Rs. 3 lakh at 7 per cent rate of interest, introduced by the Government of India to make the availability of agricultural credit at reasonable cost. Under this scheme, the calculation of 2 per cent interest subvention will be made on the amount of crop loan commencing from its disbursement/ withdrawal up date to the actual repayment date of the crop loan by the farmer or up to the due date of the loan decided by the banks, whichever is earlier, subject to a maximum period of one year. For making prompt repayment of loans, an additional interest subvention of 1 per cent was announced in the budget of 2009-10 by the Government of India. During the year 2010-11, this rate was raised to 2 per cent. Since 2011-12, interest subvention rate of 3 per cent was continued.Now, this scheme has been transferred to Department of Agriculture, Cooperation and Farmers Welfare.

8. Conclusion

After going through the data available in different reports, the flow of agricultural credit is increasing consistently over the years. But, till now, inadequacy of credit, persistence of money lenders are major concerns in rural credit market. However, many initiatives like set up of the Rural Infrastructure Development Fund(RIDF), Short Term Cooperative Rural Credit (Refinance) Fund, Producers Organization Development and Upliftment Corpus (PRODUCE) Fundare being taken by the Government of India. Consequently, positive impacts of all these initiatives are found on agricultural credit flow. Furthermore, the Government of India has to put forward various schemes for farmers as well as the stakeholders who are directly and indirectly linked with agriculture so that all of them can take the benefit of different schemes launched through financial inclusion.

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PLASTIC MONEY: A WAY OF CASH LESS ECONOMY

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ABSTRACT

Money is the medium of exchange. Initially barter system was used as important method of payment. Over a year, money has changed from coins to paper cash and today it is available in plastic cards (debit and credit card) due to technological advancement. Plastic money is referring to credit or debit card that we use to make the payment. In present era, it is impossible to imagine modern bank transaction and other payment without using plastic cards. Plastic money is an important way of cash less economy. The study revealed that in modern word, plastic money is important for customers. Majority of people use plastic cards due to convenience and easy portability. They feel safe by using plastic cards.Plastic money is now becoming a necessity across the globe. It is very useful at distant places due to its accessibility at each and every place. It is a part of E- Banking. The present papers make an attempt to understand the consumer preference and attitude towards the use of plastic money. In this paper, data was collected through the primary as well as secondary sources. Primary data are collected through a structured questionnaire with a sample size of 50 respondents.

Keywords: Plastic money, Credit card, Debit card, E- Banking

Introduction

Every aspect of our life is affected by better technologies. The plastic card technology is booming all around the word. Plastic card is substitute of normal method of paying through paper money. Almost all the businesses are being preferred this type of technology. The plastic money includes debit card, credit card, smart card etc. Plastic money encourages people to stop carrying out heavy weights wallets. In case of immediate need of money, people take out the card and withdraw the cash from his account at any time. Now a day, every bank provides credit and debit facilities to the customers. The reason behind popularities of plastic cards is basically convenience in handling, security from misappropriation of theft and worldwide acceptance. Online payment through plastic cards time saving and can be done anywhere without delay of payment. Plastic money will bring us benefit as well as problems. One major benefit of digital cash is its increased efficiency which will open new business opportunities especially for small businesses on the other hand it will bring in problem like taxation and money laundering, possibility of financial crises etc.

OBJECTIVE OF STUDY

- To study the awareness regarding use of plastic money among the consumers

- To study the reasons for preference of plastic money

- To study the benefit of debit and credit cards

Data Collection

Primary and secondary sources are used for data collection. Primary data has been collected from survey questionnaire. Secondary data will be collected from different website, books, internet and past research paper.

Sample

The target population of my study is individual customers of bank. Data is collected from 50 respondents with the help of structured questionnaire. While selecting a respondent, due importance was given to various factors such as age, sex and education etc.

Types of Plastic Cards

1. **ATM cum Debit Card:**

 Debit cards are designed for customers who like paying by card but do not want credit. A debit card is a plastic card for payment of purchases. Functionally, it is similar to writing a cheque as the funds are withdrawn directly from either the bank account or from the remaining balance on the card. The debit card is thus ideal for those who have a tight budget and want to keep within it. There are two types of debit cards systems namely:

• **On-line debit cards**

• **Off-line debit cards**

On-line Debit Cards: Making a purchase with an online debit card is similar to withdrawing cash from an Automated Teller Machine (ATM). The card has a magnetic reader, which is connected by a phone to a computer. PIN is used for verification and computer verifies the PIN and checks to see if one has enough money in the bank to cover the transaction, all of which will not take more than a few seconds.

Off-line Debit Cards: Off-line debit cards work more like cheques, because there is no direct connection between store and bank.

2. **Credit Card**

 A credit card is again a plastic card to purchase goods, travel and dine in a hotel or other services without making immediate payments. The holders can use the cards to credit from banks up to 45 days. The credit card relieves the consumer from botheration cash and ensures safety. It is a convenience without formality. Different types of Credit Cards:

• **Master Card & Visa**:

MasterCard is made by MasterCard International and along with VISA which is distributed by financial institutions around the world. Cardholders borrow money against a line of credit and pay it back with interest if the balance is carried over from month to month.

• Smart Card:

 A smart card is a chip card, or ICC (Integrated circuit card), which is any pocket-sized card that has included integrated circuits. These are made of plastic, generally polyvinyl chloride. Smart cards can have contact, contactless, or both. It does maintain records, statements and acts as an electronic purse, storing e-money. It is useable for drawing cash and makes payments with automatic facility of keeping accounts of balances of the party. During a loading operation, the deposit account of card holders is debited and credit is given to a centralized card account.

• Dinner Club Card:

 The Dinners club card was invented by Dinner's club founder Frank McNamara and it was intended to pay restaurant that would accept Dinner's club card. Dinner club would pay the restaurant and the card holder would repay Dinners club.

• Global Cards:

 This card allows the customer to access their accounts from anywhere and at any time conveniently. They need not carry cash; instead they can use the Bank's global Debit card that combines the benefit of traditional ATM card and a credit card.

• Agricultural Card:

 Agricultural card is otherwise known as Kissan Credit Card. These are made to provide the financial assistance to farmers. The coverage of the help extended to all farmers and to improve the credit flow under agriculture, the scheme has extended to farmers for term credit as also working capital for agriculture and allied activities and a reasonable component for consumption needs, thus, paving the way for acceptance of Kissan Credit card as a single window for comprehensive credit. The banking system has been routing crop loans through Kissan Credit Cards having recognized it is as a accepted mechanism delivery of credit to farmers.

Advantages of Plastic Money

There are various advantages of plastic money. The advantages include:-

1. Abolish the need for carrying huge cash: This remove the need for carrying huge load of cash which is risky and inconvenient too.

2. Minimizing the risk of loss or theft: In case of cash there is a high risk of losing cash and a chance of cash getting stolen. On the other hand in case of debit-credit card you can report the matter to the bank and block the card to avoid misuse.

3. Mobile Access:- Using cards you have the unique advantage and convenience of using it anywhere and anytime in the country or even abroad.

4. Lent Facility: In case of credit card you have the option of buying on credit and paying later for it. The charges are high but it helps in case of emergencies and contingencies.

5. Online Payments: You can use cards for online payments, fund transfers and various other transactions.

Disadvantagesof Plastic Money

I. **Non-Acceptance at Small Retail Outlets**

If you are not a person who shops only in supermarkets, hypermarkets and departmental stores you will be forced to use cash

II. **Cannot be used for all daily needs**

You cannot pay your milkman, servant, newspaper guy, etc by card.

III. **Loss & Misuse**

If your card is lost you have to immediately report about it and get the card blocked to avoid misuse. Sometimes when you have no knowledge that you lost the card the chances of misuse is higher.

IV. **Low Value Transactions**

There are some cases where small sized retailers don't accept cards for low value transactions (say less than Rs.200). You may have noticed this even in case of petrol pumps and restaurants.

V. **Service Charges**

In some cases the service provider charges additional service charges for cards. So this can be another pressure on your pocket.

VI. **Damage to Card**

Sometimes the card's gets damaged, scratches or cuts which can render the card unusable. So keeping it safe and secure is very important and necessary.

Plastic Money – Present Scenario

E-Finance:

 With the introduction of internet and opportunities it has provided, new product and services are emerging that set to change the way we look at money and monetary systems. Smart Card which can store account balances and update the same periodically can be useful to customer for payment of various types of utility bills and can function like electronic purses.

Banking:

There has been talk for some time that physical cash, notes and coins will become a thing of past and digital cash, electronically held value will become the norms. Telephone banking and bill payment are just couples of examples. The emergence of plastic money can throw.

Issues and Challenges faced by Banks

✓ **Business Issues:**

- Who should be the target customers?

- What should be the scale of operation?

- What should be technology adopted?

- What should be marketing strategy?

✓ **Privacy Issues:**

- What are the laws, Rules and Regulations governing Privacy issues?

- Are the data collection and data maintenance agreements?

✓ **Security Issues**

- What security measures are being employed?

- What Electronic authentication, Signature and Certification Systems will be used?

✓ **Regulatory issues:**

What should be

- Capital Requirements?

- Liquidity Requirements?

- Reporting Requirements?

- Privacy Policies?

- Taxation?

- Control over Supply of E-Cash?

DATA INTERPRETATION AND FINDINGS

1. Gender of respondents.

options	No of respondents	percentage
Male	37	52.9%
Female	33	47.1%
total	70	100

Gender

70 responses
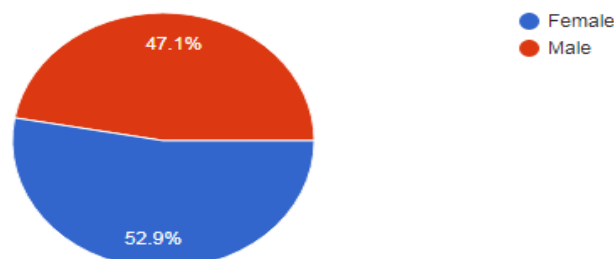
2. **Age of respondents**

options	No of respondents	percentage
Below 18	11	15.5%
18-36	57	80.3%
Above 36	3	4.2%
total	71	100

Age

71 responses
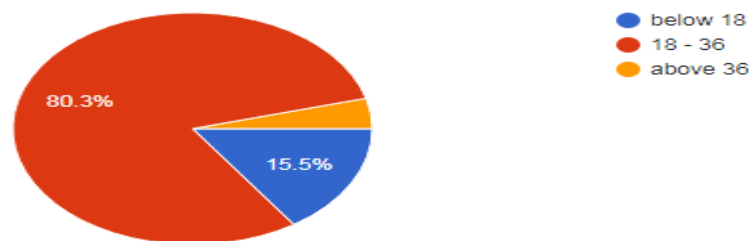
3. **Education qualification**

options	No of respondents	percentage
Secondary		26.8%
Under graduate		31%
Post graduate		42.3%
total	71	100

education qualification

71 responses
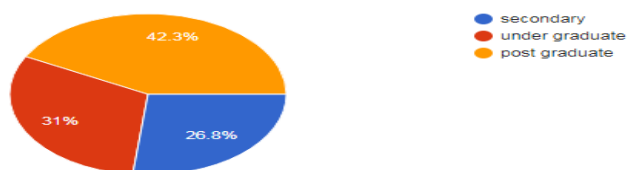
4. Do you have debit and credit cards?

options	No of respondents	percentage
Yes		64.8%
No		35.2%
total	71	100

do you have debit and credit cards?

71 responses
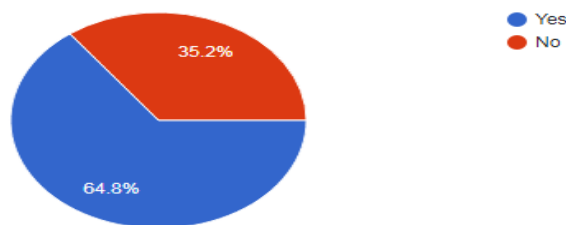
5. How frequently do you swipe your cards?

options	No of respondents	percentage
Daily	7	10.8%
Weekly	18	27.7%
Monthly	14	21.5%
Rarely	26	40%
total	65	100

how frequently do you swipe your card?

65 responses
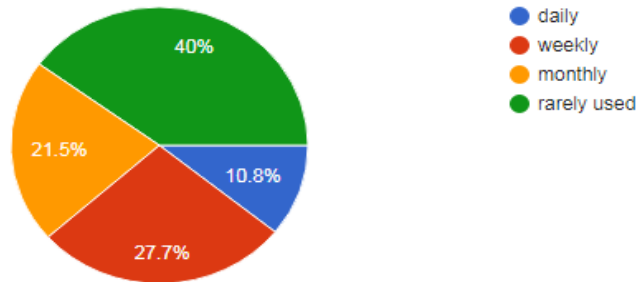
6. **According to you which method is easy to pay?**

options	No of respondents	percentage
Cash	15	21.1%
Card	23	32.4%
Both	33	46.5%
total	71	100

according to you which method is easy way to pay?

71 responses
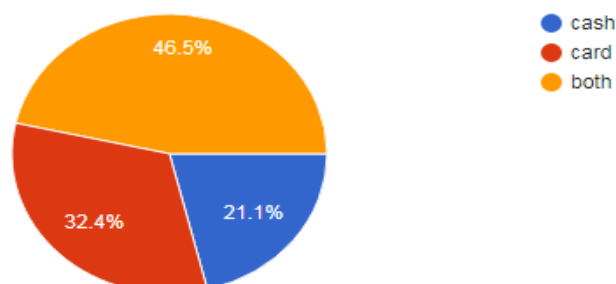
7. For which purpose you use cards?

options	No of respondents	percentage
Electricity	2	3.2%
Phone bill	1	1.6%
Banking	5	8.1%
Railway booking	1	1.6%
Only withdraw	10	16.1%
Any other purpose	6	9.7%
All of the above	37	59.7%
Total	62	100

for which purpose you use cards?

62 responses

- electricity bill
- phone bill
- banking
- railway booking
- only withdraw
- any other purpose
- all of the above
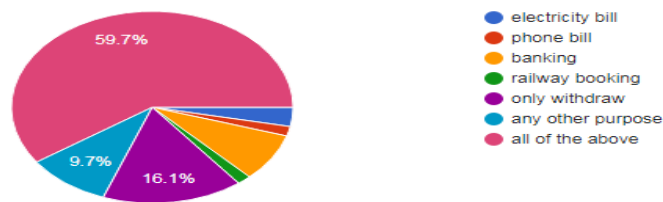
8. Benefits of plastic money?

options	No of respondents	percentage
Easily carry	2	3.1%
Easy to pay	4	6.3%
Security	4	6.3%
Less time consuming	8	12.5%
Added benefit	00	00
All of the above	46	71.9%
total	64	100

benefits of debit and credit cards

64 responses
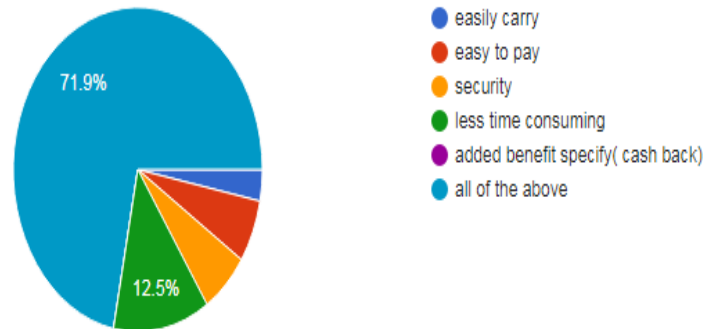
9. Are you satisfied with use of cards?

options	No of respondents	percentage
Yes	63	91.3%
No	6	8.7%
total	69	100

are you satisfied with the use of cards?
69 responses
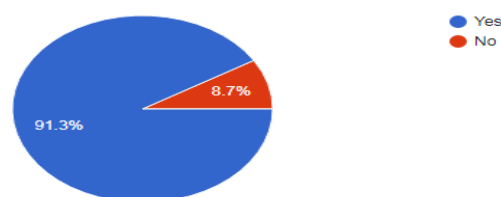
10. Satisfaction level

options	No of respondents	percentage
Highlysatisfied	39	59.1%
Quite satisfied	27	40.9%
total	66	**100**

if you are satisfied , what level of your satisfaction?

66 responses

● highly satisfied
● quite satisfied

40.9%

59.1%
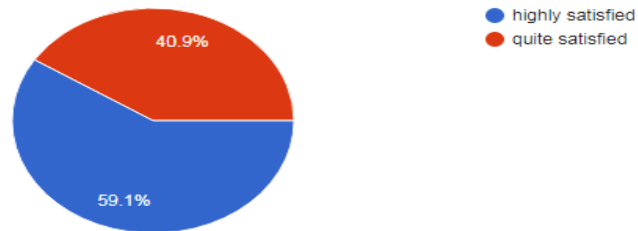
11. Problems you faced while using cards?

options	No of respondents	percentage
Insecurity	10	21.3%
Fear of loosing	8	17%
Unnecessary formalities	4	8.5%
Other reason	16	34%
Non availability of cash at ATMs	9	19.1%
Total	47	100

if you are not satisfied, what problems you faced while using debit and credit cards?

47 responses

● insecurity
● fear of loosing
● unneccessary formalities
● other reason
● non availability of cash at ATM

34%

8.5%

17%

19.1%

21.3%

Conclusion

The study concluded that the majority of customers use plastic money. Plastic Money are emerging and getting accepted in the market place. Debit Card/Credit Card payments are easier way to make payment. It is beneficial for both customer and issuer. But some customers are not aware about utilization of these cards. According to them it is very complex procedure so bank must give training regarding its usage. The bank should give them facility to use plastic cards on trial basis so they can use very confidently. Bank should

cut their usage cost. There are some challenges for issuers. Most of challenges faced by bank is non availability of ATMs. The growth of banking industry depends upon appropriate use of plastic cards and banks should meet challenges and make use opportunities profitably. There should be E-finance system used effectively so that issuers can able to meet challenges faced for issuing Plastic Cards and to meet Competitive edge for success in plastic card business. Above all, interest of customer is of foremost importance.

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EVALUATING THE EFFECTIVENESS OF TRAINING PROGRAMMES USING VARIOUS MODELS

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Abstract

Human Resource Management enlists training and development as an important aspect in today's technological world. Training is a requisite strategy to keep the organization's up-to-date in today's competitive scenario. Training is like an investment in human resource with a promise that they can give better returns in future. It enables the manpower to polish their skills and sharpening their knowledge as per the requirement. Manpower is considered as the valuable asset for any business organization. Because, the success and failure of any business organization depends on the manpower working in that organization. So, Organizations spend huge amount of money on training to train their employees and to gain a competitive edge. Training acts as a catalyst to enhance the work performance of the employees and ultimately the firm. It helps to make the employees multifaceted in operations. Organization spend huge amount on training and development so it is mandatory to evaluate it. So that we judge the worth of the training and its future prospective. The present research is to explore the various models used to evaluate the effectiveness of training programs through an extensive literature review. It helps to examine the relevance of the current training strategies and analyses the impact of these strategies on both employees and the business organization.

Keywords: training, development, manpower, evaluation, effectiveness, organization.

1. Introduction

Employee training and development considered as an inevitable function of human resource management. In the rapidly changing business world, training becomes a strategy to retain employees and minimize employee turnover. Moreover, training helps to minimize accident rate, enhance employee learning and capability, reduce absenteeism and boost the morale of employees. Training has immense potential in transfer and utilization of latest technical know-how, entrepreneurship development, team-building, formation of self-help-groups, mobilization of people as well as resources, leadership development, empowerment of resource-poor rural mass, employee engagement etc., which are considered essential components of HRD. Thus it is an organized process to increase the employee knowledge, skill and attitude. In the field of human resource management, training and development is the field concerned with organizational activity aimed at bettering the performance of individuals and groups in organizational settings. It has been known by several names, including employee development, human resource development and learning and development "Rosemary Harrison".

2. Definitions of training and development:

According to **Wayne F Cascio,** - Training consists of planned programme designed to improve performance at the individual, group, and /or organizational levels. Improved

performance, in turn, implies that there have been measurable changes in knowledge, skills attitude, and/or social behavior.

According to **C B Memoria**, - Training is a process of learning a sequence of programmed behavior. It is application of knowledge and it attempts to improve the performance of employee on the current job and prepares them for the intended job.

David and Stephen described training as "A learning experience in that it seeks a relatively permanent change in an individual that will improve his or her ability to perform on the job."

Development is defined by **Alan Mumford** as an attempt to improve managerial effectiveness through a planned and deliberate learning process.

According to **Bernard M Bass & James A. Vaughan** Development implies the nature and change induced among employees through process of education and training.

In the words of **Harold Koontz and Cyril O. Donnel** Managerial development concerns the means by which a person cultivates those skills whose application will improve the efficiency and effectiveness with which the anticipated results of a particular organizational segment are achieved.

3. **Training Evaluation**

It is systematic approach to collect the all significant information. The purpose of evaluating a training program is to gain knowledge about whether it has achieved its objectives or not. Evaluation acts as a check to ensure that the training is able to fill the competency gaps within the business organization in a cost effective way. This is especially prestigious in wake of the fact the organizations' are trying to cut costs and increase globally. Evaluation is considered as being an important process of a training event in order to reflect, analyze and improve its effectiveness and efficiency. According to Ellington et al. (1993), "*evaluation can be defined as "the collection, analysis and interpretation of information about any aspect of a program of education or training as part of a recognized process of judging its effectiveness, its efficiency and any other outcomes it may have."*

4. **Training effectiveness**

Training evaluation is used for finding the training effectiveness. Training effectiveness is to know about the characteristics of organization, training program itself and individuals, before training, during training, and after training. There is a difference training evaluation & training effectiveness. Training effectiveness emphasizes on macro analysis of training overall system where as training evaluation only emphasize on micro perspective of training results (ASTD, 2009).Training effectiveness is essentially a measure that examines the degree to which training improved the employee's knowledge, skill, and behavioral pattern within the organization as a result of the training. Post-training quizzes, one-to-one discussions, employee surveys, participant case studies and official certification exams are some ways to measure training effectiveness.

Types of Evaluation:

There are several types of evaluations that can be conducted in an organization. Some of them are as follows:

Evaluation Types	When to Use	What it Shows	Why it is useful
Formative Evaluation	During the development of a new program. When an existing program is being modified or is being used in a new setting or with a new population.	Whether the proposed program elements are likely to be needed, understood, and accepted by the population you want to reach. The extent, to which an evaluation is possible, based on the goals and objectives. Helps to refine or improve program.	It allows for modifications to be made to the plan before full implementation begins. Maximizes the likelihood that the program will succeed. To assist in the early phases of program development.
Summative Evaluation	Conducted after the completion of the program design To help determine whether a program should be expanded to other locations.	Should this program continue to be funded? It is linked to the evaluation drivers of accountability.	To help decide whether to continue or end a program. To decide whether to continue or end a program. To compare the impact of different projects and make results-based decisions on future spending allocations.
Economic Evaluation	At the beginning of a program. During the operation of an existing program.	What resources are being used in a program and their costs (direct and indirect) compared to outcomes.	Provides program managers and funders a way to assess cost relative to effects.
Process Evaluation	As soon as program implementation begins. During operation of an existing program.	How well the program is working. The extent to which the program is being implemented as designed. Whether the program is accessible an acceptable to its target population.	Provides an early warning for any problems that may occur. Allows programs to monitor how well their program plans and activities are working.

Outcome Evaluation	After the program has made contact with at least one person or group in the target population. Focuses on the changes in comprehension, attitudes, behaviors, and practices that result from programs activities Can include both short and long term results.	The degree to which the program is having an effect on the target population's behaviors.	Tells whether the program is being effective in meeting its objectives. To decide whether program/activity affect participant's outcomes. To establish and measure clear benefits of the program.
Impact Evaluation	During the operation of an existing program at appropriate intervals. At the end of a program.	The degree to which the program meets its ultimate goal. Focuses on long term, sustained changes as a result of the program activities, both positive/negative and intended/unintended.	Provides evidence for use in policy and funding decisions. To see impact in longitudinal studies with comparison groups.

Author	Year	Model Name &Summary	Benefits
Ralph Tyler	1949	**Tyler Model:** Introduced the basic principles of Curriculum development and instruction. There are basic four major stages in the curriculum development: Goals and objective Content Learning experience Evaluation	Lays the main stress on aims, evaluation and control. Involve the active participation of the learner. Simple linear approach to development. Objectives are clearly defined in the purposes. These purposes are translated into educational objectives.
Donald Kirkpatrick	1959	**Donald Kirkpatrick's** *Four Level Evaluation Model*. It includes : Reaction Learning Behaviour Results	Kirkpatrick's four-level framework is a simple, flexible and comprehensible means of evaluating the business impact of training. It presents a useful taxonomy for considering the impact of training programmes at different organizational levels.

Warr, Bird and Rackham	1970	**CIRO Model** includes: Context Input Reaction Output	It produces genuine, meaningful and long term results. It gives more detailed analyses of an organization.
Branson, Rayner, Cox, Furman, King, Hannum	1975	**ADDIE model** includes**:** Analyze Design Develop Implementation evaluation	simple and effective Structured method for tracking the movement between the stages.
Daniel Stufflebeam	1971	**CIPP model** is a four step model: Context Input Process Product	To facilitate rational and continuing decision-making Sensitive to feedback Identify potential alternatives, set up quality control systems.
Provus	1971	**Discrepancy Evaluation Model** is a five step model: Design Installation Process Product Cost-Benefit Analysis	The program meets established program criteria. A course of action can be taken to resolve all discrepencies.
Michael Scriven	1972	Goal free evaluation needs: Access to program/ project participant Access to all data Time	Controlling goal orientation-related biases Uncovering side effects Avoiding the rhetoric of true goals Adapting to contextual/ environmental changes Aligning goals with actual program activities and outcomes Supplementing goal based evaluation.
Branson, Rayner, Cox, Furman, King, Hannum	1975	Florida State University Creates ADDIE model for U.S. army. **ADDIE Model** is a five – level model: Analysis Design Development Implementation Evaluation	It can be used with different evaluation strategies. It serves as the foundation for most other instructional design models. It's flexible; it can be used for traditional instruction, individual instruction. The ADDIE model provides a step-by-step sequence of events in teaching an individual lesson.
Roger Kaufman's Model	1996	**Roger Kaufman's Model** Includes five level:	Identify discrepancy between the current status and desired results Discrepancies should be identified in

		Level 1-Input,Process Level 2 &3 – Micro level (Acquisition, Application) Level 4 –Macro level (Organizational Output) Level 5- Mega level (Societal Outcomes)	terms of products of actual behaviors.
Cutlip et. al's	1985	**PII Model** is a three stage model: Preparation Implementation impact	Preparation assesses the adequacy of background information, the appropriateness and quality of message Implementation examines the number of messages sent to the media and who received them. Finally, impact evaluates the changes in opinion, attitudes and behaviors.
David S. Bushnell	1990	**IPO Model** is a three step model: Input Process Output	System based model Acts as a road map or planning process for the designers. Most basic structure for describing a process.
Mac Namara's Macro Model	1992	represents public relations programmes in a pyramidal form with three layers: inputs, outputs and results	Presents a practical model for planning and managing evaluation of public relations. Recognizes communication as a multi-step process" (cited in Kitchen, 1997, p.292).
Lindenmann's yardstick	1993	Sets a three-level approach, with objectives set beforehand.	First basic level measures outputs, such as media placements. Second intermediate level judges the number of messages received by the target audience. The last advanced level examines outcomes, such as attitude changes (Theaker, 2004, p.302).
Organization Element Model (OEM Model)	1993	Five levels – outcome, output, product, process and input	Cost effective Bigger aspect on society
Schiffman	1995	**ISD Model**: There arefive views of instructional systems design: Media view, embryonic systems view, narrow systems view, standard systems view and the instructional systems design view.	Goal directed Interdependence of each step in the process. Strong influence in contemporary training

Fitz-Enz	1994	**TVS (Training Validation System) Model** is four step model: Situation Intervention Impact Value	Evaluate the difference between pre and post training data. It serves as a more modern expansion upon a wonderful idea.
Phillip's ROI Model	2002	**ROI Model** is a five Step Model: Reaction Learning Behaviour Results ROI	Improve the quality of learning programs. Identify potential strengths and weaknesses in the learning program. Determine a program's appropriateness for the target audience. ʃ Assist in decision making about program investments and establish funding priorities.
Kraiger (decision based evaluation)	2002	**Kraiger's model** involves three multi-dimensional areas for evaluation: Training content and design Changes in Learners Organizational Payoffs	It evaluates the training with cost-benefit analysis, surveys and ratings.

Objectives of the study:

- To study the various models used to evaluate the effectiveness of training and development programme.
- To gain insight about various types of evaluation conducted in an organization

Methodology of the Study:

The present study is conceptual in nature. The analysis of this paper totally depends upon secondary data like journals, books and various website from internet, magazines, research papers and websites for the purpose of the study.

Conclusion: Effectiveness of training and development should be determined through various evaluation models.The evaluation framework can validate training as a business tool.The above mentioned training evaluation models are the key to analyze training and its effectiveness. Evaluating training is a strategic tool to measure the performance of employees. It helps to measure the success or failure of training program. Training is effective only if it produces desired results. When any organization is executing a training programme, there should be an ideal evaluation system, to measure the effectiveness of training and development activities. To find out the effectiveness of the training & development programmes, the evaluation of training programmes has to be done. Training evaluation is carried out by trainees expressing their feedback regarding effectiveness of training programmes through questionnaires completed at the end of the training programmes.

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DIGITAL INDIA – NEW INDIA

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ABSTRACT

Every country is advancing towards digitalization. There has been a great advancement towards digitalization for last some years. Digitalization is not only a necessity of a country but also instrumental in developing the country. Country like India, which has a great geographical area different society and 131 crore people of different languages are in dire need of it. Indian government has started digital India program by keeping in mind the needs of people. I have come to the conclusion through this paper that digital India has great importance. By this program Indian government can easily percolate its schemes to every person living in any corner of the country. This facility has been making the life of Indians easier. The main aim of this paper is to know whether India is changing after this digital program or not? Is a new India coming to in its existence? Are the country man getting the benefits of digitalization?

Keywords : Digitalization, India

INTRODUCTION

World 'Digital' was known as information technology a decade ago. It is not only computer or internet but also known by phone application, social network, block chain, artificial intelligence as mobile lock cell artificial intelligence and many more names. Formally the main aim of IT (Information Technology) was to increase production and make the life simple and easier. But digitalization has not only made the life easier but also made it easy for the government to percolate its scheme to each and every citizen living in the different part of the country. Life without a high speed 4G phone is most possible it has become a part and parcel of our life now. A high-speed mobile has been contributing towards in our education, shopping, transportation etc. tentative population of the world will be 8.6 billion by 2030 and population of the India will touch 1.35 Crore by the next year. In this digital world, there will be social networking, smart phone & apps mobile games preventing all around in the *generation C* by 2020. Digital awareness is increasing due to increase in population. Citizens have been connecting individually with the government at a very fast speed. Digital India program started in 2015.

In India the main point of this program in India today *plus* information technology *equal* India tomorrow.

The aim of digital India is to enhance the technique and make it assessable so that it may be made paperless and meticulous. According to Mr. PM "Digital is India is an enterprises for India's transforming or India is scale that perhaps unmatched in human history." This project will be proud milestone in *Making India New India.*

UNDERSTANDING DIGITAL INDIA

This project will help in renovating the society three main areas have been included in this:

➢ Digital Infrastructure as a Utility to Every Citizen

The main aim of this project is to a make every citizen project complement in digital Infrastructure so that the wave of development may percolate to the persons living at the remote end of the country. Following may be included in this:

- High speed internet
- private space or cloud
- access to a common service centre
- secure cyber space

➢ Governance and Service of Demand

This project helps in making governmental service accessible so that every citizen may be benefited by the scheme. Following services have been included in this:

- integrated services
- availability of services of mobile platform
- portable citizen entitlement
- cloud -Geospatial information system as decision support system

➢ Digital empowerment of citizens

The project is aim at empowering digitally and every citizen of India. Under this project every citizen is to be digitally awarded so that benefits may percolate to every citizen. Following areas came under this project:

- Digital literacy
- Digital resources
- Digital resources and services India language
- Collaborative digital platform
- No physical submission information of documents

 All these area will help in developing the country. Most of the schemes of this country are progressing under digital India project. All these programs are helping in making country developed in different areas. In order to give substantial identity Aadhaar is being attached digitally. Aadhaar is needed to get the benefit of governmental scheme which has been attached digitally so that identity of the person may be made easily.

Direct Benefits

Benefits are being transferred directly to the beneficiary account so that transaction may be made hassle-free this will help curtailing the corruption. According to a government assessment 6.21 lakh crore rupees have been transferred to the beneficiaries account directly. This process that digital process has been contributing enormously in tackling the different programs/schemes initiated by the government.

Bharat Net

It is world's biggest rural "broadband connectivity project" scheme under which villages of 6 lakh villagers are being provided internet facilities. This project is helping in sending internet facility not only to the rural areas but also to the remote area. Most of India resides in villages, by this facility we can connect our villages with the rest of the world.

Digital Payment

It is being promoted through common service centre. Entrepreneur is being promoted through digitalization. Government wants to provide all the facilities under one roof so that they may not have to wander here and there. Government is trying to ease the workload of the Government departments.

Digi Locker

It is a such platform through which documents can be issued and verified digitally. We can easily and safety use the documents from this platform. We can make the society paperless which will help keeping the environment safe. It is legally accepted and justified as well.

Online Registration

It system is hospitals is a facility which helps the patient get themselves registered with outstanding in the queues. We can see it in Indian hospitals now. As soon as the digital India programe started we can see that patients can take online appointment and take the treatment at earliest. We can get appointment with doctors without standing in queues. This facility in the field of health department is praise worthy.

Weather

We can get weather related information through digital India. A project name GI cloud has been started which is named as 'Meghraj'. It provides exact forecast details. Most of the Indians depend on agriculture but for agriculture it is mandatory to get the exact forecast, so that the same may be provided to the farmers. Digital India play an important role in developing 'Meghraj' project.

Education

In the field of education, students can get the benefits of scholarship easily through "Notice Scholarship Portal". All the scholarships of centre and state are available at a single portal. This facility makes aware the students about their rights. This facility provides all the scholarship on a single portal as well as suggests the scholarship according to their qualification. Viz.a.viz it also help in providing right selection for the appropriate scholarship. Human resources Ministry, Social Justice empowerment ministry, Minority affairs ministry, Tribal Affairs Ministry of India are using this portal for co-ordination.

Research

A worldwide access in the field of research of education has been provided with the help of EDUROM institutes have been connected to Wi-Fi so that facility of internet may be provided to them. ERANET has been working at national level to run EDUROM properly it helps connecting all the universities and colleges at one point to make worldwide researches universal for all connecting researches is at a single portal praise worthy which is essential for the up gradation of education.

Agriculture

If we talk about agriculture E-NAM has been started as a single window we can get all type of information regarding agriculture products on this portal. India farmer does not get appropriate price of its product due to unawareness of its market. Farmers are inspired to sell their product at attractive rate through single window.

Digital North East 2022

It was launched in Guwahati on July 30 2017 by Government of India. This programme was started in 8 states of North East in order to make them digitally sound.The main aim of digital India is to provide the benefits of schemes of Government of India. This scheme has been started in North East India in order to bring poor people to the main stream in the broadband connectivity has been targeted to every village to northeast to fulfill in digital vision. Too many governmental service can be obtained on a single portal named UMANG (United Mobile Application for New age Governance). This portal is the main part of digital India where we can have 24/7 online services facilities. This application has replaced as many as 1500 apps and this application is available in 13 languages. Each and Everyone can operate this application easily. According to a survey 350 million people operate this app on smart phones. Private companies can also register itself with *Self and Society App* through this website they can do for the betterment of the society 174 association have been attached to this App and website as per the record of Indian government 2921 initiate and 69410 people have been associated violently with it

All these things tell us that digital India has made it easier to recognize the need of the essential area and made the schemes accessible to everyone if we talk about the Indian economy *Mckinsey* a world famous research form concluded on study that Indian economy with the help of Digital India will touch from $550 billion to $1 trillion by 2025. This very year all the gram panchayats, school, universities will be connected with Wi-Fi and hotspot. One big benefit we see that jobs in the field of IT, telecommunication and electronics are being created. There has been a drastic change in the field of services like education, health and banking etc. We see that Indian's access to internet and other digital gadgets has been increased. Apart from it, it has progressed in the field of catering. We can order at with the help of App Zomato and Swiggy. India is progressing with the help of digital India. Digital India program has given birth to enormous employment opportunities. If we discuss on this subject, it is quite evident that 'Digital India' is solely responsible for creating jobs.

Digital India & Employment

India has fix the ambitious task of zero import of electronic by 2020. China's company Xiomi has announced to set up three units in the India. Demand of smart phones is increasing day by day in India. A tax of 10% has been levied on smart phone in order to discourage the import printed circuit board is also included in this list. This has been done for that investor may set up their unit in India and create the job opportunities in the country. Samsung has been producing printed circuit board (PCB) in India which costs almost 50% of a smart phone. Now Xiomi will also produce PCB in India which will give a push to *Make in India* program and job opportunities in India. 120 mobile phone manufacturing factories are working in India and 4 lakh people are getting jobs. More than 70,000 people are working in mobile making company of Samsung only. According to an interview given to PTI (Press Trust of India) in March 2018 by S P Kochhar, CEO of TSSC (Telecom Sector Skill Council), he said that "4 million people are working in telecom sector and it is hoped that 14.3 million people will get a employment by next 5 years". He also said that "new job opportunities will be

created by the changing techniques by *National Skill Development Corporation*. Digital India is fulfilling target of creating jobs opportunities.

Apart from it, there are many more facilities about which we must discuss like the facility of E-*Court*. It has made the citizen centric service more efficient and time bound. Judicial productivity has been increased. This facility has been provided in 39 High courts and 621 District courts.Paperless travelling has been promoted through e-visa, e-foreigners by *Regional Registration Office*. 91 immigrations check points have been covered under digital India's mission to check posts. Under the *Jeevan Pramaan program* 2.48 crore pensioners have availed the facility of biometric enabled digital service to show their physical presence. Students have been getting the information of NEET, UGC-NET, CTET, JEE through *E-Counseling.* Assemblies have stopped working on paper and started working on *E-Vidhans*. Himachal Pradesh is the first state of the country to start e-vidhans to save rupees 5 crore on papers every year out of which at least 6000 trees and rupees 15 crore will be saved. 1100 RTOscan keep an eye on 25 crore vehicles through transport. A lot of problems will be we solved after a compulsory GPS system. Government is coming in a touch of common man through *E-Sampark.Mann Ki Baat* by PM Modi is being telecast in 19 languages. Apart from it, PM Rural Digital literacy mission digital mission, *Digidhan*, mission Bharat interface for money- United payment (Bhim App) are giving up push to Digital India programme.All these changes are possible only through digital India. Digital India has tied to lessen the problems of every department.

CONCLUSION

we come to know after this study that Digital India has tried to attach each and every person with Indian economy. Government always try to do for the welfare of people but digital India has given a push to it. Every citizen is getting the benefit of digital India and all the services are at his hand. Our country is changing. Now a man has all information of the world in his smart phone. Farmers are being informed through mobile Apps. Students of small cities, towns and villages are getting all information on smart phones and they are feeling themselves digitally competent. Employment opportunities are increasing through digital India. Foreign mobiles manufacturing companies are setting up new units in India. *Make in India* program is creating jobs in India. We come to a conclusion after this study that India is marching with world on an equal footing. Every citizen is contributing to it. I wish may India progress with the judicious use of its resources.

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THEOROTICAL ASPECTS OF INDIAN PHARMACEUTICAL INDUSTRY AND MOTIVATIONAL TECHNIQUES WITH RESPECT TO PUNJAB

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Abstract: Because of the quickly developing of the pharmaceutical segment, the request of prescription is for the most part satisfied by the nearby industry. In the neighborhood market, the meds are appropriated and marketed by the Medical Promotion Officers (MPOs). Liberalization measures in the pharmaceutical division have achieved real changes in the modern permitting arrangement, import confinements, foreign direct venture and production controls. Liberalization measures in the pharmaceutical part have realized significant changes in the modern authorizing approach, import limitations, foreign direct venture and production controls. The results of study demonstrate that remuneration, work efficiency, and worker relations are the most huge factors adding to work satisfaction. The summative activity satisfaction of the employees in pharmaceutical industry is at the helpful stage. The present investigation features a portion of the issues and exhibits a status of occupation satisfaction level among employees of pharmaceutical organizations.

Keywords: Motivation, Employee, techniques, pharmaceutical industry

I.   INTRODUCTION

The expression "pharmaceuticals" means restoratively powerful chemical substances, changed over to dose structures to be directed in the treatment of different human diseases. These might be delivered out of substances of plant origin (phytochemicals), animal origin (organic), or handled chemicals (synthetic). The term pharmaceutical industry at that point alludes to modern scale fabricate of drugs in view of substances of vegetable, organic or synthetic origin. The fundamental chemical type of pharmaceuticals is known as bulk drugs, which might be compared to crude materials, in different ventures. So also, last measurement frames, which are in prepared state for utilization by the patients, are known as formulations, which might be contrasted with the completed items, in different businesses. The cases of bulk drugs are anti-microbials like penicillins, cephalosporins (phytochemicals), insulin (organic), and steroids and calcium channel blockers (synthetic). Formulations arranged out of the bulk drugs depicted above may accept distinctive dose shapes like tablets, cases, fluid syrups (to be taken orally), drops (administrable in fluid frame) or specifically injectibles. [1]

The pharmaceutical industry in India is a divided and heterogeneous part comprising of almost three hundred substantial and medium scale firms and more than ten thousand enlisted small scale firms,with shifting capacities as far as innovative work and assembling exercises. The expansion of these organizations, with their differing levels of aptitude, happened amid the eighties, with regards to the Patent Act of 1970 and related modern strategies, which perceived just process licenses and allowed firms to think of non specific forms of the original drug with substitute procedures.. Different factors which have added to the present levels of mechanical capacity in the industry incorporate the accentuation on process

technology by household firms and the cooperation amongst firms and government labs, especially the labs of the Council of Scientific and Industrial Research (CSIR). [2]

II. HISTORICAL CONTEXT OF THE INDIAN PHARMACEUTICAL INDUSTRY

The allopathic arrangement of pharmaceutical has been a late starter in India. Prior Indian frameworks of drug, for example, Ayurveda, Siddha, and Unani appreciated more extensive open certainty and were to a great extent being used before the provincial manage, and keep on being utilized as a part of a large portion of the country zones even at this point. The foundation of the modem pharmaceutical industry in India might be said to have initiated with the setting up of Bengal Chemicals and Pharmaceutical Works in 1901 by Prof P.C. Beam, in Calcutta. At the same time, B.D.Amin set up Alembic Chemical Works in Baroda. The other huge improvements, which helped the indigenous drug industry, were the foundation of Haffkine Institute in Bombay, the King Institute in Madras in 1904, and the Pasteur Institute in Coonoor in 1907. Preceding 1900 a large portion of the pharmaceutical movement was as imports; The two government factories built up in 1887 in Darjeeling locale and in 1890 in the Nilgiris area, were associated with the generation of Quinine Salts and other united exercises; they could be managed until the finish of World War I. Be that as it may, the flare-up of World War II offered fillip to the make of sera, antibodies, ether, chloroform and a couple of straightforward drugs in light of coal-tar refining items. [3]

Be that as it may, the Indian drug industry was not in a situation to keep pace with wartime needs because of its pitiful size. The early post independence years (1948-53) ended up being a defining moment ever of Indian pharmaceutical industry. It was amid this period that the establishments for a genuinely modem pharmaceutical industry in this nation were laid.

After India ended up independent in 1947, with regards to the requests at the time, a solid patriot financial approach was embraced. The reasoning of independence and independence prompted the quest for an import-substituting industrialization strategy and there was less accentuation on foreign technology and foreign direct venture (FDI).

III. CHARACTERIZATION OF PHARMACEUTICAL INDUSTRY

The global pharmaceutical industry structure can be isolated into two:

• *Bulk drugs* (20%) The bulk drug fragment of the market has expanded in the previous decade at around 20% yearly growth rate.

• *Formulations (80%)* Production of formulations has expanded by around 15% every year. The Indian Pharmaceutical Industry is among the best five makers of bulk drugs in the world. The biggest firms represent most of the R& D interest in the industry and hold most of the licenses. A small number of multinational endeavors (MNEs) rule the global pharmaceutical industry; top twenty-five MNEs having represented 64.5 percent of the world (2003) Firms can be either underway of bulk drugs or formulations or may produce both. Firms in to formulations might be additionally ordered into advancing firms and non-improving firms. Be that as it may, R&D is irrelevant when contrasted with MNEs. There are around 8174 bulk drug producing units and 2389 formulations units spread crosswise over India. Add up to: 10563 units. [4]

IV. GROWTH OF INDIAN PHARMACEUTICAL INDUSTRY

The Indian Pharmaceutical industry today is in the front rank of India's science-based ventures with colossal capacities in the perplexing field of drug produce and technology. Pharmaceutical Industry in India is one of the biggest and most exceptional among the developing nations. It gives work to million and guarantee that basic drugs at moderate costs are accessible to the huge populace of India. Indian Pharmaceutical Industry has accomplished boundless abilities in the perplexing field of drug produce and technology. From straightforward torment executioner to modern anti-microbials and complex cardiovascular mixes, relatively every kind of drug is presently made indigenously. A profoundly composed area, the Indian Pharmaceutical Industry is evaluated to be worth $ 7.8 billion, developing at around 8 to 9 percent every year.

Indian Pharmaceutical Industry assumes an imperative part in the nation to enhance the personal satisfaction of the general population by method for assembling host of drugs and pharmaceuticals for the health of the natives. The essential goal of the industry is to guarantee the accessibility of value solutions for the majority including fundamental and life sparing drugs and formulations at sensible costs. The establishment of the cutting edge Indian Pharmaceutical Industry was laid in the start of the present century when in 1901 a small factory known as M/s. Bengal Chemical and Pharmaceutical Works was set up in Calcutta. In the period instantly after independence, the industry was absolutely dependent upon imports and by 1960s various bulk drugs were created in the nation. Amid the period 1960 to 1970, the Indian organizations alongside multinational organizations established the framework of a really current pharmaceutical industry.[5]

V.   EVOLUTION OF PHARMACEUTICAL INDUSTRY

Since independence, the pharmaceutical industry was overwhelmed by Multinational Companies (MNCs). The market offer of Multinational Companies was simply around 100% at the time of Independence. Thinking about the human organizations of the Indian Public, the Govt. of India enabled the household pharmaceutical relationship in India. Right when the general measures clear the thing patent, the lawmaking assemblage of India built up the Indian Patent Act in 1970 (process patent), with the goals of engaging the private relationship to make. The Indian Patent Act evident the "System" to make a thing and not the end "Thing". Indian industry misused the Patent Act and winning as for lessening particles, which were under Patent Production or at a cost that was lower than the foremost investigate cost. By taking the cost motivations behind interest, the Indian Pharmaceutical affiliations settled their costs lower than the costs settled by the Multinational Companies creating the medications. Adjacent to the Indian Patent Act 1970, DPCO, FERA and broadened imports commitments in addition helped the advancement of the household pharmaceutical affiliations. With a view to the above impact, the Multinational Companies' market share, lessened from 100% of each 1947 to 80% out of 1970 and 33% out of 1991 with relating expansion in neighborhood affiliation's market share.[6]
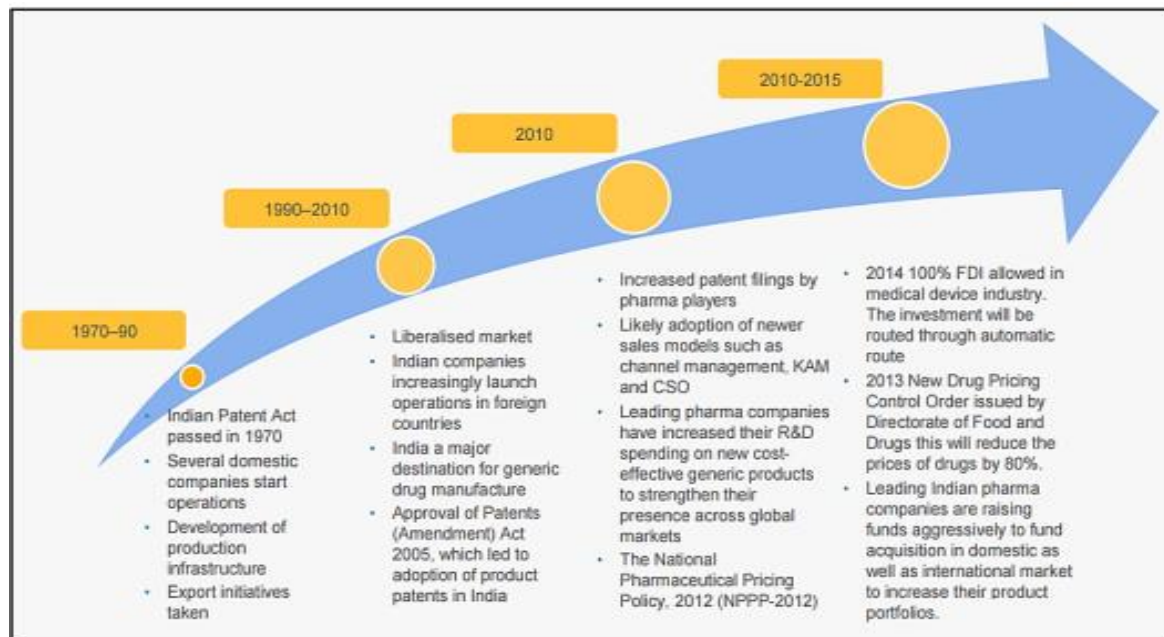
Figure 1 - Evolution of Indian Pharmaceutical Sector

VI. SIGNIFICANCE OF MOTIVATION IN THE PHARMACEUTICAL INDUSTRY

The significance of motivation can be seen through individuals being roused to roll out an improvement in their lives. For representatives particularly, this may mean expecting to upgrade their execution in the workplace, driving them to by and large work harder and more quick witted, and enabling them to finish undertakings proficiently, legitimately, and on due date—all of which positively affect the association's primary concern. [7]

In the work environment, motivation can be characterized as a "person's level of readiness to apply and keep up an exertion towards authoritative objectives". Motivation is firmly connected to job fulfillment, which holds specialists at their jobs after some time. Wellbeing specialist maintenance lessens expenses to the wellbeing arrangement of enlisting, contract, and situate new laborers and furthermore decreases the probability of empty posts. The same number of nations as of now encounter a lack of qualified wellbeing specialists, the loss of any wellbeing laborer—particularly specialists and attendants—has genuine repercussions for the strength of individuals in that nation

The greatest snag for a Pharma field proficient is pressure. Not every person is normally great at it. On the off chance that they can be prepared in pressure administration, work-life parity, and self-brilliance they would have the capacity to rouse themselves on a long haul premise and develop close by building sustainable growth for the associations that they work for.[8]

VII. MOTIVATIONAL TECHNIQUES TO ENHANCE EMPLOYEES PERFORMANCE
A. MOTIVATION

It is uncovered that inspiration alludes to the forces, either inside or outside to a man, that stir insight and assurance to seek after a specific strategy. Inspiration is a procedure that starts, directs and keeps up objective arranged practices. It keeps the sales force ceaselessly animated towards the goals set by the organization. Hair et al. (2010) clarified inspiration as the arrangement of dynamic relational procedures that reason the inception, heading, power

and steadiness of business related practices of a sales force towards the achievement of organizational objectives and destinations. An author portrayed that four enthusiastic drives like 'obtain', ''bond', 'fathom' and 'guard' are in charge of employees inspiration. [9]

Few researchers directed a study of 350 pharmaceutical sales force in Pakistan to recognize the perplexing issue of their inspiration that outcomes in distinguishing three best helpers as pay and incidental advantages, professional stability, advancement openings. The well established conviction remains constant against the way that the hygiene factors goes about as inspirations and are specifically connected to the execution of the sales force. It is described to the way that money related motivators, bring up in pay and incidental advantages are constantly connected with execution of sales force.

B. MOTIVATION AND PERFORMANCE

Few scholars in their examination said that there is a connection amongst reward and acknowledgment, inspiration and satisfaction separately. At the point when a representative is compensated and perceived on individual level it builds the level of accomplishment. Correspondingly, inspiration is straightforwardly relative to the satisfaction of the sales force, the way to guaranteeing motivational projects are viable is to ensure that the employees are fulfilled their 'hygiene factors' are met and the organization, motivators and procedures are specifically connected to the inspiration factors of accomplishment, acknowledgment, progression, and growth. An author featured the different viewpoints vital for motivating employees to enhance their execution. It has been seen from contemplates that different factors are in charge of motivating employees and their execution. The adjustment in rewards offered to employees essentially changes the work inspiration and execution of employees. Better the prizes, the higher the levels of inspiration and more prominent levels of worker execution. [10]

Albeit numerous factors add to profitability, work execution is seen to be the most powerful one. Inspiration does not decide worker's level of execution, but rather it influences his/her exertion toward playing out the undertaking. The part of inspiration in execution can be abridged in the accompanying equation:

Performance = Ability x Understanding of the task x Motivation x Environment

Managers put huge effort and resources in the enrollment of the best people, yet as often as possible no are then done to keep these high performing individuals in their most productive state. This is by virtue of delegate inspiration remains a puzzle to an extensive measure of overseers – and it shouldn't be.

It doesn't have any kind of effect how gigantic or little your organization is, having a gathering of gifted and extraordinarily vigorous employees is critical to the accomplishment of your business. Unmotivated employees are less productive and less creative and this makes them less vital to the business. There is a significant cost to pay when your employees have inspiration issues. [11]

1. Make Expectations Obvious

Employees without goals will be usually purposeless. Give them clear achievable goals and assurance there are quantifiable tenets set up to assess their execution. Victor Vroom's work on desire theory underpins employees must see what development they are depended upon to take and that it will yield the pined for execution. Your employees ought to

comprehend what they are depended upon to do, how they are required to do it, and how they will be judged on it.

2. Give Continuous Feedback

Speedy, persistent feedback tells a worker that their activities affect the affiliation. It's hard for you, and the worker, to recall particular events when representative execution survey time moves around. Target setting hypothesis predicts (obviously) that employees are pushed by characterizing destinations and by getting constant feedback on where they stay with respect to those goals. Later research displays definitely how impelling it can be when employees know they are making progress.

3. Redress Privately

Vast number individuals are not moved by antagonistic feedback, particularly on the off chance that they feel it's embarrassing. The essential appealing spot to talk about an advancing, execution related issue or helping a persistent, particular fasten up is the representative's office or your own, with the entry close.

Try not to consider changing a worker's execution or direct as reformatory. Or maybe, think of it as a learning open portal for the worker. Keep a responsive perspective, audit Deming's 85/15 manage, which recommends that a lion's offer of execution issues are in fact outside of a worker's control. In the event that it is something the worker can change, it's poor upon you to demonstrate the issue with the ultimate objective that the he confides in he can reexamine the lurch.

4. Trust in Your Employees

Despite whether you reveal to him so in the midst of a representative execution survey, or in the parlor, a worker whose chief constantly calls him inconsequential, or a wreck up will feel a considerable measure of feelings. He won't, regardless, feel especially prompted to update his execution.

Show insufficiency or misunderstandings as for, "I know you can improve the condition. You're sharp and capable… and that is the reason I expect more from you." The point of view of pioneers' trust is a key segment of transformational master.

5. Praise Publicly

Feeling overlooked animates absence of concern – there's a reason such epic amounts of affiliations praise an Employee of the Month. Individuals regard idolizes; they flourish with it. Some examination even proposed we're willing to give up spark rewards for open confirmation. Make it a standard practice in your office to see helpful individuals and cases inside the business. Declare openly when one of your employees impacted an especially outstanding introduction, to deal, or other striking accomplishment. Interface a catalyst to stipends, for example, a reward or blessing confirmation. Cheering your employees beforehand others instigates their continued with stellar execution.

6. Make Rewards Achievable

Everybody thinks about the yearly reward trip permitted to the best performing representative. The issue is, such rewards when in doubt go to perhaps a few employees. This leaves whatever is left of your staff feeling like there's no explanation behind locking in light of the way that a similar couple of individuals continually get the points of interest. Keep in

mind the opposite end of Vroom's desire condition, which offers that individuals should likewise watch the pined for execution and associated compensate as could be ordinary the circumstance being what it is.

VIII. MOTICATIONS FOR STRATEGI ALLIANCES AMONG PHARMACEUTICAL FIRMS

In the pharmaceutical business, little biotech firms give "outside" wellsprings of R&D. A standout amongst the most critical purposes behind going to outer gatherings for new item innovation is the absence of inside advancement inside bigger firms. In any case, a few other lesser components will in general energize the utilization of outer sourcing of new item innovation in this industry: (1) the licensee company's useful abilities have a high absorptive limit with regards to new advancements; (2) top administration believes that the outside source will supplement inner sources; (3) the earth is seen to be excessively unfriendly and hazardous for R&D venture as a result of quick changes in items, and administrative vulnerabilities; (4) the company's administration is opposed to chance; (5) the firm has had a considerable measure of outside sourcing knowledge; (6) the association's administration has a solid worldwide introduction; and (7) there are generous open doors for outside sourcing.[12]

Strategic agreements have given global firms from Europe and Japan extraordinary access to the biotechnology business in the United States. One reason being, in the coalitions between Indian firms and bigger outside firms, the last offer long-run financing to little Indian firms, which hold more self-sufficiency than would be run of the mill in ties with bigger Indian firms. Subsequently, the biotech business has extended the extent of cross-national partnerships by giving non controlling interests in little Indian biotech firms to expansive, non-Indian pharmaceutical firms.[13]

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"A CRITICAL ANALYSIS OF THE IMPACT OF CRM ON HIGHER EDUCATION IN KOLHAPUR"

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Abstract

This research paper seeks to understand the impact of CRM on Higher Education in Kolhapur. This city has the ambition of becoming an educational hub and the need for improving relationships with students has become quintessential. The methodology of the research is based on a critical review of existing literature and also based on a survey carried out with students in Shivaji University colleges in Kolhapur. The results are conclusive that CRM has an impact on loyalty.

KeyWords—customer relationship management, higher education, loyalty

INTRODUCTION

Customer Relationship Management is about creating, building and enhancing long term relationships with customers with a view to increase profitability as well as loyalty amongst customers.

Customer Relationship Management may be defined as a strategy to select and manage the most valuable relationships to result into the growth. CRM has evolved over almost more than three decades already.

CRM has traditionally been applied by profit making firms with a view to increase sales and profitability. However, CRM is also being applied by non-profit making firms and NGOs due to the possibility of applying the principles and values with a view to increase customer retention customer satisfaction and customer loyalty. The major contribution of the present research would be to apply CRM in a Higher Education environment and find out how quality of education can be improved. The literature review on Higher Education shows tremendous potential of improving student satisfaction through a structured approach of creating, developing and enhancing relationships with students as well as other stake holders. The innovation of the present research would be to identify the main variables that will form part of the CRM framework in Higher Education.

Kolhapur district being so large in population has thousands of students pursuing higher education. The students population is increasing day by day. University at Kolhapur has a student population of thousands both at Full-Time and Part-Time higher education courses.

With such a massive growth there is a general debate at the university level about the quality of education being delivered and also whether the students are satisfied at higher education.

In addition, CRM in education helps to know if students are bewildered by the vast array of courses being offered or are benefitted with the curriculum offered. It is also useful to know whether students are lost during the whole student lifecycle or are benefitted with what is offered. We all know Customer Relationship Management has always been applied in the

manufacturing/retail sectors. However, with the growing importance of the services sector particularly education sector application of CRM has to be practiced properly to give better results.

LITERATURE REVIEW

- *Understanding CRM*

    Customer Relationship Management (CRM) is a leading new concept to business which has already become established in the literature. CRM refers to all business activities directed towards initiating, establishing and developing successful long term relational exchanges between owners and customers. A restricted view of Customer Relationship Management would be database marketing focusing on how promotional marketing is linked to database management tools. "CRM has been an IT enabled business strategy, the outcomes of which optimize profitability, revenue and customer satisfaction by organizing around customer segments fostering customer-satisfying behavior and implementing a customer-centric process".

    CRM is a comprehensive approach for creating, maintaining and expanding customer relationship for the overall development. It provides seamless co-ordination between customer service, marketing, information technology and other customer related functions. It integrates people, process and technology to maximize relationships with all the customers as well as other stakeholders.

- *Costs and Benefits of Customer Relationship Management*

    CRM applications have the ability to deliver customer data at a much smaller cost than the old network technologies. Throughout an organization, CRM systems can accumulate, store, maintain, and distribute customer knowledge to all the related members for the benefit purpose. *Peppered* (2000) noted that effective management of information has a very important role to play in CRM because it can be used for product tailoring, service innovation, consolidate views of customers and categorizing customers for calculating customer lifetime value.

    CRM systems assists companies evaluate customer loyalty and profitability based on repeat purchases, the amount spent, enquiries made, suggesting products to others and longevity of purchase. *Bull* added CRM makes it practicable for companies to find unprofitable customers that other companies have abandoned. This position is supported by *Galbreth and Rogers* that CRM helps a business organization to fully understand which customers are worthwhile to acquire, which to keep, which have untapped potential, which are strategic, which are important, profitable and which should be abandoned. Customer Relationship Management an increase the true economic worth of business by improving the total lifetime value of the customer, adding that successful CRM strategies encourage customers to buy more products, stay loyal for longer periods and communicate effectively with a company. CRM can also ensure customer satisfaction through allocation, scheduling and dispatching the right people, with the right parts, at the right time. According to companies can gain many benefits from CRM implementation. He states that the benefits are commonly found in one of these areas:

    o   Lower cost of recruiting customers

    o   No need to acquire so many customers to preserve a steady volume of business

o Reduced cost of sales

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o Higher customerProfitability

o Increased Customer retention &Loyalty

o Evaluation of customers profitability

   Curry and Kkolou(2004) refer to the major benefits and reasons for adoption of CRM which include: customers from the competition will come prefer the organization; a simplified, customer – focused internal organization will simplify the infrastructure, shrinking the work flow and eliminating non-productive information flow; and profits will increase from satisfied customers which will lead to more compact & focused company. Like any other new function, CRM too has its own drawbacks and challenges. Any organization that seeks to implement CRM may focus on value creation and on a continuous stream of profits. They will give up their myopic fix that CRM is the fixed responsibility of marketing or IT department. The firms will realize that in order for CRM to contribute to corporate renaissance, the CRM responsibility must rise to the level of CEO. CRM will be more strategy driven, and thus be able to concentrate on what customer expects from relationships. The 'final take' for the CEOs will be that CRM is and can be a vehicle for cultural integration in the organization. In short, a true CRM encourages a relationship view of the world that goes beyond the customers, includes multi – members and facilitates corporate renaissance .

- *Background to CRM and HigherEducation*

   Kotler and Fox argued that over the decades, the vocabulary of marketing, particularly marketing research, market segmentation and strategic marketing planning, has become widely used in the realm of higher education. This has even progressed to the point that in recent years, the trends towards establishing *market-oriented or customer-oriented strategies* have been increased among those universities willing to focus on satisfying the needs and preferences of their target markets/students to enhance their competitive positions. Most educational institutions, as Kotler stated, have specific offices regarding marketing activities such as admissions, alumni or international offices and they even may employ some advertising and public relations efforts. However, while it is true that they are doing some marketing activities, it does not mean that they are necessarily market-oriented (Kotler& Fox, 1995).

   Scott (2000) believes that universities historically used to be segregated institutions with a specialized vocation. Scott addressed globalization as the most important challenge faced by universities in their history which has brought a fundamental shift in the organizational character of modern universities. This shift has been metaphorically addressed byas a transition from "domesticatedenvironment"before1990stoa"wild*globalization*has grown impacts on higher education just like on any other sectors. According to higher education has always been more internationally open to globalization than other sectors since it is the immersion in knowledge. The elements of globalization in higher education are widespread and multifaceted: it has been estimated that more than 1.6 million students study outside of their home countries, with more than 547,000 studying in the USA . The issues and implications of the global marketisation of higher education and privatizationhave been discussed in the context of a number of key concerns problems of increasing competition between institutions, nationally and internationally, funding issues and widening participation or social segmentation).

As explained students are becoming more conscious of their customer rights and of gaps between their expectations of service delivery and the reality of that service. For example, in 2003, Darlaston-Jones et al. noted that the Australian universities have undergone a major transition in the past decade as they have moved from public to a greater emphasis on private funding, and re-invested themselves as business enterprises. Furthermore, students are viewing themselves as consumers and are demanding value for money in their education.

Higher education in Mauritius has a seriousquality

problem. In current competitive academic environment students have many options available to them. Therefore it is important to study factors that enable education institutions to attract and retain students. Higher education institutions which want to gain competitive edge in future may need to begin searching for effective and creative ways to attract, retain and foster stronger relationship with students. Therefore, it is necessary to invest in CRM for improvement. Besides the growing trends of globalization, *informationization*–the development and expansion of information technology– resulted from the current information age, has created a highly   competitive   and   global   environment foruniversities. A consequence of this phenomenon is the increasing amount of free and on-the spot information about programs description, college amenities and schools' ranking available to potential students which have made them to be choosy about their studies. Hence, as the result of the increasing globalization and information spread and some other factors including population demographics, work force requirements and new methods of delivering education, it is of little surprise if universities' managers and policy makers have started to think of a strategic planning in order to develop and maintain a smart balance between the institutions' capabilities and objectives and its changing external environment. As a part of this strategic planning, *marketing policy* of a university can be considered as an important conveyor of the university's missions to the society by attracting talented and qualified students from all around theworld.

From the wave of globalization, there was the need for Universities to be customer centric. Achieving students' satisfaction will take such institutions to the point that a long-standing relationship can be established in which, both sides, students and universities, can take advantages from it. According to "relationships take on the character of companions for life", given that life-long learning approach in the current world has made students to not only studying at universities once, but also to have recourse to these institutions again and again over time. To underline the importance of relationship in higher education, Pausits has also stated that higher education institutions should no longer hold the attitude of being "ivory towers" and have to transform into "relationship-based organizations."

- *Application of CRM in HigherEducation*

CRM applications need adaptation to the characteristics of the institutions. In response tothese changes, the value, effectiveness and potential benefits of using marketing theories and concepts, which have been effective in the business world, are now being applied by many universities: with a view to gaining a competitive edge, and gaining a larger share of the international market. According tonowadays,universitiesemploy CRM to manage relationships with their students and alumni. He supports his idea by giving an example that, if a student enjoys his or her experiences at a university, he or she might recommend it to his/her personal networks afterwards.

A recent study (2016) by the American Association Registrars and Admissions Officers(AACRAO) was conducted on the application of CRM. The survey was conducted with 603 admissions and enrollment management officers. From the survey, it was observed that 64% observed at least one means of CRM in their institution. Another interesting finding is that 42% of those institutions who do not have one are considering one. Further findings establish that few institutions are using CRM to provide lifecycle management support. A majority of users (59%) indicated that their institution has been "moderately successful" in the overall use of the CRM.

METHODOLOGY

A survey has been undertaken with different students in various colleges if Shivaji University. A sample of 101 students was taken for this study. This survey will seek to understand the importance of relationship building in a Higher Education Environment. Statistical tests using SPSS has been used for analyzing the implications of CRM. Some tests that have been undertaken are the Chi Square Tests, Correlation between CRM and Satisfaction and Loyalty, cross-tabulations as well calculating a Student Index amongst others

RESULTS

From the Table I, we find that there is correlation between whether the University has a formal system of CRM and Student loyalty. There is a negative correlation between the two with P Correlation coefficient of -.219. The P value is .028 which is less than 5% and therefore we reject the Null hypothesis that CRM has no impact on Student Loyalty in a University system and accept the alternative Hypothesis.

To what extent CRM would be important for retaining students?

Mean = 2.37
Std. Dev. = .612
N = 101
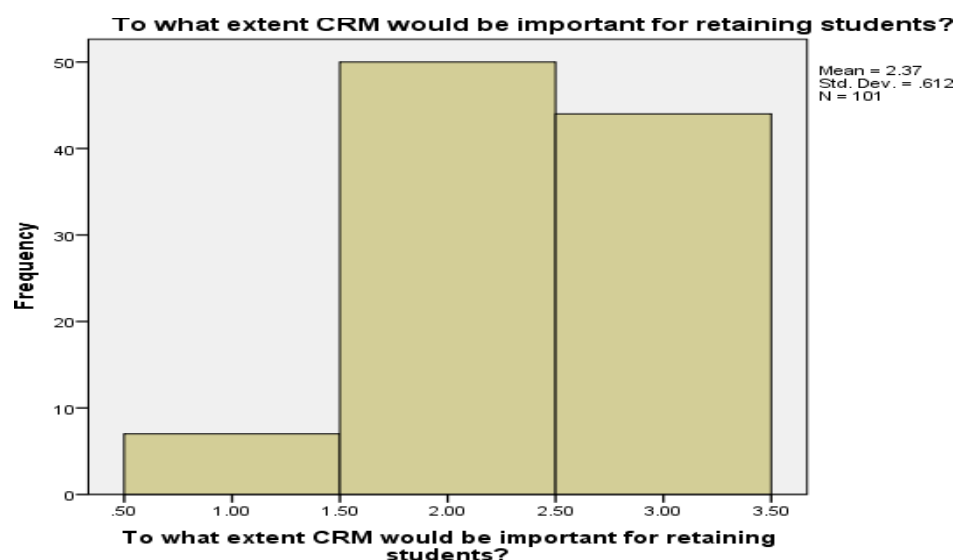
TABLE I. CORRELATION BETWEEN DIFFERENT CRM VARIABLES

Correlations

		Does yourinstitution have a formalCRM?	To what extent do you thinkthat CRM affects student loyalty?	Do you think thatCRM affects student Loyalty?
Does your institution have a formal CRM?	Pearson Correlation	1	-.219[*]	.061
	Sig. (2-tailed)		.028	.547
	N	101	101	101
To what extent do you think that CRM affects student loyalty?	Pearson Correlation	-.219[*]	1	-.047
	Sig. (2-tailed)	.028		.640
	N	101	101	101
Do you think that CRM affects student Loyalty?	Pearson Correlation	.061	-.047	1
	Sig. (2-tailed)	.547	.640	
	N	101	101	101

    * Correlation is significant at the 0.05 level (2-tailed)

TABLEII.IDENTIFYSOMEFAILURESYOUARE FACINGASSTUDENTS?
DOYOUTHINKTHATCRMISIMPORTANTINCROSSTABULATION

Count		Do you think that CRM is important in HE?		Total
		Yes	No	
Identify some failures you are facing as students?	Lack of effective infn on courses	9	4	13
	Lack of administrative support	33	8	41
	Lack of integration between depts.	17	0	17
	Lack of communication	14	2	16
	Lack of follow up on courses	9	0	9
	Weak Employees Culture	4	1	5
Total		86	15	101

TABLEIII .DOESYOURINSTITUTIONHAVEAFORMAL CRM?

TOWHATEXTENTDOYOUTHINKTHATCRMAFFECTSSTUDENT

LOYALTY?

CROSS TABULATION

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.154[a]	2	.046
Likelihood Ratio	7.284	2	.026
Linear-by-Linear Association	4.784	1	.029
N of Valid Cases	101		
1cells (16.7%)haveexpectedcountlessthan5. Theminimumexpected count is4.75.			

Symmetric Measures

	Value	Approx. Sig.
Phi Nominal by Nominal	.247	.046
Cramer's V	.247	.046
N of Valid Cases	101	

Fig. 1 shows that most of the students claimed that CRM is quite important followedby Very Important. Only a few students were of the view that CRM is less importantas a means to retain existing students. This is exactly in line with the existing literature which shows growing importance of CRM in Higher Education due to globalization and increasing competition (Marginson and Wende,2006).

The Table II above summarizes some of the failures identified in a Higher Education context in Kilhapur. We can find that most students complain of lack of administrative support as a major failure in the Higher education system followed by lack of integration between departments. This contradicts Tinto's model (1992) which explains that student characteristics are the major reason for student dropout rates.

The hypothesis to be tested is that there is no relationship between having a formal CRM and student loyalty in a Higher Education setting. Both data used were categorical in nature and therefore appropriate for the analysis. The P value is less than 5% and therefore we reject the Null Hypothesis and accept the alternative one. However, the Phi and Cramer's V value show a weak relationship between the twovariables.

Table III above shows the Chi Square Test values between having a formal CRM and whether students believe that CRM affects student loyalty. The Chi square test gives a P value of 0.046 which means that it is less than 5%. Therefore, we reject the null hypothesis that CRM does not have any effect on student loyalty. Therefore the alternate hypothesis is accepted. However, to know the degree of association we need to look at the Phi and Cramer's V value. In the present case, the Phi and Cramer's V is at 0.247 consequently a very poor association identified. Literature review shows that there is a positive association however the poor association needs to be analysed further through some qualitative studies andinterviews.

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TOTAL DEGREE OF VERTICES IN DOUBLE VERTEX FUZZY GRAPH

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Abstract: In this paper, formulae for the total degree of a vertex in the double vertex fuzzy graph of a given fuzzy graph in various cases are obtained. The totally regular property ofthe double vertex fuzzy graph is studied by using these formulae.

Keywords: Effective Fuzzy Graph, Connected Fuzzy Graph, Complete Fuzzy Graph, Double Vertex Graph of a Fuzzy Graph, Complete Double Vertex Graph of a Fuzzy Graph.

2010 Mathematics Subject Classification:03E72, 05C07.

1. INTRODUCTION

The fuzzy graph theory was introduced by Azriel Rosenfeld in 1975. Later on, Bhattacharya[1] gave some remarks on fuzzy graphs. Some operations on fuzzy graphs were introduced by Mordeson.J.N. andPeng.C.S.[2]. The conjunction of two fuzzy graphs was defined by NagoorGani.A and Radha.K.[3]. We defined the direct sum[4], the strong product[6], the lexicographic products[8], maximal product[9] of two fuzzy graphs and studied the properties of these operations. In this paper, we have introduced the concept of double vertex graph and complete double vertex graph of a fuzzy graph which are analogous to the concept double vertex graph and complete double vertex graph in crisp graph theory. We have studied the connected, effective and complete properties of these operations. Also we have obtained the degree of a vertex in the double vertex graph and complete double vertex graph of a fuzzy graph.

First, let us recall some preliminary definitions that can be found in [1] -[11].

A fuzzy graph G is a pair of functions (σ, μ) where σ is a fuzzy subset of a non empty set V and μ is a symmetric fuzzy relation on σ. The underlying crisp graph of G:(σ, μ) is denoted by G*:(V, E) where E $\subseteq$V×V. A fuzzy graph G:(σ, μ) with underlying crisp graph G*:(V,E) is called a connected fuzzy graph if for all u, v$\in$V there exists at least one non-zero path between u and v.

A fuzzy graph G:(σ, μ) is called an effective fuzzy graph if $\mu(u\ v) = \sigma(u) \wedge\sigma(v)$ for all uv$\in$E and a complete fuzzy graph if $\mu(u\ v) = \sigma(u) \wedge\sigma(v)$ for all u, v$\in$V. Therefore G is complete if and only if G is effective and G* is complete.

The degree of a vertex u of a fuzzy graph G:(σ, μ) with underlying crisp graph G*:(V,E) is defined as $d_G(u) = \sum_{u \neq v}\mu(uv) = \sum_{uv \in E}\mu(uv)$.The total degree is $td_G(u) = d_G(u) + \sigma(u)$.

If each vertex of a fuzzy graph G has same degree k , then G is regular or k-regular. If each vertex of G has same total degree k, then G is totally regular or k- totally regular,.

If each vertex of G has degree either k_1 or k_2, then G is said to be a biregular fuzzy graph of degree (k_1, k_2). If each vertex of G has a total degree either k_1 or k_2, then G is said to be a totally irregular fuzzy graph of degree (k_1, k_2).

Let G = (V, E) be a graph with order n ≥ 2. The double vertex graph, denoted by $U_2(G)$, is the graph whose vertex set consists of all nC_2 unordered pairs of V such that two vertices {x, y} and {u, v} are adjacent if and only if |{x, y}∩{u, v}| = 1 and if x = u, then y and v are adjacent in G.

Let G:(σ,μ) be a fuzzy graph with underlying crisp graph G*:(V, E) of order n ≥ 2. Define D(G):($σ_d$, $μ_d$) on U_2(G*):(V_d, E_d) whose vertex set V_d consists of all nC_2 unordered pairs of vertices in V such that two vertices {x,y} and {u,v} are adjacent if and only if |{x,y}∩{u,v}|=1 and if x = u then y and v are adjacent in G such that,

$σ_d(\{u_i, u_j\}) = σ(u_i) ∧ σ(u_j)$, for all $\{u_i, u_j\} ∈ V_d$ and

$μ_d\big(\{u_1, u_2\}\{u_1, u_3\}\big) = σ(u_1) ∧ μ(u_2 u_3), \ ∀\{u_1, u_2\}\{u_1, u_3\} ∈ E_d$

Then D(G):($σ_d$, $μ_d$) is a fuzzy graph, called the double vertex fuzzy graph of the fuzzy graph G. The following is an example of the double vertex fuzzy graph.

G:(σ, μ)   **D(G):($σ_d$, $μ_d$)**
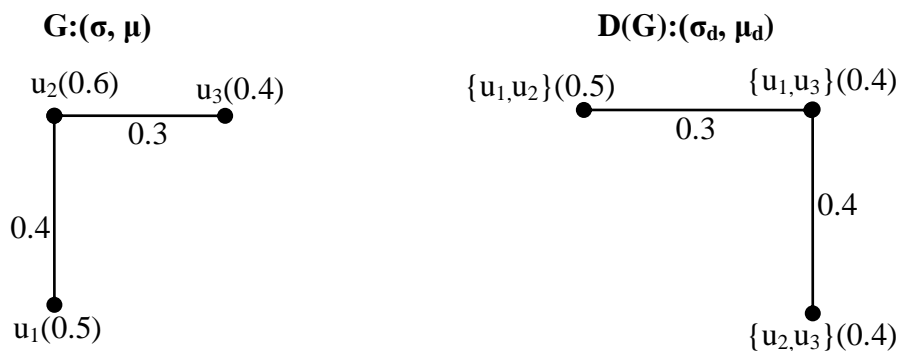
Figure-1

Notation:

In a fuzzy graph G:(σ,μ) with underlying crisp graph G*:(V, E), the relation σ≥ μ means that σ(u) ≥ μ (e) for every u∈V and for every e∈E.

2. **TOTAL DEGREE OF A VERTEX IN THE DOUBLE VERTEX GRAPH**

The total degree of any vertex in the double vertex graph of a fuzzy graph G:(σ, μ) is given by

$td_{D(G)}\big(\{u_i, u_j\}\big) = \sum_{\{u_i,u_j\}\{u_k,u_l\}∈E_d} μ_d\big(\{u_i, u_j\}\{u_k, u_l\}\big) + σ_d(\{u_i, u_j\})$

$= \sum_{u_i = u_k, \ u_j u_l ∈ E} σ(u_i) ∧ μ(u_j u_l)) + \sum_{u_j = u_l, \ u_i u_k ∈ E} σ(u_j) ∧ μ(u_i u_k)$

$+ σ(u_i) ∧ σ(u_j)$

2.1. Theorem

If G:(σ,μ) is a fuzzy graph such that σ≥ μ, then the total degree of a vertex $\{u_i, u_j\}$, where $u_i u_j ∈ E$, in the double vertex fuzzy graph D(G):($σ_d$, $μ_d$) is given by,

$td_{D(G)}(\{u_i, u_j\}) = d_G(u_j) + d_G(u_i) - 2μ(u_i u_j) + σ(u_i) ∧ σ(u_j)$.

Proof:

Let $G:(\sigma,\mu)$ be a fuzzy graph such that $\sigma \geq \mu$. This implies that $\sigma \wedge \mu=\mu$. Then the degree of any vertex $\{u_i, u_j\} \in V_d$ is given by,

$$d_{D(G)}(\{u_i,u_j\}) = \sum_{\{u_i,u_j\}\{u_k,u_\ell\}\in E_d} \mu_d(\{u_i,u_j\}\{u_k,u_\ell\})$$

$$= \sum_{u_i=u_k \text{ and } u_j u_\ell \in E} \sigma(u_i) \wedge \mu(u_j u_\ell) + \sum_{u_i u_k \in E \text{ and } u_j=u_\ell} \sigma(u_j) \wedge \mu(u_i u_k)$$

$$= \sum_{u_i=u_k \text{ and } u_j u_\ell \in E} \mu(u_j u_\ell) + \sum_{u_i u_k \in E \text{ and } u_j=u_\ell} \mu(u_i u_k)$$

$$= \sum_{u_i=u_k \text{ and } u_j u_\ell \in E} \mu(u_j u_\ell) + \mu(u_i u_j) + \sum_{u_i u_k \in E \text{ and } u_j=u_\ell} \mu(u_i u_k) + \mu(u_i u_j) - 2\mu(u_i u_j)$$

$$= d_G(u_j) + d_G(u_i) - 2\mu(u_i u_j)$$

Therefore the total degree of any vertex $\{u, v\} \in V_d$ is given by,

$$td_{D(G)}(\{u_i, u_j\}) = d_G(u_i) + d_G(u_j) - 2\mu(u_i u_j) + \sigma(u_i) \wedge \sigma(u_j)$$

2.2. Theorem

If $G:(\sigma,\mu)$ is a fuzzy graph such that $\sigma \geq \mu$, then the total degree of a vertex $\{u_i, u_j\}$, where $u_i u_j \notin E$, in the double vertex fuzzy graph $D(G):(\sigma_d, \mu_d)$ is given by,

$$td_{D(G)}(\{u_i, u_j\}) = d_G(u_j) + d_G(u_j) + \sigma(u_i) \wedge \sigma(u_j)$$

Proof:

If $u_i u_j \notin E$, then $\mu(u_i u_j) = 0$. Therefore the result follows from the above theorem 2.1.

2.3. Example

Consider the following fuzzy graph $G:(\sigma,\mu)$ in which $\sigma \geq \mu$ and its double vertex fuzzy graph $D(G):(\sigma_d, \mu_d)$.
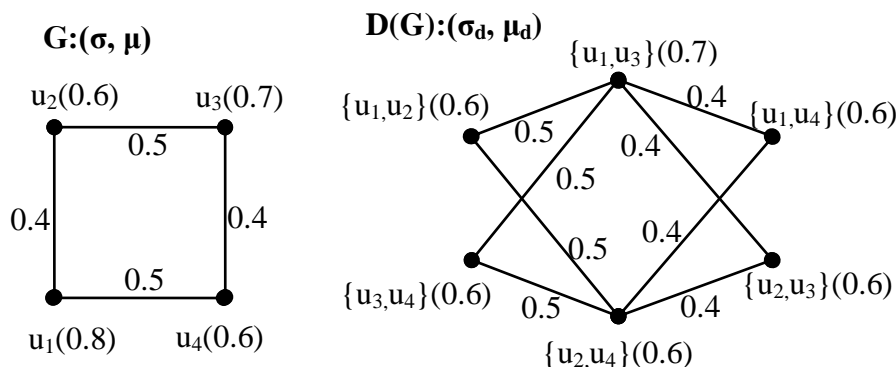
Figure-**2**

Using the above formula in Theorem 2.1 and Theorem 2.2,

$$td_{D(G)}(\{u_1, u_2\}) = d_G(u_1) + d_G(u_2) - 2\mu(u_1 u_2) + \sigma(u_1) \wedge \sigma(u_2)$$

$$= 0.9 + 0.9 - 2 \times 0.4 + 0.8 \wedge 0.6$$

$$= 1.6$$

$$\text{and td}_{D(G)}(\{u_1, u_3\}) = d_G(u_1) + d_G(u_2) + \sigma(u_1) \wedge \sigma(u_2)$$

$$= 0.9 + 0.9 + 0.8 \wedge 0.6$$

$$= 2.5.$$

They can be verified from the graph of D(G) in Fig.2.

2.4. Theorem

If $G:(\sigma,\mu)$ is a fuzzy graphon a complete graph G* such that $\sigma \geq \mu$, then the total degree of any vertex $\{u_i, u_j\}$in the double vertex fuzzy graph $D(G):(\sigma_d, \mu_d)$ is given by,

$$td_{D(G)}(\{u_i, u_j\}) = d_G(u_j) + d_G(u_i) - 2\mu(u_iu_j) + \sigma(u_i) \wedge \sigma(u_j).$$

Proof:

Since G* is complete, $u_iu_j \in E$ for any two vertices u_i andu_j in G. Therefore the result follows from the theorem 2.1.

2.5. Theorem

If $G:(\sigma,\mu)$ is a fuzzy graph such that $\sigma \geq \mu$, then the total degree of a vertex $\{u_i, u_j\}$, where $u_iu_j \in E$, in the double vertex fuzzy graph $D(G):(\sigma_d, \mu_d)$ is given by,

$$td_{D(G)}(\{u_i, u_j\}) = td_G(u_j) + td_G(u_i) - 2\mu(u_iu_j) - \sigma(u_i) \vee \sigma(u_j).$$

Proof:

From Theorem 2.1,

$$td_{D(G)}(\{u_i, u_j\}) = d_G(u_i) + d_G(u_j) - 2\mu(u_iu_j) + \sigma(u_i) \wedge \sigma(u_j)$$

$$= d_G(u_i) + \sigma(u_i) + d_G(u_j) + \sigma(u_j) - 2\mu(u_iu_j) - \sigma(u_i) - \sigma(u_j) + \sigma(u_i) \wedge \sigma(u_j)$$

$$= td_G(u_j) + td_G(u_i) - 2\mu(u_iu_j) - \sigma(u_i) \vee \sigma(u_j).$$

2.6. Theorem

If $G:(\sigma,\mu)$ is a fuzzy graph such that $\sigma \geq \mu$, then the total degree of a vertex $\{u_i, u_j\}$, where $u_iu_j \notin E$, in the double vertex fuzzy graph $D(G):(\sigma_d, \mu_d)$ is given by,

$$td_{D(G)}(\{u_i, u_j\}) = td_G(u_j) + td_G(u_i) - \sigma(u_i) \vee \sigma(u_j).$$

Proof:

From Theorem 2.2,

$$td_{D(G)}(\{u_i, u_j\}) = d_G(u_i) + d_G(u_j) + \sigma(u_i) \wedge \sigma(u_j)$$

$$= d_G(u_i) + \sigma(u_i) + d_G(u_j) + \sigma(u_j) - \sigma(u_i) - \sigma(u_j) + \sigma(u_i) \wedge \sigma(u_j)$$

$$= td_G(u_j) + td_G(u_i) - \sigma(u_i) \vee \sigma(u_j).$$

2.3. Example

Consider the fuzzy graph $G:(\sigma,\mu)$ in which $\sigma \geq \mu$ and itsdouble vertex fuzzy graph$D(G):(\sigma_d, \mu_d)$ in Fig.2.

Using the formulae obtained in Theorem 2.5 and Theorem 2.6,

$$td_{D(G)}(\{u_1, u_2\}) = td_G(u_1) + td_G(u_2) - 2\mu(u_1u_2) - \sigma(u_1) \vee \sigma(u_2)$$

$$= 1.7 + 1.5 - 2 \times 0.4 - 0.8 \vee 0.6$$

$$= 1.6$$

$$and\, td_{D(G)}(\{u_1, u_3\}) = td_G(u_1) + td_G(u_3) - \sigma(u_1) \vee \sigma(u_3)$$

$$= 1.7 + 1.6 - 0.8 \vee 0.6$$

$$= 2.5.$$

2.7. Theorem

If $G:(\sigma,\mu)$ is a fuzzy graphon a complete graph G^* such that $\sigma \geq \mu$, then the total degree of any vertex $\{u_i, u_j\}$ in the double vertex fuzzy graph $D(G):(\sigma_d, \mu_d)$ is given by,

$$td_{D(G)}(\{u_i, u_j\}) = td_G(u_j) + td_G(u_i) - 2\mu(u_iu_j) - \sigma(u_i) \vee \sigma(u_j).$$

Proof:

Since G^* is complete, $u_iu_j \in E$ for any two vertices u_i and u_j in G. Therefore the result follows from the theorem 2.5.

4. CONCLUSION

In this paper, we have obtained the formulae for the total degree of a vertex in the double vertex graphin terms of the parameters of the two given fuzzy graphs in various cases.They will be helpful in studying the totally regular properties of the double vertex fuzzy graph.

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SOME PROPERTIES OF BRIDGED FUZZY GRAPHS

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Abstract

A graph is bridged if it contains no isometric cycles of length greater than or equal to four. Based on this definition, various bridged fuzzy graphs are defined and their properties are studied. The relationship between various bridged fuzzy graphs areobtained.

Keywords

Bridged graph, bridged fuzzy graph, fuzzy cycle, isometric fuzzy subgraph.

AMS Mathematics Subject Classification (2010): 05C72,05C12, 05C38.

1.Introduction

The fuzzy graph theory was introduced by Azriel Rosenfeld in 1975.Rosenfeld has obtained the fuzzy analogue of several graph theoretic concepts like paths, clique, bridges, cutvertices, cycles, forest, trees and connectedness concepts in fuzzy graph theory. J.N. Moderson and Y.Y.Yao introduced the concept of fuzzy cycles and fuzzy trees. A.Nagoorgani and K.Radha introduced the concept of regular and totally regular fuzzy graphs. They have obtained characterization of regular fuzzy graphs on a cycle and also a necessary and sufficient condition under which regular fuzzy graphs and totally regular fuzzy graphs are equivalent. A.Nagoorgani and J.Malarvizhi discussed the concept of isometry in fuzzy graphs and studied its properties. In this paper, we introduce some types of bridged fuzzy graphs and obtain some of their properties.

2.Basic Concepts

The following basic concepts are found in [1] – [13].

Definition 2.1

Let V be a non-empty finite set and $E \subseteq V \times V$.A fuzzy graph $G:(\sigma,\mu)$ is apair of functions $\sigma:V \to [0,1]$ and$\mu:E \to [0,1]$ such that $\mu(x,y) \leq \sigma(x) \wedge \sigma(y)$ for all $x,y \in V$.

Underlying crisp graph of $G:(\sigma,\mu)$ is denoted by $G^*:(V,E)$.

Definition 2.2

If $\mu(x,y) > 0$, then x and y are called neighbours, x and y are said to lie on the edge e=xy. A path ρin a fuzzy graph $G:(\sigma,\mu)$ is a sequence of distinct nodes $v_0 v_1 v_2 \cdots v_n$ such that

$\mu v_{i-1}, v_i) > 0$, $1 \leq i \leq n$. Here 'n' is called the length of the path. The consecutive pairs (v_{i-1}, v_i) are called arcs of the path.

Definition 2.3

The strength of connectedness between two vertices u and v is,

$\mu^{\infty}(u,v) = \sup\{\mu^k(u,v)/k=1,2,3\cdots\}$.where,

$\mu^k(u,v) = \sup\{\mu(u,v_1), \mu(v_1,v_2), \mu(v_2,v_3), \cdots,(v_{k-1},v)/u,v_1,v_2, \cdots, v_{k-1} \in V\}$.

Definition 2.4

An edge uv is a fuzzy bridge of $G:(\sigma,\mu)$ if deletion of uv reduces the strength of connectedness between pair of vertices.

Definition2.5

A vertex u is a fuzzy cutvertex of $G:(\sigma,\mu)$ if deletion of u reduces the strength of connectedness between some other pair of vertices.

Definition 2.6

$G:(\sigma,\mu)$ is a fuzzy cycle if and only ifG^* is a cycle and there does not exist a unique edge xy such that $\mu(xy) = \wedge\{\mu(uv)/uv \in E\}$.

Definition2.7

A fuzzy graph G is connected if $\mu^{\infty}(u,v) > 0$ for all $u,v \in E$. An arc xy is said to be a strong arc if $\mu(x,y) \geq \mu^{\infty}(x,y)$. A node x,is said to be an isolated node if $\mu(x,y)=0$, $\forall y \neq x$.

Definition 2.8

A connected fuzzy graph $G:(\sigma,\mu)$ is a separable fuzzy graph if it is disconnected by removing a vertex. A fuzzy graph $G:(\sigma,\mu)$ with a single cutvertex is a separable fuzzy graph.

Definition 2.12

Let $G:(\sigma, \mu)$ be a connected fuzzy graph. For any path P, the length of the path L(P) is defined as the sum of the membership values of the edges in P. The sum distance between two vertices u and v is $d^s(u, v) = \min\{L(P) / P$ is a u-v path$\}$. For the sake of simplicity, we denote it by $d^s(u, v)$.

Definition 2.9

Let $G_i:(\sigma_i, \mu_i)$ be the fuzzy graphs with underlying sets V_i,for i =1,2.G_2 is said to be isometric from G_1 if for each v $\in G_1$ there is abijection $\varphi_V: V_1 \rightarrow V_2$ such that $d_{G_1}(u,v) = \delta_{G_2}(\varphi_v(u), \varphi_v(v))$,for every$u \in G_1$.If they areisometric from each otherthey are said to be isometric.

Definition 2.10

Let $G:(\sigma,\mu)$ be a fuzzy graph.A fuzzy subgraph H of G is isometric if $d_H(u.v)=d_G(u,v)$ for every $u,v \in H$. H* is isometric in G* if $d_{H*}(u.v)=d_{G*}(u,v)$ for every $u,v \in H$.

Definition 2.11

A fuzzy graph G $:(\sigma,\mu)$ is a distance preserving fuzzy graph if it has an isometricfuzzy subgraph with each possible number of vertices upto |V|.

Definition 2.12

A graph G* is a bridged graph if it has no isometric cycle of length at least 4.

Definition 2.13

Let $C*$ be a cycle in a graph $G*$. Let u and v be two vertices on$C*$. An u,v-bridge of $C*$ is an u,v-path in $G*$ such that $d_{G*}(u,v) < d_{C*}(u,v)$.

3.Bridged Fuzzy Graphs

Definition 3.1

A fuzzy graph G: (σ, μ) is Partially bridged if it has no isometric cycles$C_n{}^*$,for n≥4 in$G*$,that is, if$G*$ is bridged.

Definition 3.2

A fuzzy graph G: (σ, μ) is bridged if it has no isometric cycles C_n,for n≥4 in G.

Definition 3.3

A fuzzy graph G: (σ, μ) is fuzzy bridged if it has no isometric fuzzy cycles C_n,for n≥4 in G.

Example 3.4

Consider the following fuzzy graph G.
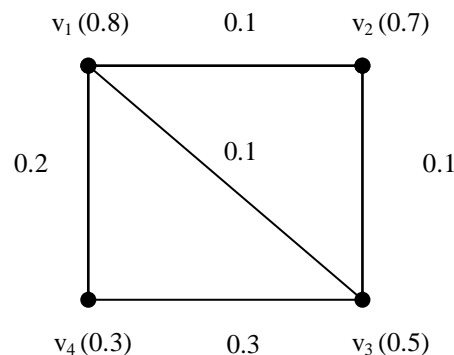
Fig 3.1

Here cycle C: $v_1 v_2 v_3 v_4 v_1$ is the only cycle of length 4.

$d_{G*}(v_1, v_3) = 1 < 2 = d_{C*}(v_1, v_3)$

∴ C is not isometric in G*.

Since $d_G(v_1, v_3) = 0.1 < 0.2 = d_C(v_1, v_3)$, C is not isometric in G.

Also Cis a fuzzy cycle.

Therefore G is a partially bridged,bridged and fuzzy bridgedfuzzy graph.

Remark 3.5

In the above example,G is partially bridged,bridged and fuzzy bridged fuzzy graph.Butin general this cannot hold always,which can be seen from the following fuzzy graphsin Fig 3.2.

$$G_1 G_2$$
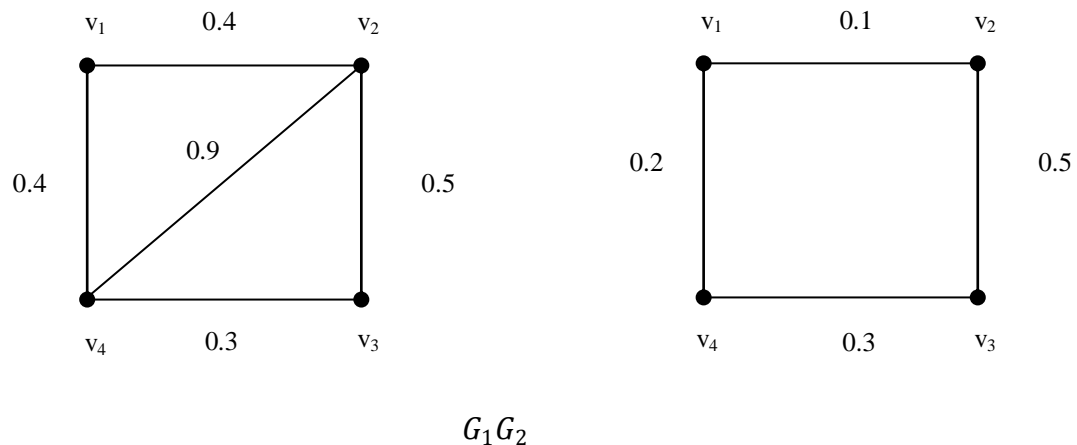
G_1 is partially bridged,not bridged and not fuzzybridged.

G_2 is not partially bridged,not bridged but fuzzy bridged(Since it is not a fuzzy cycle).

The following theorems provide relationship between these bridged fuzzy graphs.

Theorem 3.6

If G^* is an acyclic graph,then any fuzzy graph G on G^* is partially bridged,bridged and fuzzy bridged.

Proof

Since G^* is acyclic, there is no isometric cycle in G^*,no isometric cycle in G and no isometric fuzzy cycle in G.

Hence the theorem.

Remark 3.7

The converse of theorem 3.6 need not be true. For example, the fuzzy graph G in Fig 3.1 is partially bridged, bridged and fuzzy bridged but it contains a cycle.

Theorem 3.8

Let $G:(\sigma,\mu)$ be a fuzzy graph on G^*,which has at least one cycle of length at least 4. If G is bridged,then it is fuzzy bridged.

Proof:

Since G is bridged,every cycle of length atleast 4 in G^* is not isometric in G.

Therefore G has no isometric fuzzy cyce C_n,for $n \geq 4$ and hence G is fuzzy bridged.

Remark 3.9

The converse of theorem 3.8 need not be true.For example,the fuzzy graph G_2 in Fig 3.2 is fuzzy bridged but not bridged.

Theorem 3.10

Let $G:(\sigma,\mu)$ be a fuzzy graph such that all the cycles of length at least 4 in G^* are fuzzy cycles in G.Then G is bridged if and only if G is fuzzy bridged.

Proof:

Since all the cycles of length at least 4 in G^* are fuzzy cycles in G, G has no isometric cycle $C_n, n \geq 4$ in G if and only if G has no isometric fuzzy cycle $C_n, n \geq 4$ in G.

Hence the theorem.

Theorem 3.11

Let $G:(\sigma, \mu)$ is a fuzzy graph such that μ is a constant function. Then the following are equivalent:

i) G is partially bridged

ii) G is bridged

iii) G is fuzzy bridged

Proof:

Let μ(e) = k, $\forall e \in E$, where k is a constant.

Therefore $d_G(u, v) = k d_{G^*}(u, v)$, for every u,v in V.

To Prove (i)$\Longrightarrow$(ii)

Suppose G is partially bridged.

 Let C be a cycle of length at least four in G.

 Then C is not isometric in G^*.

$\therefore d_{G^*}(u, v) < d_{C^*}(u, v)$ for some vertices u and v in C.

$\Longrightarrow k d_{G^*}(u, v) < k d_{C^*}(u, v)$

$\Longrightarrow d_G(u, v) < d_C(u, v)$

$\therefore C$ is not isometric in G.

$\therefore G$ is a bridged fuzzy graph.

 To Prove (ii)$\Longrightarrow$(iii)

Suppose G is bridged fuzzy graph.

Since μ is a constant function, every cycle in G is a fuzzy cycle in G.

 Hence G is fuzzy bridged.

To Prove (iii)$\Longrightarrow$(i)

Suppose G is fuzzy bridged

 If $C:v_1 v_2 \ldots \ldots v_n v_{1,,}$ $n \geq 4$ is   a   cycle   in G^*, then since C is a fuzzy cycle in G, it is not isometric in G.

$\therefore d_G(v_i, v_j) < d_C(v_i, v_j)$ for some $i \neq$j.

$\Longrightarrow$ $k d_{G^*}(v_i, v_j) < k d_{C^*}(v_i, v_j)$ for some $i \neq$j.

$\Longrightarrow$ $d_{G^*}(v_i, v_j) < d_{C^*}(v_i, v_j)$ for some $i \neq$j.

$\therefore C^*$ is not isometric in G^*.

∴ G is partially bridged.

4. Bridge of a cycle in fuzzy graphs

In this section, bridge and fuzzy bridge of a cycle in fuzzy graphs are defined. A characterization for a fuzzy graph to be partially bridged, bridged or fuzzy bridged are obtained by using them.

Definition 4.1:

Let C be a cycle in a fuzzy graph G. Let u and v be two vertices on C. An u,v-bridge of C is an u,v-path in G such that $d_{G^*}(u,v) < d_{C^*}(u,v)$.

An u,v- fuzzy bridge of C is an u,v-path in G such that $d_G(u,v) < d_C(u,v)$

Example 4.2:

The edge v_1v_3 is a v_1, v_3 - bridge and v_1, v_3- fuzzy bridge of the fuzzy graph G in Fig.3.1.

Theorem 4.3

A fuzzy graph G is partially bridged if and only if every cycle C of length at least 4 in G^* has u,v-bridge of C for at least two vertices of u and v of C.

Proof:

Let $G: (\sigma, \mu)$ be a partially bridged fuzzy graph.

Let C be a cycle of length at least four in G.

Then C is not isometric in G^*.

Therefore exists two vertices u and v in C such that

$$d_{G^*}(u,v) < d_{C^*}(u,v)$$

Then the u,v-path in G which gives $d_{G^*}(u,v)$ is a u,v-bridge of C.

Conversely, suppose there is an u,v-bridge of C for at least two vertices u,v of every cycle C of length at least 4.

Then since $d_{G^*}(u,v) < d_{C^*}(u,v)$, C is not isometric in G^*.

Therefore G is partially bridged.

The following Theorems can be proved in a similar way.

Theorem 4.4

A fuzzy graph G is bridged if and only if every cycle C in G of length at least 4 in G^* has u,v-fuzzy bridge of C for at least two vertices of u,v of C.

Theorem 4.5

A fuzzy graph G is a fuzzy bridged if and only if every fuzzy cycle C in G of length at least 4 in G^* has u,v- fuzzy bridge C of for at least two vertices of u,v of C.

Conclusion

In this paper, variousbridged fuzzy graphsaredefined and the relationship between them are obtained. Also bridge and fuzzy bridge of a cycle in fuzzy graphs are defined and a characterization for a fuzzy graph to be partially bridged, bridged or fuzzy bridged are

obtained by using them. Theseproperties will certainly be helpful in studying various properties of fuzzy graphs in detail.

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BIG DATA VISUALIZATION: TOOLS AND CHALLENGES

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Abstract

In today's world where everything is recorded digitally, we are generating and processing a huge amount of data every day. After the pledge of Digital India, data processing multiplied many folds. Big data will be transformative in every sphere of life. But just data processing is not enough, human brain tends to find data more efficiently when data is represented visually. Data Visualization is a major method which aids big data to get an absolute data perspective and as well the discovery of data values. Data Visualization plays important role in effective decision making. The purpose of representing data visually is to basically give an interpretation to what is insight without difficulties. It also leads to new opportunities and innovative ideas for solving the big-data problem. It is quite a challenge to visualize such a mammoth amount of data in real time or in static form. In this paper, we discuss why big data visualization is important for us, the challenges related to it and examine various data big data visualization tools and techniques.

Keywords: Digital India, Data Visualization, Big Data

INTRODUCTION

In today's world where everything is recorded digitally, we are generating and processing a huge amount of data every day. We have entered in a data-driven era, in which data are continuously acquired for a variety of purposes.In the world of big data, the ability to make timely decisions based on available data is crucial to business success, clinical treatments, cyber and national security, and disaster management. Additionally, the data generated from large-scale simulations, astronomical observatories or high-throughput experiments will help lead to new discoveries if scientists have adequate tools to extract knowledge from them. Almost all fields of study and practice eventually will confront this big-data problem.

In recent years Big Data has become topic of interest for all the industries including, Academics, IT Companies, and governments [1]. Big Data has proved its importance to this world within such a small amount of time that today almost all IT and non-IT companies are storing all the data they produce. Today almost all companies and institutions struggle to just store the massive amount of data whereas analyzing, interpreting and presenting it in meaningful ways is a thought for later [2]. The main challenge of Big Data lies in capturing, storing, analyzing, sharing, searching, and visualizing data. But if all the information are represented visually then it becomes much easier for our brain to find meaningful patterns and take decision accordingly. Fig. 1,shows the benefits of Big data visualization [3]. Visualization has proven effective for not only presenting essential information in vast amounts of data but also driving complex analyses. Big-data analytics and discovery present new research opportunities to the computer graphics and visualization community.

DATA VISUALIZATION

Data visualization is certainly not a new thing; it has been around for centuries. Data visualization is easy and quick way to convey messages and represent complex things [4]. We

humans are adapted to find patterns in everything we see. Since the data is mounting at such a massive rate the traditional ways of presenting data is obsolete [1]. Compared to traditional data, Fig. 1. Benefits of big data visualization

Data visualization is a general term that describes any effort to help people understand the significance of data by placing it in a visual context. Patterns, trends and correlations that might go undetected in text-based data can be exposed and recognized easier with data visualization software.

Actual challenge is not only to process this huge amount of data but to process data with high diversity. High diversity and uncertainty in data reduces the response time of the application as it has to deal with not only traditional structured data but also with semi and unstructured data [1]. Visualization-driven system lets users handle multiple volumes and incomplete data, restricts most computations to a small subset of the data, and achieves scalable computing. We anticipate that the emerging big-data applications will present new challenges, drawing new interest and research that leads to many innovations and advancements.

VISUALIZATION TOOLS

Various tools have emerged to help us out from the above pointed problems. The most important feature that a visualization must have is that it should be interactive, which means that user should be able to interact with the visualization. Visualization must display relevant information when hovered over it, zoom in and out panel should be there, visualization should adapt itself at runtime if we select subset or superset of data. We reviewed some of the most popular visualization tools.

1) Tableau

Tableau is interactive data visualization tool which is focused on Business Intelligence. Tableau provides very wide range of visualization options. It provides option to create custom visualization. It is fast and flexible. It supports mostly all the data format and connection to various servers right from the Amazon Aurora to Cloudera Hadoop and Salesforce. User interface is intuitive, wide variety of charts are available. For simple calculations and statistics one does not require any coding skills but for heavy analytics we can run models in R and then import the results into Tableau. This requires quite a bit of programming skill based upon the task we need to perform.

Limits/Demerits of Tableau

Though Tableau public is available for free of cost but it provides its service online with 1GB of storage. For desktop version one has to buy license. Moreover, you need to buy the license of Server and Desktop versions separately. Coding skill is required if you need to work around R script for in-depth analysis.

2) Microsoft Power BI

Power BI is a powerful cloud-base business analytics service. Visualization are interactive and rich. Power BI consists of 3 elements, Power BI Desktop, Service(SaaS), Apps. Every

service is available to us that is why it makes Power BI flexible and persuasive. With more than 60 types of source integration you can start creating visualization in matter of minutes. Power BI combines the familiar Microsoft tools like Office, SharePoint and SQL Server. The feature that it distinguishes from other tools is that you can use natural language to query the data. You don't require programming skills for this tool but there is option available to run your R script. You can merge multiple data sources and create models, which comes in handy. Fig. 4 represents 3 visualizations in 3 coordinates, i.e. left, bottom and right. Left represents profit by county and market, bottom represents profit by region and right coordinate represents all over sales and profit.

Limits/Demerits of Microsoft Power BI

•Desktop version of the software is available for free but major drawback arises when we try to access cloud services. For that we need to have a Work Account to sign in, public account will not do the trick here.

•Workbook size is limited only to 250 MB.

•It is slow compared to Tableau

3)Plotly

Plotly is also known as Plot.ly is build using python and Django framework. The actions it can perform are analyzing and visualizing data. It is free for users but with limited features, for all the features we need to buy the professional membership. It creates charts and dashboards online but can be used as offline service inside Ipython notebook, jupyter notebook and panda. Different variety of charts are available like statistical chart, scientific charts, 3D charts, multiple axes, dashboards etc. Plotly uses a tool called "Web Plot Digitizer(WPD)" which automatically grabs the data from the static image [12]

Limits/Demerits of Plotly

•Pro users have limited features like upload size of files are only up to 500KB

4) Gephi

Gephi is open-source network analysis tool written in Java and OpenGL. It is used to handle very large and complex datasets. The network analysis includes-

•Social Network Analysis

•Link Analysis

•Biological Network Analysis

With its dynamic data exploration Gephi stands out rest of its competition for graph analysis. No programming skills are required to run thin tools but a good knowledge in graphs is necessary. It uses GPU 3D render engine to accelerate the performance and give real time analysis [14]

5) Excel

Microsoft Excel is a spreadsheet developed by Microsoft. It can not only be used for Big Data and statistical analysis but it is also a powerful visualization tool. Using power query excel can connect to most of the services like HDFS, SaaS etc and is capable of managing Semi- Structured data. Combined with visualization techniques like "Conditional Formatting"

and interactive graphs makes Excel 2016 a good contender in the ocean of Big Data visualization tools.

Not all visualization is applicable at all places, we need to choose wisely which techniques to use when. Table 2 [8] represents some of the popular visualization techniques and when or when not to use them. Table 3 [17] represents the classifications of the visualization methods according to big data classes.

Sr. No.	Visualization methods	Description
1.	**Treemap**	It is based on space-filling visualization of hierarchical data.
2.	**Circle packing**	It is same as of treemap but instead of rectangles we use circles. This is not as space efficient as tree map visualization.
3.	**Sunburst**	Hierarchy is displayed in the circular arrangement. Different layers on sunburst represents different levels of hierarchy.
4.	**Parallel coordinate**	It represents numerous data element for distinct objects.
5.	**Stream graph**	It is displacement of stacked area around central axis which looks like a flowing shape.
6.	**Circular Network Diagram**	Different objects are placed in the form of circle and linked to each other according to relativeness.

CHALLENGES

Traditional visualization tools have reached to their limits when encountered with very large data sets and these data are evolving continuously. Though there are some extensions to traditional visualization approaches but they lag behind by miles. The visualization tool should be able to provide us interactive visualization with as low latency as possible. To

reduce the latency, we can do the following things: [5]

•Use the pre-computed data

•Parallelize Data Processing and Rendering

•Use a predictive middleware

Big Data visualization tool must be able to deal with semi-structured and unstructured data because big data usually have this type of format. It is realized that to cope with such huge amount of data there is need for immense parallelization, which is a challenge in visualization. The challenge in parallelization algorithm is to break down the problem into such independent task that they can run independently [6]. The task of big data visualization is to recognize interesting patterns and correlations. We need to carefully choose the dimensions of data to be visualized, if we reduce dimensions to make our visualization low then we may end up losing interesting patterns but if we use all the dimensions we may end

up having visualization too dense to be useful to the users. For example: "Given the conventional displays (1.3 million pixels), visualizing every data point can lead to over-plotting, overlapping and may overwhelm user's perceptual and cognitive capacities [7]".

Due to vast volume and high magnitude of big data it becomes difficult to visualize. Most of the current visualization tool have low performance in scalability, functionality and response time [8]. Methods have been proposed which not only visualizes data but processes at the same time. These methods use Hadoop and storage solution and R programming language [9] as compiler environment in the model [10]. Fig 2 shows the outline of such a model.

Fig. 2. The big data visualization algorithm analysis integrated model.

Some other important big data visualization problems areas follows [11]

Sr. No.	Visualization Problems	Description
1.	**Visual noise**	Most of the objects in dataset are too relative to each other. It becomes very difficult to separate them.
2.	**Information loss**	To increase the response time we can reduce data set visibility, but this leads to information loss.
3.	**Large image perception**	Even after achieving desired mechanical output we are limited by our physical perception.
4.	**High rate of image change**	If rate of change to image istoo high it becomes impossible to react to the number.
5.	**High performance requirements**	During static visualization this factor might be ignored compared to dynamic visualization which demands more i.e. high performance.

CONCLUSION

In the world of big data where every information is crucial in one way or the other we rely on the visual information to find useful patterns. But traditional methods of visualization do not keep up with the pace and volume of data, we require such tools which deal with all the characteristics of big data and gives us result without giving up performance and response time. In this paper we identified why big data visualization is important for and what are the challenges and issues related to this. We also noted that interactivity of visualization is of utmost importance and good visualization tools should produce interactive visualization. We also studied how people are proposing new systems to deal with these challenges.

We reviewed some of the popular visualization tools and observed their merits and demerits. These tools are quite promising, they generate rich and interactive visualizations, most of them tackle the huge volume of data and response in acceptable amount of time. It is clear from the analysis of these tool that there cannot be one winner among them. One should choose them according to their requirement. For e.g. a small business might not want to use Tableau because of its high cost. Before choosing any of the visualization tool businesses

want to review what all are their requirement and which tool(s) suite the best for them. This paper will help them to choose their tool of interest.

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ROLE OF LABOUR UNIONS IN WELFARE OF REGULAR & CONTRACTUAL WORKERS: AN ANALYTICAL STUDY

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1. Abstract

Contractual workers (Third party) are mostly illiterate and semi-skilled ones in the manufacturing sector. This class of workers is rarely organized and hardly any trade union supports them because they are scattered. Their interests are inadequately addressed by the trade unions for various reasons. In the labour legislations it is not clearly mentioned that whether contract workers may be a member of the trade unions. This perception has been investigated in this paper. The employers have started adopting a strategy to hire contract workers through middlemen or contractors. On the one hand employers are hiring more contractual workers to avoid the application of provision of labour legislations and on the other hand to save the labour cost. Usually, labour unions support workers for working hours, working conditions, wage negotiations and against foul practices of the management. Under this paper, researchers have investigated that do the contract workers get similar support from the trade union as regular workers get.

Keywords: Contract workers, Labour unions, principle employers, Working Hours, working condition

2. Introduction

The Globalization pushed the foreign companies to invade the countries where the labour is cheap. India is one such country where labour is cheap due to the presence of a large battalion of the unemployed workforce. This has given rise to the birth of large contract labourworkforce in every industrial activity. The contract labour force, which in all probabilities likely to surpass permanent labour in number and has already, happened in the majority of cases. Labour unions protect the interest of regular workers. Contract workers remain at the mercy of the labour unions of the principal employer when they require help in negotiating working hours, working conditions, protection against foul

practices being practiced by the employers and wage negotiation. Even contract workers can form and get registered their own union as per the labour legislation to protect their rights but due to fear of losing the job contract workers refrain themselves from forming the trade union. Contractors don't like the idea of forming a trade union by contractual workers.

A number of contract workers who are indirectly employed through the contractors are increasing year by year in comparison to the regular workers who are directly employed with the principal employer. Looked at otherwise, within the seventeen years between 1997-98 and 2014-15, the compound annual rate of growth (CAGR) of directly employed workers was .55%. In stark distinction, the CAGR of contract employees was 6.79% which is significantly higher.[*]

As per the labour legislations, workman shall be deemed to be employed as "contract labour" in or in connection with the work of an establishment when he is hired in or in connection with such work by or through a contractor, with or without the knowledge of the principal employer.[†]

3. Objectives of the study

a. To investigate the role of labour unions in the welfare of contractual workers in manufacturing sector.

b. To compare the degree of support extended by trade unions in the welfare of regular and contractual workers.

4. Review of Literature

Amit K. Bhandari (2008) found that the empirical analysis of the paper reveals that trade unions reserve higher wages for their members. The wage distinction between union member and non-union member is 55.7% and 10.3 per cent for permanent and contractual workers respectively.

Meenakshi Rajeev, (2009) Discussed that contract workers contribute significantly in production process in comparison to the regular workers. Survey says that contract workers are more exploited in many ways including non-payment or payment less than minimum wages.

Hensman & Rohini (2010), Indian labour unions emphasized on registration of informal workers but not their employers. There is less accountability of employers in legislation. Globalization attracted foreign inverters, which generated demand for contract workers in the manufacturing sector of India. Big firms are shifting workforce towards informal and labour unions were kept away from informal workers.

E. Patrick Mc Dermott (2013), Unions are by and large absent in the context of contract workers. Unions did not play any role in the representation of the worker for a labour contract dispute. This is notwithstanding a requirement under the Trade Union Act that workplace union act as the front line representative of the contract worker in such disputes.

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[*]https://www.livemint.com/Money/in820rBafIqhkbesEyBJoI/The-growth-rate-of-contract-workers-has-been-far-higher-than.html
[†]THE CONTRACT LABOUR (REGULATION AND ABOLITION) ACT, 1970, Sec 2 (b).

G. Sampath (2016) explains as per the Trade Unions Act, 1926, any worker who works in a factory can join a union of that factory. While the trade unions typically allow only the permanent workers as members. The reason quoted is that contract workers are not employees of the principal employer (the manufacturing unit), and so should not find representation in a union body formed for the purpose of negotiating with the said employer. Contract workers are hired by the labour contractor, who is liable to pay the salaries. Although ultimate responsibility to pay the wages lies up to principal employers only.[‡]

But it does not disqualify a contract worker from being a member of a factory's union if the worker is not on the rolls of an employer. Section 2 (g) of the Trade Union Act 1926 defines "workmen", for the purposes of a trade union, as "all persons employed in trade or industry whether or not in the employment of the employer with whom the trade dispute arises".[§]

5. Research Methodology

The research is focussed upon the study of most neglected and vulnerable class of workers referred to as contract workers. Under this research, the role of the labour union towards the regular and the contractual workers has been investigated.

*5.1 Hypotheses:*On the basis of literature review and observation, the following hypothesis was formed which was supposed to be tested statistically on the basis of primary data collected -

"Labour unions don't support contractual workers for the bargain of working hours & working conditions, wage determination and negotiation and protection against foul practices of management."

Following null hypotheses were formed to test them statistically at a particular level of significance.

*H0 1There is no significant difference in the role of labour unions for the **bargain of working hours** of regular workers and contractual workers.*

*H0 2There is no significant difference in the role of labour unions for **bargaining of the working condition** of regular workers and contractual workers.*

*H0 3There is no significant difference in the role of labour unions for the **protection** of regular workers as well as contractual workers **against Foul practices of management**.*

*H0 4There is no significant difference in the role of labour unions for the **Wage determination and negotiation**of the regular workers as well as contractual workers.*

5.2 Research Design

The present study is **descriptive as well as analytical in nature. The research is based on** analysis of collected data and test of the concerned hypotheses.

5.3 Sample Design

[‡]Information is based on article published in an Indian daily newspaper, headquartered in Chennai and Contract Labour (Regulation and Abolition) Act, 1970.
[§]The trade union act 1926.

To collect the data for analyzing thebenefits obtained by the workers as a result of labour union initiatives of welfare facilities on employee's satisfaction, researchers used **'Stratified random sampling'** technique. The respondents were divided into two strata; one regular worker and other contractual workers. After stratifying respondents data were randomly collected from the industrial areas

5.4 Universe of study

This research work was conducted on regular & contractual workers working in the manufacturing industry of Uttar Pradesh. Mainly data were collected from industrial areas of Uttar Pradesh like UPSIDC (Lucknow, Kanpur) and SEZ (NOIDA).

5.5 Sample Size

Under present research work total of 190 respondents were included, out of them, 106 were regular workers while 84 were contractual workers.

5.6 Source of data & data collection

This research is mainly based on **primary data** collected with the help of questionnaire and interview schedule method. **The Likert scale** having 5 point scale (ranging from strongly disagree to strongly agree) was used to record the responses of the respondents.

5.7 Data Analysis

Collected data were analyzed through statistical software **M.S. Excel & SPSS** (Statistical programme for social sciences). To test the hypothesis as taken in advance, Non-Parametric Mann-Whitney U Wilcoxon test was applied with the help of SPSS software. This test is used to compare two groups when data is not normally distributed.

6. Data Analysis

On the basis of data collected from the contractual and regular workers, the following comparisons were made in the form of tables and bar graphs. Data was collected on Likert scale (Strongly Disagree to strongly agree ranging scores from 1 to 5 respectively)

A. **Assistance by trade union during working hours bargaining (Table 1)**
   In the response to the question that whether workers are being assisted by the trade unions for the negotiation of working hours, regular workers gave mixed reactions while the majority of the contractual workers feel that they never get any support from the trade unions.

Table 1

Are you being assisted by the union during Working hours bargaining?					
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
Regular	18	27	4	34	23	106
contractual	50	5	17	11	1	84
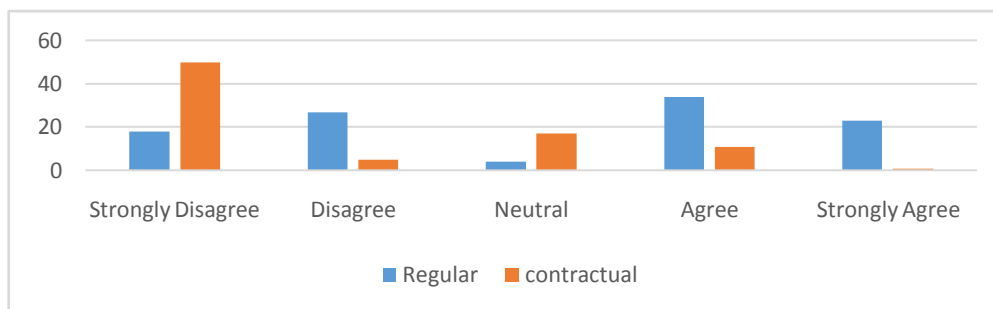
B. Assistance by trade union during Working condition bargaining (Table 2)

More than half of the regular workers do agree that trade unions support them for the negotiation for working conditions. On the other hand, most of the contractual workers don't agree that trade unions support them for the same.

Table 2

Are you being assisted by the union during Working condition bargaining?						
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
Regular	17	23	8	49	9	106
contractual	48	8	18	7	3	84
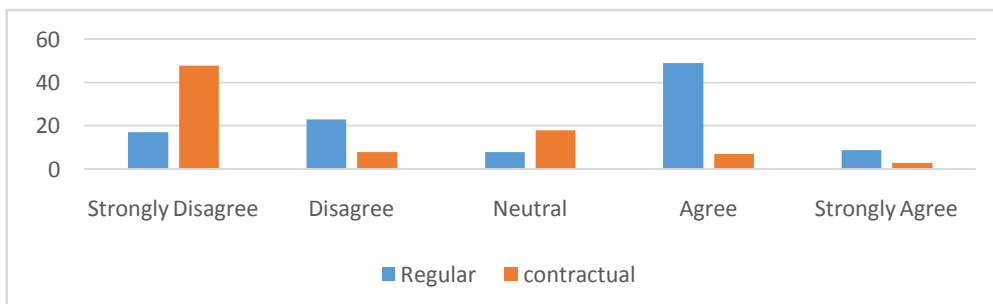
C. Assistance by trade union against Foul practices of management (Table 3)

Table 3 shows that contractual workers show their disagreement that trade unions support them and save them against the foul practices being practiced by the management. In contrast, many regular workers feel that trade unions support them against the foul practices being practiced by the management.

Table 3

Are you being assisted by the union against Foul practices of management?						
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
Regular	10	16	14	42	24	106
contractual	49	14	5	13	3	84
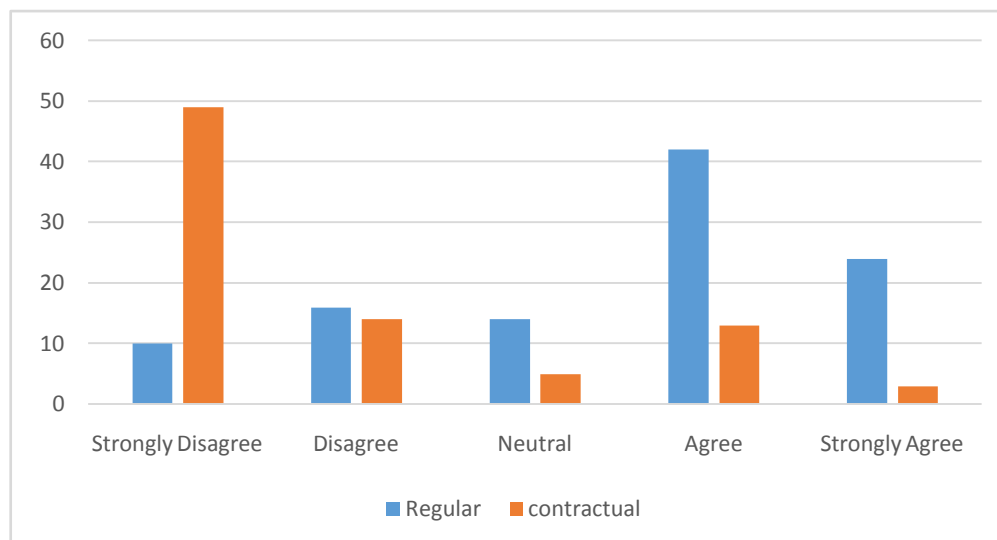
D. Assistance by trade union during Wage negotiation (Table 4)

Table 4 shows that many regular workers do agree that trade unions help and support them. Although contractual workers are getting paid by the contractor only, who are least bothered by the trade unions.

Table 4

Are you being assisted by the union during Wage negotiation?						
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
Regular	3	8	9	55	31	106
contractual	55	12	8	7	2	84
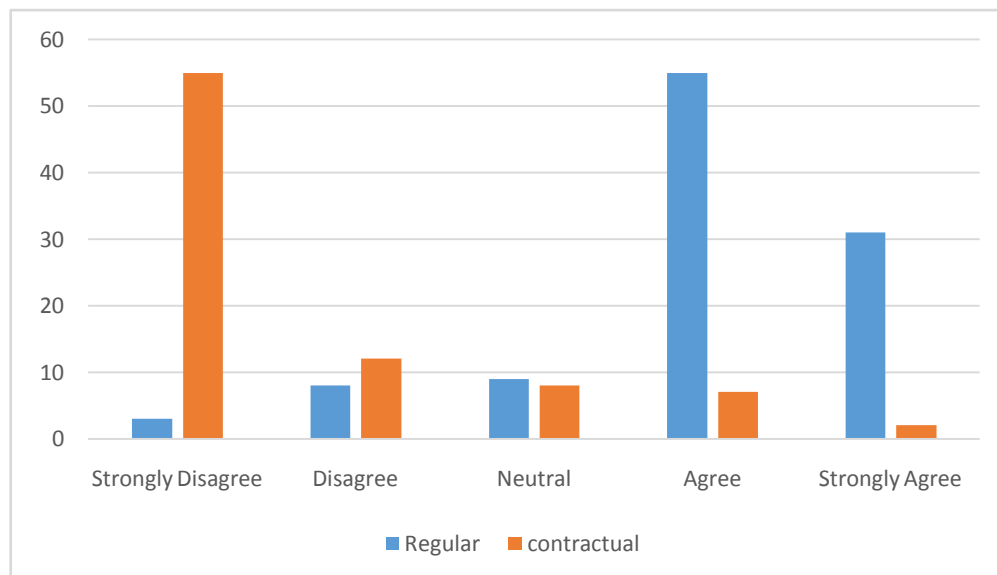
7.1 Testing of Hypothesis

On the basis of above gather information from, regular and contractual workers data was analyzed in SPSS software. To decide the toll to test the hypothesis first normality was checked. The result of the normality test is as follows:

Tests of Normality (Table 5)

	What is the nature of your job	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Are you being assisted by the union during Working hours bargaining?	Regular	.256	106	.000	.850	106	.000
	Contractual	.370	84	.000	.723	84	.000
Are you being assisted by the union during Working condition bargaining?	Regular	.306	106	.000	.836	106	.000
	Contractual	.348	84	.000	.746	84	.000
Are you being assisted by the union against Foul practices of management?	Regular	.274	106	.000	.862	106	.000
	Contractual	.344	84	.000	.713	84	.000
Are you being assisted by the union during Wage negotiation?	Regular	.323	106	.000	.791	106	.000
	Contractual	.386	84	.000	.666	84	.000

a. Lilliefors Significance Correction

Normality test shows that for all the factors which are being considered for this research for the two groups (Contractual and regular workers) are not normally distributed. As the data is not normally distributed Mann -Whitney Test is being used to test the hypothesis.

Mann-Whitney Test (Table 6)
Ranks

	What is the nature of your job	N	Mean Rank	Sum of Ranks
Are you being assisted by the union during Working hours bargaining?	Regular	106	116.49	12348.00
	Contractual	84	69.01	5797.00
	Total	190		
Are you being assisted by the union during Working condition bargaining?	Regular	106	116.37	12335.00
	Contractual	84	69.17	5810.00
	Total	190		
Are you being assisted by the union against Foul practices of management?	Regular	106	121.11	12838.00
	Contractual	84	63.18	5307.00
	Total	190		
Are you being assisted by the union during Wage negotiation?	Regular	106	129.92	13771.00
	Contractual	84	52.07	4374.00
	Total	190		

The table above indicates which group can be considered having more support from trade unions. The group with the higher mean rank must be having more support from the labour unions. In this case, the regular workers are having a higher mean rank for all the variables thus must be having more support from the trade unions.

Test Statistics Table (Table 7)

	Are you being assisted by the union during Working hours bargaining?	Are you being assisted by the union during Working condition bargaining?	Are you being assisted by the union against Foul practices of management?	Are you being assisted by the union during Wage negotiation?
Mann-Whitney U	2227.000	2240.000	1737.000	804.000
Wilcoxon W	5797.000	5810.000	5307.000	4374.000
Z	-6.120	-6.102	-7.446	-10.050
Asymp. Sig. (2-tailed)	.000	.000	.000	.000

Grouping Variable: What is the nature of your job

On the basis of the results obtained and shown as above, the decision about the acceptance of each of the hypotheses can be discussed as under:

*H_0 (1)There is no significant difference in the role of labour unions for the **bargain of working hours** of the regular worker as well as contractual workers:*

*Decision: Since the p-value pertaining to this hypothesis is less than .05 hence null hypothesis can be assumed as **rejected** and it is concluded that trade unions don't provide similar support to the contractual workers as they give to the regular workers for a bargain of working hours.*

*H_0 (2)There is no significant difference in the role of labour unions for the **bargain of the working condition** of the regular worker as well as contractual workers.*

*Decision: As the p-value belongs to this hypothesis is less than .05 hence null hypothesis can be assumed as **rejected** and it is concluded that trade unions don't provide similar support to the contractual workers as they give to the regular workers for a bargain of working conditions.*

*H_0 (3)There is no significant difference in the role of labour unions for the **protection** of regular worker as well as contractual workers **against Foul practices of management**.*

*Decision: Since the p-value refers to this hypothesis is less than .05 hence null hypothesis can be assumed as **rejected** and it is implicated that trade unions don't provide similar support to the contractual workers as they give to the regular workers against foul practices of management.*

*H_0 (4)There is no significant difference in the role of labour unions for the **Wage determination and negotiation**of the regular worker as well as contractual workers.*

*Decision: Since the p-value pertaining to this hypothesis is less than .05 hence null hypothesis can be assumed as **rejected** and it is concluded that trade unions don't provide similar support to the contractual workers as they give to the regular workers for wage determination and negotiation.*

Inference

Testing of hypothesis shows that contract labour doesn't get the similar support as regular workers get from the trade unions for the bargain of working hours & working conditions, wage determination & negotiation and protection against foul practices of management. Mean ranks of Mann Whitney test (Table 6) shows there is regular workers get more support from the trade unions in comparison to contractual workers.

8. Discussion

During this research both the groups of contractual and regular workers were compared and it was found that the degree of support from trade unions is not the same for both the groups of workers. Regular workers get more support from the trade unions for the bargain of working hours & working conditions, wage determination and negotiation and protection against foul practices of management. The labour legislation has permitted the regular as well as contractual workers to take up their disputes with the principal employer. Contract workers can take the membership of any central trade union to safeguard themselves from the foul practices being practiced by the contractors in the case they don't get membership of trade unions of principal employer.

Most of the time contractors exploit contractual workers without bringing it in the notice of the principal employer. It would be definitely beneficial for the employer if they ask and encourage the trade unions to let the contract workers become their member. In that case the principal employer will get to know about the grievances related to the contract workers. This practice will have a positive impact on the overall performance of the organization as the commitment level of contractual workers will increase. The government should also make appropriate amendments in the existing Trade Union Act 1926 to protect the wider interest of contractual workers and it will help them to have clear right to be the member of trade unions of principal employers. As the number of contractual workers are increasing thus it is advisable to take measures to protect the rights and interests of such workers.

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WOMEN EMPOWERMENT

"ROLE AND CONTRIBUTION OF WOMEN ENTREPRENEURS IN MODERN ECONOMIC GROWTH"

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Abstract

Almost every nation has undergone a time when they worshiped female goddesses and had beautiful legends concerning their authority. The worship of female goddesses reflects the authoritive position of female in material things and in producing human beings during primitive economic times. In both material and human production women occupied a dominant position and were respected by everybody. Women are becoming more important in the global marketplace not just as workers, but also as consumers, entrepreneurs, managers and investors. To make men feel even worse, researchers have also concluded that women make better investors than they do. When asked to write an paper on women entrepreneur, the first thing that springs to mind is the state of our economy, and of various economies globally and the benefits that women in enterprise could add to these economies. This paper presents a brief view of the role and of women entrepreneurs in the economic development of our country

Key words: Entrepreneur, Development, Women, Economic

Reviews

Schumpeter (1942) defines entrepreneur as a person who invents a new idea to create a new product. Almost all of definitions on entrepreneur include innovation of product in the terminology. Therefore, entrepreneurs are intrinsic to have innovative and creativity traits (Drucker, 1985). According to Government of India, female entrepreneur is an owner of a business which controlled by woman of at least 51 per cent of the company share and 51 per cent of the employees are women (Goswami et al., 2008). The Companies Commision of Malaysia (CCM, 2003) reported that 49,554 units of businesses were registered by women in 2000, and the figure had increased to 54,626 units in 2001. Along with modernization, women had ventured into entrepreneurial area and started to compete equal to men. In Malaysia, most of women entrepreneurs are in the SMEs sector which contributes to Malaysian economy significantly (Raman et al., 2013). Women in low income countries with high rate of birth tend to easily become entrepreneurs. Their participations are mainly to provide better income for the entire family members (Minniti and Arenius, 2003). Lee (1997) stated that having entrepreneur parents contribute to socializing effect for female child that dramatically increase the chances of the child embracing entrepreneurship at a later stage of her life. Entrepreneurial parents also may act as a source of capital for woman entrepreneur. Singh and Raghuvanshi (2012) explains that women entrepreneurs experience financial problems and greater marketing challenges as compared to men in similar field. Women entrepreneurs according to the authors need regular and frequent capital for their business,

which is not readily available. According to the author, for a long time, there are no longterm financial institutions which is willing to fund women enterprises. Patterson et al., (2012) focused on the influence of feminist sentiments in leadership and entrepreneurship. They observed that leadership attributes and qualities of entrepreneurs are described using manly adjectives because these occupations have been for a long time reserved for male members of the society. Gupta et al. (2007) described that the higher the proactive-ness of a person in performing a task, the lower the stereotyping towards them and the higher chances of failure. Or maybe the more a person cares about one particular task, the more sensitive they are to the negative stereotyping of that task. Proactive women are said to be more likely incline towards entrepreneurship.

Concept of Women Entrepreneurs

The woman or a group of women who initiate, organize, and operate a business enterprise is known as women entrepreneur. A women entrepreneur has to perform all the activities involved in establishing an enterprise. These include idea generation and screening, determination of objectives, project preparation, product analysis etc.

According to Government of India:

"A woman entrepreneur is defined as an enterprise owned and controlled by a woman and having a minimum financial interest of 51 percent of the capital and giving at least 51 percent of the employment generated in the enterprise to women".

The term woman entrepreneur signifies that section of female population who venture out into industrial activities i.e. manufacturing, assembling, job works, repairs/servicing and other business.

Entrepreneurship means the act of being an entrepreneur. It is as old as civilization. Many famous economists like David Ricardo, Adam Smith emphasized not much of role played by entrepreneurship in the society, Richard Cantillon equated entrepreneur with a capitalist.

An **entrepreneur** is someone that creates a new business. This can carry a high risk because it requires money to set up a new business without knowing if it will give a return on investment. Entrepreneurs need to have a good understanding of their markets. They find out what customers want and modify their products in line with market requirements. Following are the reasons for entrepreneurial success

Interest and Vision
The first factor for entrepreneurial success is interest. Since entrepreneurship pays off according to performance rather than time spent on a particular effort, an entrepreneur must work in an area that interests her. Otherwise, she will not be able to maintain a high level of work ethic, and she will most likely fail. This interest must also translate into a vision for the company's growth. Even if the day-to-day activities of a business are interesting to an entrepreneur, this is not enough for success unless she can turn this interest into a vision of growth and expansion. This vision must be strong enough that she can communicate it to investors and employees.

Skill

All of the interest and vision cannot make up for a total lack of applicable skill. As the head of a company, whether he has employees or not, an entrepreneur must be able to wear many hats and do so effectively.

Investment

An entrepreneur must invest in her company. This investment may be something less tangible, such as the time she spends or the skills or reputation she brings with her, but it also tends to involve a significant investment of assets with a clear value, whether they be cash, real estate or intellectual property.

Organization and Delegation

This means hiring other people to do specialized jobs. For this reason, entrepreneurship requires extensive organization and delegation of tasks. It is important for entrepreneurs to pay close attention to everything that goes on in their companies, but if they want their companies to succeed, they must learn to hire the right people for the right jobs and let them do their jobs with minimal interference from management.

Risk and Rewards

Entrepreneurship requires risk. The measurement of this risk equates to the amount of time and money you invest into your business. However, this risk also tends to relate directly to the rewards involved.

The only difference between an **entrepreneur** and **entrepreneurship** is that entrepreneur conceptually is a person whereas entrepreneurship is a process. In a way, we can say that entrepreneur precedes entrepreneurship.

Contribution of Women Entrepreneurs in Modern Economic Growth

Economic development of a country is usually determined by the growth of per capita Income. A key element in economic development is that the people of the country must be major participants in the process that brought about these changes in structure. There are some *indicators of economic development* such as:

- *Lifestyle of people*: as they are more likely to move to cities and work in factories. Entry of larger enterprises: household industries tend to decline and replaced by larger enterprises.
- *Population control*: tendency of the families to reduce the number of children, so the birth rate begins to fall.
- *Employment progress*
- *Capital,*
- *Business volume and*
- *Consumption etc.*

Discussion part of this paper is the contribution of women entrepreneur in economic development. They are involved in enterprises at all levels as managers, entrepreneurs, owners and investors. education, technology and fast economic growth make women more assertive concerning their right, more aggressive in reaching their ambition. In the business world, women entrepreneurs play a big role in business development. The number of women-owned larger companies is not significant, but they start and manage the smaller companies. The increase in female employment has also accounted for a big chunk of global growth in recent decades. GDP growth can come from three sources: employing more people; using more capital per worker; or an increase in the productivity of labour and capital due to new technology. Since 1970 women have filled two new jobs for every one taken by a man.The employment of extra women added more to GDP than new jobs for men also increased

productivity. The increased employment of women in developed economies has contributed much more to global growth. In recent years, increasing attention has been given to the promotion and growth of women-owned enterprises by both national and international organizations. International organizations, such as the United Nations Development Programme (UNDP), UNIFEM, International Trade Centre (ITC, Geneva), UN Economic Commission for Africa (UN-ECA) and Organization for Economic zooperation and Development (OECD); financial institutions such as the African Development Bank (AfDB) and International Finance Corporation (IFC); and donors such as Development Cooperation Ireland (DCI) are also paying significant attention to women's entrepreneurship development. The International Labour Organization (ILO) and the ILO's International Training Centre (ITC-ILO) in Turin, Italy, have been involved in promoting and assisting businesswomen for many years. A team dedicated to working on issues related to Women's Entrepreneurship Development and Gender Equality (WEDGE) was created within the ILO's Small Enterprise Development programme (SEED) in 2001. Following efforts can be taken into account for effective development of women entrepreneurs.

- Encourage women's participation in decision-making
- Training on professional competence and leadership skill to be extended to women entrepreneurs.
- To encourage more passive women entrepreneurs the Women training programme should be organized that taught to recognize her own psychological needs and express them.
- A Women Entrepreneur's Guidance Cell set up to handle the various problems of women entrepreneurs all over the state.
- Repeated gender sensitization programmes should be held to train financiers to treat women with dignity and respect as persons in their own right.
- More governmental schemes to motivate women entrepreneurs to engage in small scale and large-scale business ventures
- Involvement of NGOs in women entrepreneurial training programmes and counseling etc

Current status of Women Entrepreneurs in Economic Development
As per Sixth Economic Census report released by the Ministry of Statistics and Programme Implementation, women constitute around 14% of the total entrepreneurship. The *Indian Economic Outlook Report 2016-17* indicates a increase in GDP growth rate . Everywhere you look; there is an Indian woman in pursuit of the entrepreneurial dream. women in India have done very well for themselves and the country. **Indra Nooyi** – Chairman and Chief Executive Officer of PepsiCo, is the most well-known face amongst Indian businesswomen, HP Managing Director **Neelam Dhawan,** ICICI Bank Limited Managing Director and CEO **Chanda Kochhar** and IBM India CMO **Virginia Sharma** are just a few examples that exemplify the strength of Indian women.

While there are women who have become successful businesswomen and role models for the Indian Industry, there are others including **Ekta Kapoor** who changed the face of Indian television, **Neeta Lulla** who is an Indian fashion stylist and made a mark for herself in the fashion industry and **Shahnaz Husain**, one of the most prominent Indian female entrepreneurs known for her herbal cosmetics and beauty products.

Before concluding this paper, I would like to cite a recent research reported by Women's Web Women & Entrepreneurship in India 2017 Which states: a significant rise in female entrepreneurship in the country, there are a still few challenges that they face to achieve success. A recent survey titled Women & Entrepreneurship in India 2017 Study by Women's

Web interviewed more than 100 women entrepreneurs in India and put together an interesting set of statistics. Most of the respondents were owners of small to medium sized businesses, a majority of which reported sub 10 lakh revenue. The survey pointed out that Bangalore seemed to be the nation's top incubator for women entrepreneurs **as** most of the respondents were based in the city. Kiran M Shaw, Chairman and MD of Biocon, was recently ranked 2nd most powerful woman CEO in India. She is also from Bangalore. Delhi, Chennai, Mumbai, Hyderabad, Pune and Ahmedabad followed. Interestingly, Kolkata was absent from the top metros in which women entrepreneurs in India were based. It was the only metro to be clubbed with the rest of cities in India.

Nearly 6 out of 10 respondents said that their businesses were in the areas of Professional Services, IT, Apparels or F&B. The rest tail ended into other sectors including Travel, Media, Health and Manufacturing. Statistics also showed that most women entrepreneurs from this survey had small to medium sized businesses and more than 70% had less than 5 employees working for them.

So why did these women take up entrepreneurship as opposed to the traditionally accepted pathway to success – Get a degree, get a job and work your way to the top?

The survey points out two major reasons which had lured the respondents to join the entrepreneurship bandwagon. 75% of them believed that they had a creative idea that needed to be taken to the market place and 60% felt the need to be their own boss.
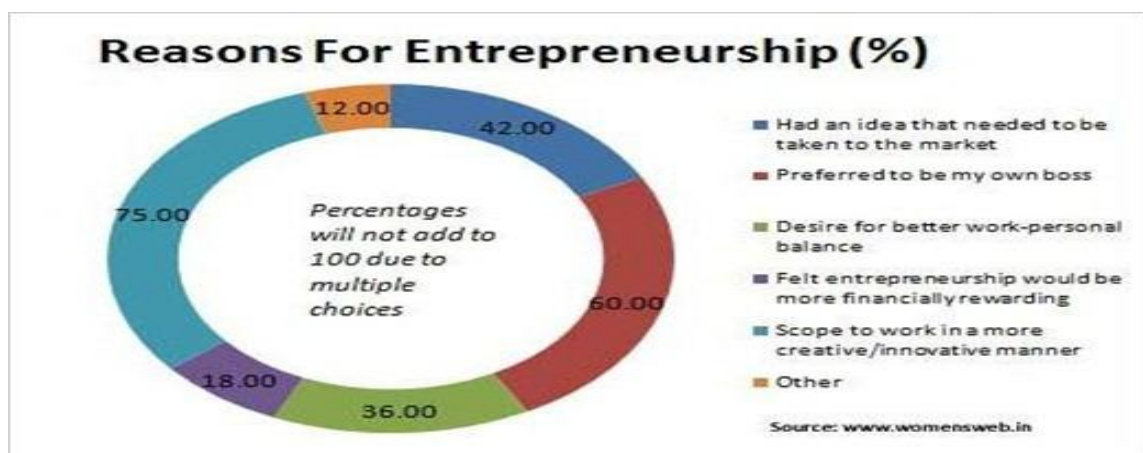
Last but definitely the most inspirational finding for budding young to-be entrepreneurs is the fact that 60% of these respondents started with a capital of less than 1 lakh. Personal savings, loans from friends and family and loans from external parties emerged as the top 3 sources of funding. Not surprisingly, finance was the most important challenge and roadblock these women entrepreneurs faced.

Government Policies Encouraging Women To Go Ahead In Entrepreneurship

Skill Upgradation and Quality improvement and Mahila Coir Yojana

This Yojna aimed at providing self-employment to the rural women artisans in regions producing coir fibre, Mahila Coir Yojana is a women oriented scheme in the coir industry.

The scheme is implemented under the Coir Vikas Yojana by the government. The conversion of coir fibre into yarn provides opportunity to rural women for large-scale employment and earning.

Stree Shakti Package for Women Entrepreneurs

Under this is scheme a loan provided by the State Bank of India (SBI). This is a unique scheme aimed at encouraging and supporting entrepreneurship among women by providing certain concession at loans and interest. According to SBI, the benefits of this scheme are;

- The margin will be lowered by 5% as applicable to separate categories.
- The interest rate will be lowered by 0.5% in case the loan exceeds Rs 2 lakh.
- No security is required for loans up to Rs 5 lakh in case of tiny sector units.

Udyogini Scheme

It was started by the Karnataka Government to assist women in becoming independent and self-reliant by accessing business opportunities and fixing a leg in the same. It provides loans to all the women without any discrimination. An application from the corporate bank of the district can be taken and filed. Interest free loans are granted to 88 small-scale industries that include grocery, beauty, fish business etc.

Cent Kalyani Scheme

Started by Central Bank Of India, this scheme aims at encouraging women to set up their own start-ups. The purpose of this scheme is to meet capital and day to day expenditures of the women entrepreneurs. No third-party guarantee is required and the loan limit is 100 lakhs.

This paper concludes that in modern era, when women are showing their skills in various fields of life, the entrepreneurial classes of women are playing an increasingly prominent role in various sectors of industrial growth and economic development. Further, we can say that the key barriers to advancement of women entrepreneurs are Lack of equal access to education & employment, sexual violence , unequal division of unpaid care and inequalities in the labour market and domestic work.

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ROLE OF BANKING SECTOR IN CORPORATE SOCIAL RESPONSIBILITY

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ABSTRACT

CSR (Corporate Social Responsibility) that emerged in 1960 was an attempt to link business with society. The word "responsibility" means that the company has some ethical obligations towards the public. CSR is a responsibility of every commercial body to protect the interest of society at large. CSR is a figure of self-regulation included into a business replica.. It is a concept where business organization apart from their profitability and growth show interest in societal and environmental welfare by taking the responsibility of impact of their activity on employees, customers, shareholder, supplier and society. It is consider as important tool that provide competitive advantage and improve reputation of business concern. Today is the time of cut throat competition. So, to withstand in this competitive world, many banks in India have created their individual brand in corporate social responsibility by taking various initiative for social welfare and development of society especially in area of rural development, education, empowering women etc. Banks and other financial institutions start promoting ecological friendly and social responsible lending and investment practices. This paper is based on secondary data. This paper makes an attempt to first understand the concept of CSR and further to analyze various CSR activities carried over by the Indian banks.

INTRODUCTION

CSR is a concept where Business organizations apart from their profitability show interest in societal and environmental welfare by taking the responsibility of impact of their activities on stakeholders, employees, shareholders, customers, suppliers, and civil society. With the growing need for fiscal development across the world, there is demand for Financial Institutions to take essential role in the efforts to abolish poverty, achieve reasonable and ensure environmental protection. In this regard, steps taken by business houses and regulatory powers that be operating in developed nations are quite acceptable. However in developing nations the position of CSR activities by financial institutions is not so affluent. Social Responsibility of business means what a business does over the legal requirement for the assistance of the society. The word "responsibility" emphasizes that the business has some ethical obligations towards the civilization. The emergent concerns for sustainable growth, environmental performance, encircling pollution control and management of natural resources has given mass acknowledgment to the concept of Corporate Social Responsibility (CSR). The combination of CSR principles in working activities of business is very much important to ensure sustainable development of an economy. Many Indian banks have shaped their individual brand image in the ground of Corporate Social Responsibility (CSR) by taking various social initiatives for social welfare and society development. It has been found that the banks are engaged in CSR activities mostly in the area of Rural Development, Education, and Community Welfare of Children. There is a need for improved CSR activities by the banks, which is possible by accumulating more and more social development issues link with corporate sector.

CSR Concept in the clause 135, the Companies Act, 2013:
 According to Companies Act 2013, by clause 135 is applicable to the companies to spend the partial net profit on the companies whose:

- An annual turnover of Rs.1 000 crores INR or more (or)

- A net worth of Rs. 500crores INR or more (or)

- A net profit of Rs. 5crores INR or more

And companies should set-up the committee consisting of their board members, including at least one independent director. This act is applicable to all the companies incorporated in India. Such companies should spend at least 2% of their average net profit in the previous three years on the CSR activities. Here Net Profit is defined as the profit before tax excluding profits arising from the branches outside India.

OBJECTIVE OF STUDY

- To understand the concept of CSR.

- To study the CSR practices by Indian banks.

- To study the different key area of CSR.

Different key area of CSR

The vital key areas of CSR like, children welfare, society welfare, education, environment, healthcare, poverty abolition, rural growth, occupational training, women empowerment, security to girl child, and employment.

 Education: Almost all the banks in India have given due significance to education. Various banks have donated funds whereas some have helped the schools in other various facilities such as Allahabad Bank is providing fans in each classroom and staffroom in Primary Schools and serving schools in providing the drinking water to children.
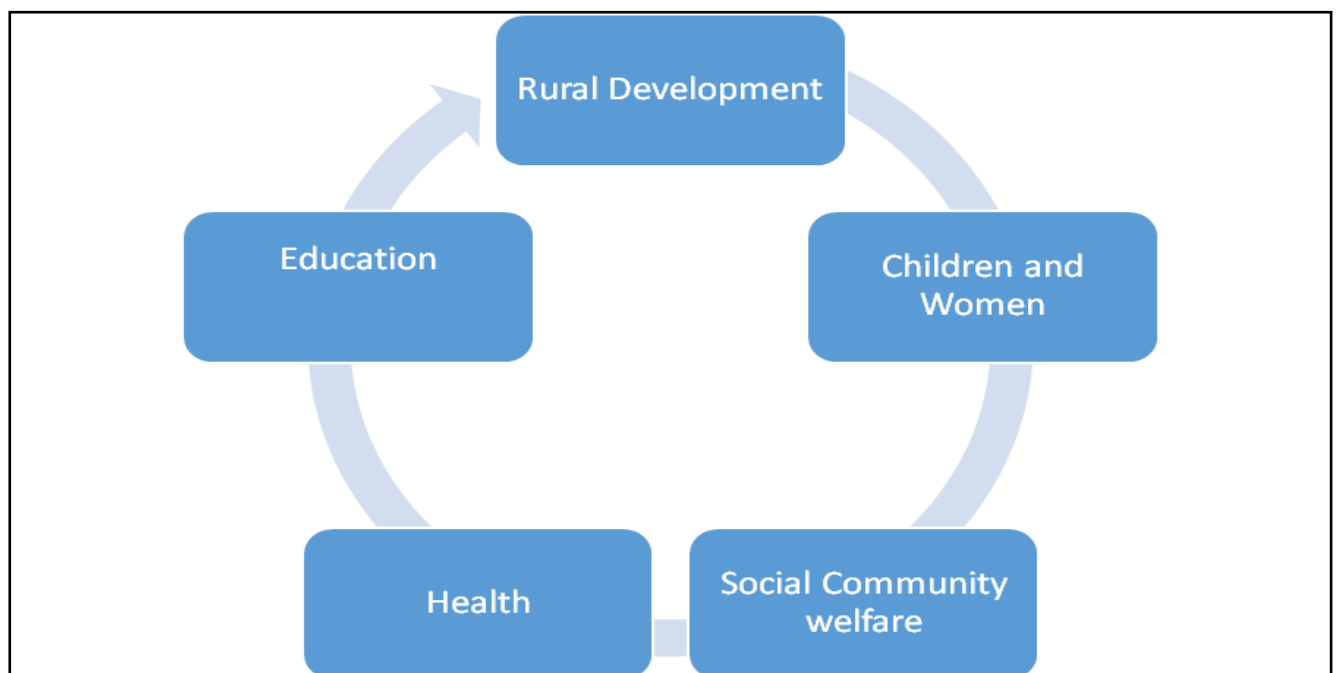
Rural Development: Correspondingly like education a large number of the banks of India have invested in Rural Development. Some of them are educating rural people by Monetary Literary Centers whereas some of them have given financial help to villages. Union Bank of India's Adarsh Gram is the illustration of rural development.

Children and Women: For the encouragement of women empowerment or girl child many government and non-government organizations are working in India. Govt. Of India has introduced **"Beti Padhao, Beti Bachao"** similarly banks are giving scholarships for girls' education. Allahabad bank has distributed 1861 scholarships to BPL families; the disbursement amounted to Rs.55.83 lac. (Source: Annual Report Allahabad Bank 2014-15)

Health: Health is the other category where different banks offer many health facilities to the underprivileged people. Axis bank has started health and trauma care centers in different areas. Bank of India also have different schemes like Ambulances to Hospitals serving to economically challenged sections of the society, rural areas, etc. ultra-modern medical equipment's to Family Planning Centers and other hospitals. Wheel chairs to physically challenged sportspersons and others.

Some recent initiatives by Indian Banks

 In order to concentrate on ecological and environmental concerns, Reserve Bank of India has decided to go for energy proficient buildings. Bureau of Energy Efficiency has awarded the first star rating labels to the Bank's building at Bhubaneswar and New Delhi.

 SMALL INDUSTRIES DEVELOPMENT BANK OF INDIA (the prime financer to small and medium scale industries) has also incorporated environmental and social aspects in its core business activities so as to ensure sustainable development. It is providing discounting and liberal credit to medium and small scale industries which are initiating energy saving projects and are adopting pollution control measures.

ICICI bank has shown its assurance to corporate environmental stewardship and a great support to clean technology projects. It has also liberalized credit to zero discharge vehicles.

IDBI has set up carbon desk. IDBI has come ahead to join hands with a foundation like Smile Foundation in social development initiatives. The bank provides 14 computers to Smile Foundation which has been used in different projects being implemented through as many partners in Delhi and NCR.

 YES BANK, India's fourth largest private sector Bank, in association with CARE India, a humanitarian relief and development NGO working in India for more than 60 years, has launched India's first Social Deposit Account (SDA). "The Social Deposit Account (SDA) is an evolution of the regular Fixed Deposit account where customers have the option of donating their interest income to a social cause through CARE India. It also won Best CSR Practice Award in March 2011.

AXIS BANK FOUNDATION (ABF) aspires to contribute in the areas of education and healthcare. It has set up various programmes which provide educational support, in order to meet these goals. **Balwadis**- the Foundation has identified the need to focus on early childhood programs for 2 - 6 year olds. As part of our initiatives to support education, we help develop learning places for young children living in large urban slum clusters so that it creates a strong foundation and inculcates social and cultural awareness in them.

HDFC Bank has been working with NGOs for providing non formal vocational and technical education programs as well as skill up gradation courses to enable sustainable employment and income generation for economically weaker sections.

CONCLUSION

The study shows that all the banks in India are focused towards the Social Responsibility now-a days. Thus we can conclude that these days the banking industry in India is giving due importance to the Social Responsibility and they try to cater all the important areas to be focused like health, education, sanitation, etc. In a nutshell, it can be said that the state of mind of the Indian entrepreneurs towards CSR is changing due to tough competition in an international level.

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SIMULATION OF ASSOCIATION LEARNING IN BIOLOGICAL DATA USING APRIORI ALGORITHM

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Abstract: Association rules are needed in order to satisfy customer defined minimum support. It also considers user defined minimum confidence in same instance. Mass spectrometry mechanisms have been considered frequently used in case of protein sequencing as well as identification. Edman degradation has been considered as significant tool in order to characterize a protein's N-terminus. The objective of proposed work is to perform association on unstructured data. This data should be relevant to amino acid. Data has been collected in form of unstructured data. This data has been filtered in order to generate the filter data as well as key data. The filtered data is processed in order to get the frequency of particular words and then the matrix would be generated. The research would conclude that the unstructured data is required to be filtered to structured format in order to process data mining operation over it. Association has been considered as data mining function. It has been found helpful in searching probability of co-occurrence of items in a collection.

Keyword : Data mining, Apriori Algorithm, Association, Protein sequencing, Hydrolysis

[1] INTRODUCTION

DM [1] has measured as sequence of hidden analytical information by records of big database. Data mining has been considered a new method having great efficiency. It gives us assist to concentrate on vital data in warehouses of their valuable information. Utensils of DM give the prediction of future trends. It takes into consideration the behaviors. It also gives the permission of businesses for taking the novel and those decisions which are motivated by knowledge. The automated, prospective analysis which is offered by DM is utilized to evaluate the past events. These events are given by conservative retrospective tool of systems which supports the decision. DM apparatus can give the answers of many business questions. These business questions are generally time consuming to determine. They scour records of database for concealed patterns [2] and also find analytical information.

Mining can be executed briskly on present platforms of software and hardware. The purpose is to increase the importance of present data resources. These may be collected with novel products and systems. It has been done at the time of on-line purchasing.

[2] ASSOCIATION

Association [12] (or relation) has a great popularity. Association is most common and straightforward DM method. At this time, a simple correlation can be made among two or more items, frequently of similar kind. The objective is to classify the patterns. When A customer buy strawberries then always purchases cream. Therefore it suggests that second time then they will puchase strawberries. A t this time, they can also like to purchase cream. Building connotation or relation-based DM tools may be getting normally with several tools. as, within Info Sphere Warehouse there is a wizard. It allows the setting of an info flow .It is used in association by observing your dataset

record input source and decision basis, and information of output.

Association rule [13] mining has been determined a system. It is used to get frequent patterns, correlations from data sets. It also used for associations or to find causal systems. These systems are get from data sets. It is originated in several types of databases. For example the transactional databases, relational databases. Other forms of data repositories are also the example of databases.

Association analysis is employed this asset to gain competitive advantage and all about uncovering data relationships. It is a medium to discover relationships inbig data sets. Data relationships which are hidden will be expressed as a collection of association rules and frequent item sets with analysis of association.

[3] PROTEIN SEQUENCING

Mass spectrometry and Edman degradation are the two most important and well known methods for protein sequencing protein sequenator (sequencer) is used. In the present scenario out of these 2 methods the first one is commonly employed for extraction of protein as well as for recognization, where as latter one is considered as precious equipment to outline protein's N-terminus.

Determining Amino Acid Composition

Reorganization of nonhierarchical amino acid Constitution of protein is essential. After that we search for the hierarchical sequence. With the help of this information it is possible to search errors in the sequencing process. It also helps us to make a distinction among uncertain consequences. Information regarding amount of a particular kind of amino acids is obvious in order to find out which protease is required for breaking down protein.To figure out the amount of amino acid a general method regularly assign for the analysis of amino acid is given below: [2]

Hydrolyze an identified amount of protein into it element.

2 Isolate amino acids and measure its by adaption of method.

Hydrolysis

In the process of hydrolysis a specimen consist of protein is heated in 6 M hydrochloric acid at temperature of 100–110 °C for at least one day. A longer heating period is necessary for proteins which have many bulky hydrophobic groups. Dissolution of some amino acids takes place in this condition. In order to keep away this situation, it is recommended by Biochemistry at internet that warming period for each specimen is different. It is also recommended that compound which is obtained from warming is analyzed. In order to avoid or decrease dissolution chemical agents are recommended by Rastall. Thiol chemical agent or phenol to save from tryptophan and tyrosine from attack by chlorine is some of the examples. In addition to this he recommended that the process by which the amount of ammonia is measure also yield the amount of amide hydrolysis.

Separation and quantitation

With the help of ion-exchange chromatography the amino acids can be parated. After that they are drifted to make their detection possible. NTRC offered one model for ion-exchange action. It adopted suffocated polystyrene as a array. Amino acids are accumulated in acid mixture. After that a chemical compound is unconfined whose Ph is gradually increasing through the column. As soon as the pH attain their relevant is electric points amino acids rinse. After the separation of amino acids, their amount is figure out by putting chemical agent which gives colored derivative. In case volume of amino acids is equivalent to 11nmol or more, ninhydrin is employed for this. Yellow color is shown when reacted with proline, and vivid purple with other amino acids.. In case if quantity of amino acids is

equivalent to 9 nmol or less, creation of fluorescent derivatives take place by employin the chemical agent such as ortho-phthaldehyde (OPA) or fluore scamine.

The Edman reagent is utilized by Pre-column derivatization in order to generate a derivative which is recognizing by UV light. It is possible to attain high compassion by adopted chemical agent which creates a glowing by-product. Partial by product of amino acids is handled by with inverted phase process. To achieve this C8 or C18 silica column is employed along with and an optimized extraction byproduct. With the help of Ultra Violet sensors, amino acids which are separated are recognized.

[4]CPFFA2 TOOL

(CPFFA2) is a tool which is designed for the first stage of the mining process. 2 sections are composed in it as shown in Figure 3.4. The pair of segment is grown in Java language. Primary component is data set for Protein Filtering (DSFPF). It pays attention to original Data Set For Protein (DSFP) and refines it. An intermediate Filtered Data Set For Protein (FDSFP) created after the process of refining. It contains records of specific protein. The protein sequence length must be in the range ≥ 50 and ≤ 400 amino acids. FDSFP is agai refined by Frequency Calculator for Amino Acid (FCFAA) by which a data set is produced for amino acids amount (DSFAAF). Original DSFP is gathered from the Astral SCOP, version 1.75. This DSFP is again altered by involvement of string tokenize character '#'. It assists to split protein description headers and protein sequences in every protein record. This group of data consists of history of 10569 proteins. They are again refined by DSFPF module to create FDSFP. 9633 records of refined proteins are taken in to account for the subsequent phase of frequency mining. Running

process of FCFAA section is illustrated by running process of DSFPF section.

Algorithm 1 DSFPF
Input: DSFP;Real Protein Databank
Output: FDSFP; Filtered Data Set For Protein
1: procedure DSFPF(DSFP)
2: alpha = open an input stream withDSFP
3: beta =read a protein record from a
4: while beta≠ NULL do
5: gamma =extract protein descriptortokenfrom beta
6: delta extract=protein sequence token from beta
7: if delta.length≥50 AND delta.length≤400 then
8: add gamma into vector PD
9: add delta into vector PS
10: end if
Beta=read a protein record from alpha
12: end while
13: Add PD and PS vectors into vector FDSFP
14: Save FDSFP object in the local file system
15: return FDSFP
16: end procedure

Algorithm 2 FCFAA
Input: FDSFP; Filtered Data Set For Protein
Output: DSFAAF, Data Set Amino Acids Frequency
1: procedure **FCFAA** (**FDSFP**)
2: alpha ← open an input stream with **FDSFP**
3: beta←read **FDSFP** vector object from alpha
4: gamma←extract protein descriptor vector from beta
5: delta←extract protein sequence vector from beta
6: AAF [delta. size][20]▷ amino acids frequencies

7:
AACodes←"acdefghiklmnpqrstvwy"▷ AA codes
8: for ps← 0, delta.size do
9: PS ←delta.get(ps)
10: for aac← 0,AACodes.length do▷ for each AA
11: AA←AACodes.charAt(aac)
12: freq← 0
13: for psc← 0, PS.length do
14: PSAA←PS.charAt(psc)
15: if AA = PSAA then
16: freq←freq + 1
17: end if
18: end for
19: AAF[ps][aac] ←freq
20: end for
21: end for
22: Add gamma vector into vector DSFAAF
23: Add AAF[delta. size][20] array into vector DSFAAF
24: Save DSFAAF object in the local file system
25: return DSFAAF
26: end procedure

Mining Tool for Biological Data

Mining Tool for Biological Data consists of further two modules. First module called Generator for Frequency Mapping and Item set Databank (GFMISDB) (see Algorithm 3) takes the DSFAAF generated by CPFFA2 tool and maximum frequency range (maxfrq) as input and generates Item set Data Bank(ISDB) as output. It divides the frequencies of each amino acid into intervals and maps the frequencies into Boolean values to create Boolean Data Set (BDS) for frequency intervals and further mapping it to Item set Data Bank (ISDB) for frequency interval items.

Algorithm 3 GFMISDB: Part-1
Input:
- DSFAAF, Data Set for Amino Acids Frequency

- maxfrq, the given maximum frequency range for amino acids
Output: $ISDB_i$,Itemset data bank at site S_i
1: procedure GFMISDB (DSFAAF,maxfrq)
2: L^{PD}← $DSFAAF_i$.get(0)
3: AAF[L^{PD}.size()][20] ←AAF_i.get(1)
▷ to store AA frequencies
4: ▷map AAF to BDB
5: TempBDB←newint[20][L^{PD}.size()][15]
▷ temporary 3-D integer array
6: for pr← 0,AAF_i.length- 1 do ▷ for each protein record
7: for aa← 0, 19 do ▷ for each of 20 amino acid
8: freq←AAF[pr][aa]
9: if freq≥0ANDfreq ≤2 then
10: fr← 0
11: end if
12: if freq≥3ANDfreq ≤5 then
13: fr← 1
14: end if
15: if freq≥6ANDfreq ≤8 then
16: fr← 2
17: end if
18: if freq≥9ANDfreq ≤11 then
19: fr← 3
20: end if
21: if freq≥12ANDfreq ≤14 then
22: fr← 4
23: end if
24: if freq≥15ANDfreq ≤17 then
25: fr← 5
26: end if
27: if freq≥18ANDfreq ≤20 then
28: fr← 6
29: end if
30: if freq≥21ANDfreq ≤30 then
31: fr← 7
32: end if

Algorithm 4 GFMISDB: Part-2
33: if freq≥31ANDfreq ≤40 then
34: fr←8
35: end if
36: if freq≥41ANDfreq ≤ 50 then
37: fr←9

38: end if
39: if freq$\geq$ 51ANDfreq $\leq$ 60 then
40: fr$\leftarrow$10
41: end if
42: if freq$\geq$61ANDfreq $\leq$ 70 then
43: fr$\leftarrow$11
44: end if
45: if freq$\geq$71ANDfreq $\leq$ 80 then
46: fr$\leftarrow$12
47: end if
48: if freq$\geq$ 81ANDfreq $\leq$ 90 then
49: fr$\leftarrow$13
50: end if
51: if freq$\geq$ 91ANDfreq $\leq$maxfrq then
52: fr$\leftarrow$14
53: end if
54: TempBDS[aa][pr][fr] $\leftarrow$1
        ▷ store boolean value '1'
55: end for
56: end for
57: BDS newint[L^{PD}:size()][300]
        ▷ Boolean data set
58: ctr$\leftarrow$ 0
59: for aa $\leftarrow$ 0,19 do   ▷ for each
20 amino acids
60: AABF $\leftarrow$TempBDB[aa]
61: for fr$\leftarrow$0; 14 do ▷ for each column
of AABF array
62: for pr$\leftarrow$ 0;AABF.length- 1 do ▷ for
each protein record
63: BDS[pr][ctr] $\leftarrow$ AABF[pr][fr]
64: end for
65: ctr$\leftarrow$ctr + 1
66: end for
67: end   ▷ for continue...

Algorithm 5 GFMISDB: Part-3
68: ISDB $\leftarrow$newint[L^{PD}:size()][20]

        ▷ item set data bank
69: for i$\leftarrow$ 0; L^{PD}:size() □- 1 do
70: k $\leftarrow$ 0
71: for j $\leftarrow$ 0, 299 do
72: if BDS[i][j] = 1 then
73: ISDB[i][k] $\leftarrow$j + 1
74: k $\leftarrow$k + 1
75: end if

76: end for
77: end for
78: T $\leftarrow$$L^{PD}$:size() ▷ no. of records
79: I $\leftarrow$ 300 ▷ no. of items
80: add T to ISDB
81: add I to ISDB ▷ no. of items
82: add L^{PD} to ISDB
83: add ISDB[L^{PD}.size()][20] to ISDB
84: save ISDB in the local file system
85: return ISDB
86: end procedure

[5]PROPOSED WORK

The proposed work aims at the implementation of association on unstructured data relevant to amino acid. Here the collection of data has been made from secondary sources. The collected unstructured data would be filtered in order to generate the filter data as well as key data. Then the matrix would be generated resulting keyword_oo1.txt and keyword_ooo1.txt. The proposed work consists of following steps:

1. **Collection of data**
   Data related to amino acid has been collected in file. It is usually in unstructured form. Its name would be unstructured.txt.

2. **Data filtering process**
   Collect the list of keywords in another file and name it keyword.txt. The unstructured data is then filtered using java modules. The output of filtering modules would be structured data and key data. Structured data is stored in structured.txt file and the key data is stored in taxid.txt.

3. **Matrix generation**
   The data is collected from structured data and key data in order to generate matrix. Result is stored in following files

1. keyword_oo1.txt
2. keyword_ooo1.txt

Algorithm for Data filtering
Step 1 Get the content from file unstructured.txt.

Step 2 Split the data considering ">" as delimiter and get token.

Step 3. Repeat step 4 and 5 until all token are considered.

Step 4 set xx=xx + "\n" + tok[i].substring(tok[i].indexOf("}")+1);

Step 5 set xx1=xx1 + "\n" + tok[i].substring(tok[i].indexOf("[")+1,tok[i].indexOf("]"));

Step 6 write content xx to file "structured.txt"

Step 7 write content xx1 to file "taxid.txt"

Algorithm for Matrix generation

Step 1 Take two arguments inmakematrix1 (content of structured.txt, content of keywork.txt)

Steps 2 get content from file "keyword.txt" and store sss5

Step 3 split the content of sss5 taking "----" as delimiter and store in array textx

Step 4 set filexas "keyword_oo1.txt" and filey as "keyword_ooo1.txt"

Step 5 set get elements fromtextx and store in "keyword_oo1.txt" and "keyword_ooo1.txt"

Step 6 write new line in "keyword_oo1.txt" and "keyword_ooo1.txt"

Step 7 =get content from file"structured.txt" and store in sss

Step 8 split the content of sss taking "----" as delimiter and store in array text1

Step 9 Get content from file taxid.txt and store in ss

Step 10 split the content of ss taking "----" as delimiter and store in array text2

Step 11 set FN=" keyword.txt";

Step 12 set count=0;

Step 13 set sCurrentLine="";

Step 14 Read data from text1 array

Step 15 write content of text2 to file "keyword_oo1.txt"

Step 16 write content of text2 to file "keyword_ooo1.txt"

Step 17 set br as BufferedReader, set fr as FileReader,setfr as new FileReader taking

FN as argument,setbr as new BufferedReaderfr as argument

Step 18 Read line from br until it is not null and store in sCurrentLine

Step 19 set count=getmatches(text1[jj],cmp)

Steps 20 write count to file "keyword_oo1.txt"

Step 20 if (count>0) tf=1 otherwise set tf=0

Step 21 Write tf to file "keyword_ooo1.txt"

[6] RESULT AND DISCUSSION FILTERING UNSTRUCTURED DATA TO STRUCTURED

The objective of proposed work is to perform association on unstructured data. This data should be relevant to amino acid. Data is collected in form of unstructured data. The content of unstructured data are as follow:

>d1dlwa_ a.1.1.1 (A:) Protozoan/bacterial hemoglobin {Ciliate (Paramecium caudatum) [TaxId: 5885]}
slfeqlggqaavqavtaqfyaniqadatvatffngidmpnqtnktaaflcaalggpnawt
grnlkevhanmgvsnaqfttvighlrsaltgagvaaalveqtvavaetvrgdvvtv
>d2gkma_ a.1.1.1 (A:) Protozoan/bacterial hemoglobin {Mycobacterium tuberculosis, HbN [TaxId: 1773]}
gllsrlrkrepisiydkiggheaievvvedffvrvladdqls
affsgtnmsrlkgkqvef
faaalggpepytgapmkqvhqgrgitmhhfslvaghla
daltaagvpsetiteilgviap
lavdvts

This data has been filtered in order to generate the filter data as well as key data using java code.

Running Filterdata.java
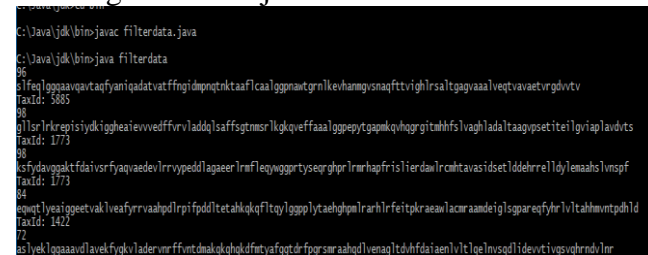
Fig 1 Data Filtering

After filtering following files are generated.

Structured.txt

slfeqlggqaavqavtaqfyaniqadatvatffngidmp nqtnktaaflcaalggpnawtgrnlkevhanmgvsnaq fttvighlrsaltgagvaaalveqtvavaetvrgdvvtv gllsrlrkrepisiydkiggheaievvvedffvrvladdqls affsgtnmsrlkgkqveffaaalggpepytgapmkqvh qgrgitmhhfslvaghladaltaagvpsetiteilgviapla vdvts

ksfydavggaktfdaivsrfyaqvaedevlrrvypeddl agaeerlrmfleqywggprtyseqrghprlrmrhapfri slierdawlrcmhtavasidsetlddehrrelldylemaa hslvnspf

eqwqtlyeaiggeetvaklveafyrrvaahpdlrpifpdd ltetahkqkqfltqylggpplytaehghpmlrarhlrfeit pkraeawlacmraamdeiglsgpareqfyhrlvltahh mvntpdhld

aslyeklggaaavdlavekfygkvladervnrffvntdm akqkqhqkdfmtyafggtdrfpgrsmraahqdlvena gltdvhfdaiaenlvltlqelnvsqdlidevvtivgsvqhr ndvlnr

anktrelcmkslehakvdtsnearqdgidlykhmfeny pplrkyfksreeytaedvqndpffakqgqkillachvlca tyddretfnaytrelldrhardhvhmppevwtdfwklfe eylgkkttldeptkqawheigrefakeink

MATRIX GENERATION FROM FILTERED DATA

The filtered data is processed in order to get the frequency of particular words and then the matrix would be generated resulting keyword_oo1.txt and keyword_ooo1.txt.

Running matrix generation

C:\Java\jdk\bin>javac anil.java
C:\Java\jdk\bin>java anil structured keyword
This module would store following data in keywork_oo1.txt

Fig 2 Keyword_oo1.txt

And store following data in Keyword_ooo1.txt

Fig 3 Keyword_ooo1.txt

IMPLEMENTATION OF ASSOCIATION USING APRORI ALGORITHMS

The weka tool would be used to implement aprori algorithm in order to implement association

Fig 4 Weka Gui Chooser

Click on explorer
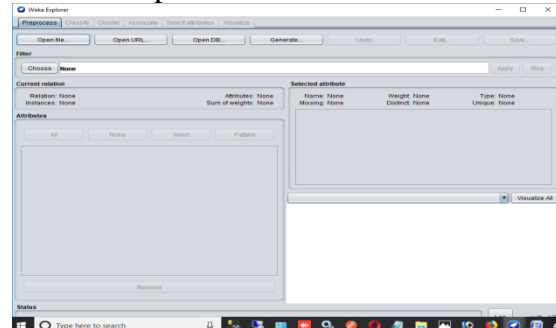
Fig 5 weka explorer

Perform preprocessing on selected csv file before association after selecting attributes
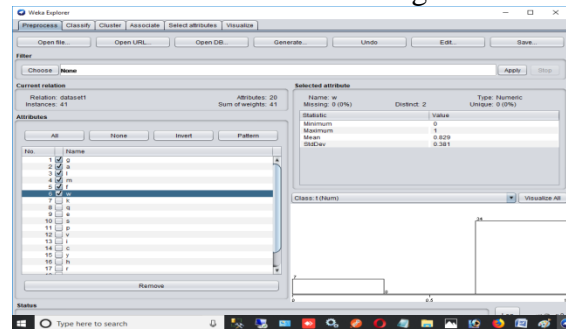
Fig 6 Preprocessing of csv file

Click on generate button to get article data we get following output
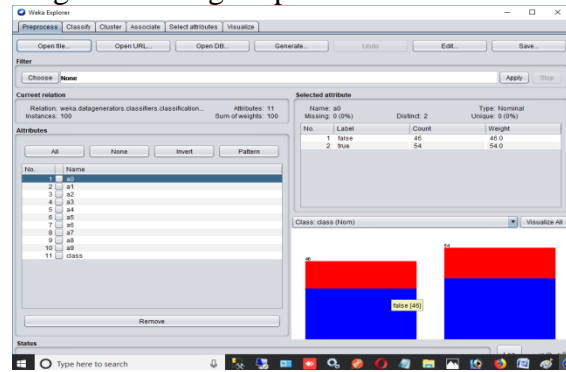
Fig 7 Article generation

Select association tab and select apriori algorithm
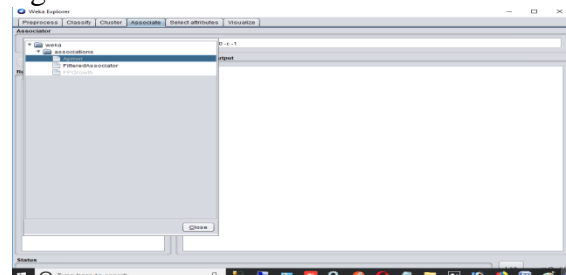
Fig 8 Apriori selection in Association tab

Click on Start button in apriori to get associator output
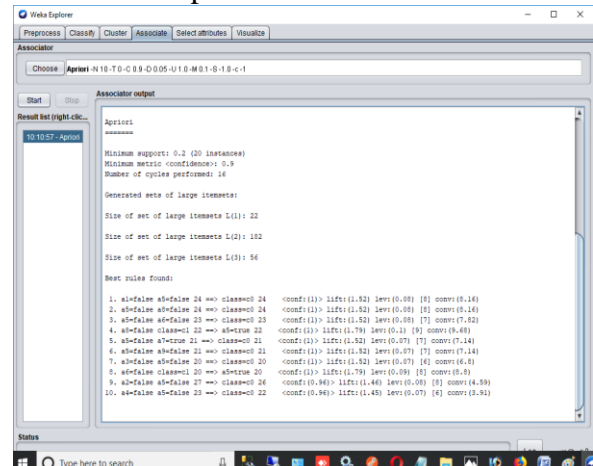
Fig 9 Association output

CONCLUSION

The research concludes that the unstructured data should be filtered to the structured format in order to process data mining operation over it. Association has been considered as data mining function. It has been found helpful in searching possibility of co-occurrence of items in the gathering. The representation of relationships in mutually-occurring items has been done as *rules* of association. Association *rules* have been required in order to analyze transactions. Association rules have been if/then statements. These statements help in uncovering relationships among seemingly unrelated data. The availability of this data can be obtained by relational database.

FUTURE SCOPE

In the data mining, the organization rules have been found helpful during analyzing as well as forecasting behavior of data. Research might play significant part in the shopping basket of data analysis as well as clustering of product. This work might be useful for designing of catalog and store design. The rules of association will be used by Programmers for making the code capable for learning of machine. Machine

learning can be considered as a type of artificial intelligence. It is seeking for building codes. It has ability to become more competent without being programmed clearly. Some of the major applications of mining of association rule are cross marketing basket data analysis, Catalog design.

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IMPORTANCE OF WEB 2.0 TECHNOLOGIES IN LIBRARIES

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Introduction:-

"Web 2.0" haven't a precise definition. To many people, the phrase refers to special web application technologies or websites, such as weblogs and wikis, which use the Internet in a collaborative way to provide services to users. Web 2.0 relies in large part on the user-as publisher model of interaction & allows for user-created content to be developed and implemented by large groups of individuals. These technologies are increasingly being used by companies for better staff collaboration and communication A number of Web 2.0 services and sites have appeared in the current years. Some popular services are YouTube, Face book, MySpace, etc. The word 'Web 2.0' was coined to define an emerging pattern of new uses of the Web & approaches to the Web progress, either a formal upgrade of Web technologies as the 2.0 version number can appear to signify.

Not a Proper technology

An acknowledgement that Web 2.0 is not primarily technology, but it's about a set of standards or applications, but a new mindset to how the Web can be used.

A network impact

This define applications which are more effective as the numbers of users increase. This impact is well-known in computer networks, with the Internet providing an example of how network traffic may be more resilient as the numbers of devices on the Internet grow.

More liberal

The development of more liberal licensees such copyright licenses such as CC, open sources licenses for software can allow integration of data & recycle of software without encountering legal barriers.

Faith Your Users

Either having to develop complex access regimes, a more liberal approach may be taken who can make it easier for users to make use of services.

Network as a platform

The Web may now be used to provide access to Web applications, and not just informational types. This allows users to make use of applications without having to go through the cumbersome exercise of installing software on their local Computer.

Always Beta

In this Web applications being managed on a small number of central servers, rather on large numbers of PC, it becomes possible for the applications to be enhanced in an incremental fashion, with no requirements for the user of the application to upgrade their system.

Definition of Web 2.0

The Word Web 2.0 express to the development of online services that encourage
Information sharing, Collaboration, communication. It express a shift from the
Experience of static "ROM" web pages to the participate experience of Interactive web pages. In another way "Web 2.0 consider changes in how we use the web either express any technical or structural change. Many Web 2.0 Service, for eg. Provided, are again referred to as "social network " due to their role in supporting communication & building online communities web 2.0 is a network as a platform spanning all connected devices. Web 2.0 application is those that make the most of the instinct superiority of the platform.

Objectives of web 2.0

Web 2.0 is all about user participation. It follows user at the center stage model through participation, open applications and services. The term "open" in this context has two means It is technically open -: Open architecture, Open source software, Open source software, Socially open with privileges to utilize or generate contents by any one. Therefore design & Development of technically and socially open system by using web as a platform is the primary objective of web 2.0. web 2.0 is all about user participation.

Importance of Web 2.0

The global nature of web based services means that libraries can reach a vast audience, serving more people in the virtual sphere than would be possible at a physical location. For example, by establishing a presence on social media websites, libraries can reach beyond the 'walled garden' to interact with users in online spaces that they are already visiting, rather than passively waiting for users to seek us out. This presents opportunities to appeal to difficult to reach user groups, such as teenagers or young males, who are traditionally less likely to visit the physical library building. A strong web existence, including representation on social media sites, improves awareness of library services and contributes to a progressive and modern image, which may in turn lead to increased physical visits. Web Pages are useful for presenting information about your service but don't allow for the interaction of users. The integration of Web2.0 services, however, could enable you to deliver parts of your service online. You could try hosting book discussion groups using a blog or wiki and providing service updates or marketing events using Twitter. Some libraries have produced promotional videos for YouTube, which are inexpensive to make and could appeal to difficult to reach groups. For more ideas and examples, see the Slainte2.0 website.Web2.0 services can be updated quickly and published instantly. This means that time delays associated with traditional web publishing, where IT departments often retain control over website content, can be sidestepped. For example, by using blogs or microblogs, librarians can go straight to the user with news and up to date information related to new services, materials or service developments. A presence on social media websites can provide cost effective marketing opportunities and invaluable PR for your library service. This is particularly significant given the serendipitous nature of such services, which increases the chance of your

message reaching a new audience. Librarians have been using the internet to communicate, share ideas and offer support for a long time, mainly by using the email network. The advent of Web2.0 technologies presents new opportunities for large scale professional collaboration and cooperation. Many librarians now use Twitter, for example, to get information about activities and initiatives going on elsewhere; and to share ideas or ask colleagues for support. This rapidly expanding network draws on the experience of colleagues at an international level, allowing for the widespread sharing of information and expertise, which then feeds into service developments at a local level. Believe that participation in this online community can significantly improve staff development, skills and motivation, leading to direct benefit for library services.

Basic feature of web 2.0:

- **Collective intelligence**
- **The web as a platform**
- **Everything is β**

The web as a Platform

It means we don't need to download and install on our own computer. In web 2.0

Environment it is possible to put a document up on to the web and using web-based word processor all our colleagues can make changes to it. So actual document shared and application is shared on the web. For example we can create a power point presentation, then load to utility such as slide share at www.slideshare.net and allow comments or even edit online.

Collective Intelligence

The web 2.0 resources are often referred to as ways in which "wisdom of the crowd" can be Harnessed. This concept often referred to as "radical trust" and is at least in part based concept that people will either do nothing bad, or will act for the good for all. The role of user is much interesting and challenging now. User are able to combine materials for themselves to the extent that they do not need to know how to write websites or gather data from different sources while a user need to think about what they want to create.

Everything is β

We are all now fairly used to seeing products in "beta test mode". It means in an Unfinished version. Google for example often keeps products in that state for months if not years. Improve or changes will therefore be ongoing, with the product growing originally and changing according to the needs of the user own the course of time.

Tools of web 2.0
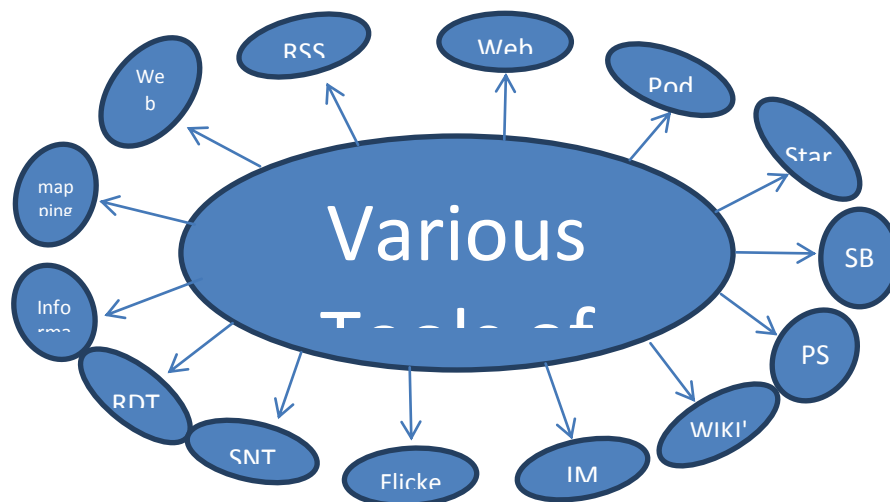
LIBRARY 2.0

The idea of Library 2.0 was first generated by Michael Casey and published on his blog, library crunch in 2006. The idea is a transformation of the library services-the way they are delivered to thesaurus community, basically allowing the library services to operate in an interactive, collaborative atmosphere driven by community needs. The earlier version of the web-based library instruction and services were text-based and non-interactive where library users have very limited freedom in terms of their interaction with library staff and user community. Web world is, therefore, a great source and channel of information to share ideas and experiences. It is recommended that librarians should welcome and adapt this new concept Web 2.0 in the changing technological world.

- We are losing the interest of our users.
- We no longer consistently offer the services our users want.
- We are resistant to changing services that we consider traditional or fundamental to library service.
- We are no longer the first place many of our current and potential customers look for information.

Use of Web 2.0 tools in libraries

Library staff use Web 2.0 tools for professional and personal development however, Web 2.0 at the institutional level. identified Wiki, blog, Really Simple Syndication (REALLY SIMPLE SYNDICATION),Instant Messaging (IM) and podcast as the prominent Web 2.0 tools for Libraries. In addition to these, it discusses the use of podcast because the researchers are working in an open and distance learning system. The potential of podcast can be harnessed for Providing services to distance learners. The following segments define and explain the various Web 2.0 tools which can be used in libraries at the institutional level.

REALLY SIMPLE SYNDICATION FEED

Really simple syndication is a family of web formats used to publish information about frequently updated works such as blog entries, news feeds, live audio, and video in the standard formats noted the important role of REALLY SIMPLE SYNDICATION in keeping users updated with the latest information. REALLY SIMPLE SYNDICATION feeds update users about the additions or changes which take place on websites of interest, providing updates from one source instead of accessing individual websites Students can subscribe to those REALLY SIMPLE SYNDICATION feeds that cater to their academic and research needs. For example, the Library of University of Southampton provides news feed on REALLY SIMPLE SYNDICATION to inform students about activities and events held in the University. King and Brown noted the similarity in the functioning of REALLY SIMPLE SYNDICATION and e-mail and predicted the likelihood of increased use and popularity of REALLY SIMPLE SYNDICATION feeds in the future.

BLOGS

Current awareness and customized catalogue searches. used for personalizing libraries' outreach services. emphasized that blogs are equally popular for internal as well as external communication. "Blogs are a natural for librarians." Blogs are hosted on public domains, which are available without charge.

Wikis

A wiki is a collaborative website that anyone within the community of users can contribute to or edit. A wiki can be open to a global audience or can be restricted to a select network or community. Wikis can cover a specific topic or subject area. Wikis also make it easy to search or browse for information. Although primarily text, wikis can also include images, sound recordings & films. Wikipedia

http://en.wikipedia.org the free internet encyclopedia is the most well-known wiki.

Social Networking

Social networking allows an individual to create a profile for themselves on the service and share that profile with other users with similar interests to create a social network. Users can choose to have public profiles which can be viewed by anyone or private profiles which can only be viewed by people that the users allow. Users can usually post photographs, music and videos on their site. Popular social network

services include Face book www.facebook.com and MySpace www.myspace.com. Del.icio.us, Frappe, and Flickr.

Content Hosting Services

Content hosting or content sharing sites allow users to upload content that they have created for others to view. Two of the most popular of these sites are YouTube www.youtube.com for videos and Flickr www.flickr.com for photographs. Users can also create an individual profile and list their favorite photos or videos. Users are able to rate and comment on the videos or photos posted and provide feedback to the creator and other users. Copyright

infringement is an issue for some of these services as many users do not upload original content.

Streaming Media

Streaming Media is another important Web 2.0 enhancement which has an influence on the library services. Streaming media is a "Sequential delivery of multimedia content over the network" mostly on request, providing the requested media instantaneously. In traditional libraries many short films, music, and different forms of streaming media are catalogued and given to the users to be used offline. These are potential material which are marked for streaming media for the users. More and more ILS and OPAC 2.0 services are including the streaming media in their services.

Tagging

Another Web 2.0 feature which is becoming common in library community is called tagging. Tagging is described as the process by which the resources in a collection are assigned tags in the form of words, phrases, codes or other strings of characters. This allows users to add and change the data and metadata and at times give a local flavor to the data and metadata. The advantage of user tags is that it helpsthe data to be more easily searchable. Flicker and Del.icio.us are some of the web based examples of tagging. As the Web 2.0 re-emphasises the importance of users and their impact on services the impact of tagging in library services are greatly anticipated. The tagging service from the university of Pennsylvania library catalogue illustrates how tagging is been tried in a library catalogue. Most of the advocates for tagging argue that tagging characterizes the following principles:

- It is user-oriented
- It empowers the library users
- It makes the library service more democratic
- It makes the process very affordable
- It makes the process more collaborative
- The process is more distributed
- The process is more dynamic
- The process is instructive for the users as well as
- the providers

News Feeds

The advancement of web has brought news feeds directly into our desktops. The advent of news feeds which are called as REALLY SIMPLE SYNDICATION (Relatively Simple Syndication) has seen that the news service come to the user. The emerging library services seem to have captured this novel idea into the development of library services and have imbedded them in the library services. In olden days the libraries ran a service called SDI (Selective Disseminating of Information). Those services can be very effectively automated to serve users with news feed. For a multimedia library catalogues and dynamic library catalogues like music catalogue the REALLY SIMPLE SYNDICATION Feeds are good choices

Podcasting/ Podcasting

Podcasting can be defined as the process by which the digital audio files are distributed over the internet using either feeds or by any other distribution media. Podcasting is the video format of the same kind of service. Mostly the media casting which includes both audio and video is done either through the "media on demand" or through subscription services. These services allow the users to have a higher level of control over what media they want as it works on the demand and supply chain of activity.

Conclusion

Web 2.0 technologies have been adopted by the group of libraries to recalibrate the processes and the paradigms of the library and information services. This new model is all about the amalgamation of the various tools and technologies of the web 2.0 into the library services. Web 2.0 is not just a technology or a thing but a new paradigm and a state of mind. The heart of Library 2.0 is user-centered change. It is model that encourages constant and purposeful change, inviting user participation. The library has had a web-presence for many years, and with Library 2.0, its patrons will be joining it. There is a certain need for implantation of Web 2.0 technologies in libraries. All the library professionals were committed and well aware of the usage of these applications to deliver better services to the library users. It was also found that perception of library professionals about many Web 2.0 applications were not very clear such the use of Instant Messaging (IM), which can be used to provide online reference services in libraries. It was found from the interview results that professional associations and library schools can play a vital role in the training of library professionals for the use of Web 2.0 applications. Library schools, Professional bodies and National library should realize their role of capacity building of professionals so that the well trained human resource can be developed to cope with the challenges of future era.

WASTE MANAGEMENT SYSTEM IN INDIA

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Abstract:

Electronic waste or e-waste is unwanted, thrown away electrical or electronic devices. Used electronics which can be reused, resale, salvage, recycle, or disposed off are also considered as e-waste. E-waste generated in India is about 2 million tonnes per annum whereas the quantity that is recycled is about 438,085 tonnes per annum.More than 95% of e-waste generated is managed by the unorganized sector. The sad part is that a mere 5% of India's total e-waste gets recycled due to poor infrastructure, legislation and framework.

This research article is based on secondary data collected from various reliable sources like Government reports, media reports, press releases and related research papers intends to study the statistical facts and figures on e- waste generated inIndia with focus on major states and cities in India. This study also tries to explore the e - waste management system in India.

Key Words –*e- waste, e- waste management*

Introduction:

The demand for consumer durables and electronic gadgets in India is being high from last decade. Use of personal computers, laptops, upgraded mobile phones and household appliances has reached a peak level. Today, the society revolves around the technology and there is a constant demand for newest high- tech products. This rapid growth of technology has its own disadvantages to human life. Electronic waste or e-waste is one of them.E-waste is created when an electronic product is discarded after the end of its useful life. Technological up gradations and improved versions of electrical and electronic products is accelerating the rate of e-waste.

India is one of the fastest growing economies of the world and the domestic demand for consumer durables and computers has been skyrocketing. Business and individual households make approximately 1.38 million personal computers obsolete every year. In India most of the waste electronic items are stored at households as people do not know how to discard them. This ever-increasing waste is very complex in nature. On one hand it is toxic and hazardous to health and on other hand, it can be a rich source of metals, which can be recovered and brought back into the production cycle.

Objectives:

1. To Study the e- waste generation in India.

2. To study the e-waste management system in India.

E- Waste:

E- Waste can be broadly categorized in three sections- white goods, grey goods and brown goods. White goods include large household appliances like refrigerators, washing machines

and air conditioners while computers, mobile phones come under grey goods category. The brown goods are mainly the consumer products like televisions, cameras, music system etc.

E – Waste Statistics:

India is the world's largest sourcing destination for the information technology (IT) industry and the second largest exporter of IT. India is ranked 5th in the world among top e-waste producing countries - USA, China, Japan and Germany. India generates more e-waste than manytechnologically advanced countries. India produces 2 million tonnes of electronic waste per annum out of which 19.8% waste gets generated in Maharashtra.

Table No. 1: E- Waste by State

State	E-waste generated (In Tonnes)	(In %)
Maharashtra	3.96 lakh	19.8%
Tamil Nadu	2.60 lakh	13%
Uttar Pradesh	2.02 lakh	10.1%
West Bengal	1.96 lakh	9.8%
Delhi	1.90 lakh	9.5%
Gujarat	1.76 lakh	8.8%
Madhya Pradesh	1.52 lakh	7.6%

[Source –The Associated Chambers of Commerce and Industry of India (ASSOCHAM - NEC) (2016), *Electricals & Electronics Manufacturing in India*]

Table No.1, represents the e- waste state wise statistics of e-waste generation. Maharashtra state adds the largest e-waste in India contributing to approximately one fifth of e-waste. The next in the rank is Tamil Nadu with 2.60 lakh metric tonnes (MT)e- waste generation.

TableNo.2: E- Waste by City

City	Annual e-waste generated (In Metric Tonnes)
Mumbai	1,20,000
Delhi (NCR)	98,000
Bangalore	92,000
Chennai	67,000
Kolkata	55,000
Ahemdabad	36,000
Hyderabad	32,000
Pune	26,000

[Source - The Associated Chambers of Commerce and Industry of India (ASSOCHAM - NEC) (2016), *Electricals & Electronics Manufacturing in India*]

According to report by the Associated Chambers of Commerce and Industry of India (Assocham) (2016), more than 26,000 MT of electronic waste is generated in Pune city every year which is the eighth highest in the country. The report published by the industry body in conjunction with business management consultancy Frost & Sullivan, says that Mumbai is among top electronic waste-generating cities in India, followed by Delhi-NCR and Bangalore.

TableNo.3: E- Waste - Item wise Contribution

Item	Contribution (%)
Computer equipment	70
Telecommunication equipment	12
Electrical equipment	8
Medical equipment	7
Household	4

[Source - An ASSOCHAM-KPMG Study (2016), *Electronic Waste Management in India* (2016)]

An ASSOCHAM-KPMG study, *Electronic Waste Management in India* identified computer equipment account for almost 70% of e-waste, followed by telecommunication equipment-phones (12%), electrical equipment (8%) and medical equipment (7%) with remaining from household e-waste.

e- Waste Management:

In India, e-waste management has become one of the complex tasks to manage. The growing usage of technological upgrades is resulting into high rate of technology obsolesce. In addition to this India has become a dumping ground for many developing countries. The Basel Action Network (BAN) stated in a report that 50-80% of e-waste collected by the USA is exported to India, China, Pakistan, Taiwan, and a number of African countries. Moreover India heavily depends on the unorganized sector for e waste management. Only a handful of organized e-waste recycling facilities are available. Mere 5 per cent of India's total e-waste gets recycled due to poor infrastructure, legislation and framework. Over 95% of e-waste generated is managed by the unorganised sector and scrap dealers in this market who dismantles the disposed products instead of recycling it.The untrained workers carry out the dangerous procedures without personal protective equipment, which are detrimental not only to their health but also to the environment.

As stated earlier, E-waste generated in India is about 2 million tonnes per annum whereas the quantity that is recycled is about 438,085 tonnes per annum. The Table No. 4 explains the state wise e- waste recycling data in comparison with e- waste generation.

TableNo.4: E- Waste Management

State	E-waste generated		E- waste recycled	
	(in Tonnes)	(in %)	(in Tonnes)	(in %)
Maharashtra	3.96 lakh	19.8%	47,810	10.9%
Tamil Nadu	2.60 lakh	13%	52,427	12%
Uttar Pradesh	2.02 lakh	10.1%	86,130	19.7%

[Source - An ASSOCHAM-KPMG Study (2016), *Electronic Waste Management in India* (2016)]

Maharashtra state generates the highest e- waste in India (3.96 lakh tonnes) whereas just 47,810 tonnes e-waste gets recycled. Tamil Nadu generates 2.60 lakh tonnes e-waste

while only 52,427 tonnes e-waste gets recycled. As compare to these two states, Uttar Pradesh recycles 86,130 tonnes of e-waste out of 2.02 lakh tonnes generated annually.

TableNo.5: E- Waste Recycling Units by State

State	No. of Units	Recycling Capacity (in tonnes)
Karnataka	57	44,620
Maharashtra	32	47,810
Uttar Pradesh	22	86,130
Haryana	16	49,981
Tamil Nadu	14	52,427
Gujarat	12	37,262
Rajasthan	10	68,670
Telangana	4	11,800

[Source - An ASSOCHAM-KPMG Study (2016), *Electronic Waste Management in India* (2016)]

Recycling and treatment facilities require a high initial investment. Karnataka has highest number of recycling units (57) but the recycling capacity of these units is limited to 44,620 tonnes. Maharashtra state has 32 units with a recycling capacity of47,810 tonnes. Uttar Pradesh has highest recycling capacity of 86,130 tonnes with 22 units. Rajasthan accounts for the second highest in recycling capacity of 68,670 tonnes with 10 units.

Conclusion:

The e-waste creation and recycling facilities share a huge gap. With technical advancement, the e –waste generation is gearing up day by day and the means to recycle is limited in developing country like India. The concerned statistics has come up with alarming facts and figures. There is an increasing need of structured e-waste management system in country as well as preventive steps to be taken to limit the e-waste generation at the first place. India should try to develop a system wherein this e-waste can be recycled in more productive way. According to joint study on 'Electricals & Electronics Manufacturing in India,' conducted by the ASSOCHAM-NEC, the total value of all raw materials present in e-waste is estimated at approximately $61.05 billion in 2016, which is more than the GDP of most countries in the world. Thus, there is a constant need of well-planned and organized e-waste management system in India.

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CERTAIN SUBCLASSES OF BI-UNIVALENT FUNCTIONS USING q −DERIVATIVE

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ABSTRACT

In this paper, we introduce two new subclasses $B_\Sigma(q,\lambda,\alpha)$ and $B_\Sigma(q,\lambda,\beta)$ of analytic and bi-univalent functions class Σ in the open unit disc. Furthermore, we obtain estimates on the coefficients $|a_2|$ and $|a_3|$ for functions of these subclasses. Relevant connections of the results presented here with various well-known results are briefly indicated. 2010 Mathematics Subject Classification. 30C45; 30C50.

Key words and phrases: .Analytic function; Univalent function; Bi-univalent function; Starlike function; Convex function; q −derivative operator [2010]30C45; 30C50.

1 INTRODUCTION

Let $\mathcal{A}$ denote the class of all analytic function of the form

$$f(z) = z + \sum_{n=2}^{\infty} a_n z^n \tag{1.1}$$

in the open unit disc $\mathcal{U} = \{z : z \in \mathbb{C} : |z| < 1\}$ and $\mathcal{S}$ be the class of functions in the normalized analytic function $\mathcal{A}$ which are univalent in $\mathcal{U}$. Since univalent functions are one-to-one, they are invertible and the inverse functions need not be defined on entire unit disk $\mathcal{U}$. However, the famous Koebe one-quarter theorem [7] ensures that the image of the unit disk $\mathcal{U}$ under every function $f \in \mathcal{A}$ contains a disk of radius $1/4$. Thus every univalent function f has inverse f^{-1} satisfying

$$f^{-1}(f(z)) = z, (z \in \mathcal{U})$$

and

$$f(f^{-1}(\omega)) = \omega, (|\omega| < r_0(f), r_0(f) \geq 1/4)$$

where

$$f^{-1}(\omega) = \omega - a_2\omega^2 + (2a_2^2 - a_3)\omega^3 - (5a_2^3 - 5a_2a_3 + a_4)\omega^4 + \cdots.$$

A function $f \in \mathcal{A}$ is said to be bi-univalent in $\mathcal{U}$ if both $f(z)$ and $f^{-1}(z)$ are univalent in $\mathcal{U}$. Let Σ denote the class of bi-univalent functions in $\mathcal{U}$ given by (1.1). For a brief history and interesting examples in the class Σ, see [17](see also [3]). In fact, the aforecited work of Srivastava et al. [17] essentially revived the investigation of various subclasses of the bi-univalent function class Σ in recent years; it was followed by such works as those by Frasin and Aouf [8], Xu et al. [18, 19] (see also the references cited in each of them).

Recently, the area of the q −analysis has attracted serious attention of the researchers. The great interest is due to its applications in various branches of mathematics and physics, as for example, in the areas of ordinary fractional calculus, optimal control problems, q −difference and q −integral equations and in q −transform analysis. The generalized q −Taylor formula in the fractional q −calculus was introduced by Purohit and Raina [15]. The application of q −calculus was initiated by Jackson [9, 10]. He was the first to develop the q −integral and q −derivative in a systematic way. Later, geometrical interpretation of the q −analysis has been recognized through studies on quantum groups. Simply, the quantum calculus is ordinary classical calculus without the notion of limits. It defines q −calculus and h −calculus. Here h ostensibly stands

for Planck's constant, while q stands for quantum. Mohammed and Darus [12] studied approximation and geometric properties of these $q-$operators in some subclasses of analytic functions in compact disk. Recently, Purohit and Raina [15, 16] have used the fractional $q-$calculus operators in investigating certain classes of functions which are analytic in the open disk. Also Purohit [14] also studied these $q-$operators, defined by using the convolution of normalized analytic functions and $q-$hypergeometric functions. A comprehensive study on the applications of $q-$calculus in the operator theory may be found in [1]. In univalent function theory, all geometrically defined subclasses do have beautiful analytic characterization defined in terms of differential inequality. So extending the existing subclasses in $q-$calculus has numerous applications. To provide a unified approach to the study of various properties of certain subclasses of $\mathcal{A}$, we introduce a new class of analytic functions of complex order involving $q-$derivative of f. The $q-$difference operator denoted as $D_q f(z)$ is defined by

$$D_q f(z) = \frac{f(z)-f(qz)}{z(1-q)} (f \in \mathcal{A}, z \in \mathcal{U} - \{0\}),$$

and $D_q f(0) = f'(0)$, where $q \in (0,1)$. It can be easily seen that $D_q f(z) \to f'(z)$ as $q \to 1$. If $f(z)$ is of the form (1.1), a simple computation yields

$$D_q f(z) = 1 + \sum_{n=2}^{\infty} [n]_q a_n z^{n-1}, (z \in \mathcal{U}), \tag{1.2}$$

where

$$[n]_q = \frac{1-q^n}{1-q}.$$

Recently, several researchers such as ([8, 17, 18, 19]) obtained the coefficients $|a_2|$, $|a_3|$ of bi-univalent functions for the various subclasses of the function class Σ. Motivating with their work, we introduce a new subclass of the function class Σ using $q-$derivative and find estimates on the coefficients $|a_2|$ and $|a_3|$ for functions in these new subclass of the function class Σ employing the techniques used earlier by Srivastava et al. [17] and Frasin and Aouf [8]. In order to prove our main results, we require the following lemma due to [13].

Lemma 1 *If $h \in P$ then $|c_k| \le 2$ for each k, where P is the family of all functions h analytic in $\mathcal{U}$ for which $Re\{h(z)\} > 0$, $h(z) = 1 + c_1 z + c_2 z^2 + c_3 z^3 + \cdots$ for $z \in \mathcal{U}$.*

2 Coefficient bounds for the function class $B_\Sigma(q,\lambda,\alpha)$

Definition 1 *A function $f(z)$ given by (1.1) is said to be in the class $B_\Sigma(q,\lambda,\alpha)$ if the following conditions are satisfied:*

$$f \in \Sigma \quad and \quad \left| arg\left((1-\lambda)\frac{f(z)}{z} + \lambda D_q f(z)\right)\right| < \frac{\alpha\pi}{2} (0 < \alpha \le 1, \lambda \ge 1, 0 < q < 1, z \in \mathcal{U}) \tag{2.1}$$

and

$$\left| arg\left((1-\lambda)\frac{g(\omega)}{\omega} + \lambda D_q g(\omega)\right)\right| < \frac{\alpha\pi}{2} (0 < \alpha \le 1, \lambda \ge 1, 0 < q < 1, \omega \in \mathcal{U}) \tag{2.2}$$

where the function g is given by

$$g(\omega) = \omega - a_2\omega^2 + (2a_2^2 - a_3)\omega^3 - (5a_2^3 - 5a_2 a_3 + a_4)\omega^4 + \cdots. \tag{2.3}$$

We note that,

1. For $q \to 1$, the class $B_\Sigma(q,\lambda,\alpha)$ reduces to class $B_\Sigma(\lambda,\alpha)$ introduced and studied by Frasin and Aouf [8].

2. For $q \to 1$ and $\lambda = 1$, the class $B_\Sigma(q,\lambda,\alpha)$ reduces to class $H_\Sigma(\alpha)$ introduced and studied by Srivastava et al. [17].

Theorem 1 *Let $f(z)$ given by (1.1) be in the class $B_\Sigma(q,\lambda,\alpha), 0 < \alpha \le 1, 0 < q < 1, \lambda \ge 1$. Then*

$$|a_2| \le \frac{2\alpha}{\sqrt{\left(1-\lambda+[2]_q\right)^2 + \alpha\left(\left(1+2\lambda([3]_q-[2]_q)\right) - \lambda^2\left(1+[2]_q^2-2[2]_q\right)\right)}} \tag{2.4}$$

and

$$|a_3| \le \frac{4\alpha^2}{(1-\lambda+[2]_q\lambda)^2} + \frac{2\alpha}{1-\lambda+[3]_q\lambda}. \tag{2.5}$$

Proof. It follows from (2.1) and (2.2) that

$$(1-\lambda)\frac{f(z)}{z} + \lambda D_q f(z) = (p(z))^\alpha \tag{2.6}$$

and

$$(1 - \lambda)\frac{g(\omega)}{\omega} + \lambda D_q g(\omega) = (q(\omega))^{\alpha}, \tag{2.7}$$

where $p(z)$ and $q(\omega)$ in P and have the forms

$$p(z) = 1 + p_1 z + p_2 z^2 + p_3 z^3 + \cdots \tag{2.8}$$

and

$$q(\omega) = 1 + p_1 \omega + p_2 \omega^2 + p_3 \omega^3 + \cdots. \tag{2.9}$$

Now equating the coefficients in (2.6) and (2.7), we get

$$\left(1 - \lambda + [2]_q \lambda\right) a_2 = \alpha p_1 \tag{2.10}$$

$$\left(1 - \lambda + [3]_q \lambda\right) a_3 = \alpha p_2 + \frac{\alpha(\alpha-1)}{2} p_1^2 \tag{2.11}$$

$$-\left(1 - \lambda + [2]_q \lambda\right) a_2 = \alpha q_1 \tag{2.12}$$

and

$$\left(1 - \lambda + [3]_q \lambda\right)(2a_2^2 - a_3) = \alpha q_2 + \frac{\alpha(\alpha-1)}{2} q_1^2. \tag{2.13}$$

Now from (2.10) and (2.12), we get

$$p_1 = -q_1 \tag{2.14}$$

and

$$2\left(1 - \lambda + [2]_q \lambda\right)^2 a_2^2 = \alpha^2 (p_1^2 + q_1^2). \tag{2.15}$$

Now from (2.11), (2.13) and (2.15), we obtain

$$2\left(1 - \lambda + [3]_q \lambda\right) a_2^2 = \alpha(p_2 + q_2) + \frac{\alpha(\alpha-1)}{2} \frac{2\left(1 - \lambda + [2]_q \lambda\right)^2 a_2^2}{\alpha^2}.$$

Therefore, we have

$$a_2^2 = \frac{\alpha^2 (p_2 + q_2)}{\left(1 - \lambda + [2]_q \lambda\right)^2 + \alpha\left(\left(1 + 2\lambda([3]_q - [2]_q)\right) - \lambda^2\left(1 + [2]_q^2 - 2[2]_q\right)\right)}.$$

Applying Lemma 1 for the coefficients p_2 and q_2, we immediately have

$$|a_2| \leq \frac{2\alpha}{\sqrt{\left(1 - \lambda + [2]_q \lambda\right)^2 + \alpha\left(\left(1 + 2\lambda([3]_q - [2]_q)\right) - \lambda^2\left(1 + [2]_q^2 - 2[2]_q\right)\right)}}.$$

This gives the bound on $|a_2|$ as asserted in (2.4). Next, in order to find the bound on $|a_3|$, by subtracting (2.13) from (2.11), we get

$$2\left(1 - \lambda + [3]_q \lambda\right) a_3 - 2\left(1 - \lambda + [3]_q \lambda\right) a_2^2 = \alpha p_2 + \frac{\alpha(\alpha-1) p_1^2}{2} - \alpha q_2 - \frac{\alpha(\alpha-1) q_1^2}{2}. \tag{2.16}$$

Using (2.14) and (2.15) in (2.16), we get

$$2\left(1 - \lambda + [3]_q \lambda\right) a_3 = \frac{2\left(1 - \lambda + [3]_q \lambda\right) \alpha^2 (p_1^2 + q_1^2)}{2\left(1 - \lambda + [2]_q \lambda\right)^2} + \alpha(p_2 - q_2)$$

or equivalently

$$a_3 = \frac{\alpha^2 (p_1^2 + q_1^2)}{2\left(1 - \lambda + [2]_q \lambda\right)^2} + \frac{\alpha(p_2 - q_2)}{2\left(1 - \lambda + [3]_q \lambda\right)}.$$

Applying Lemma 1 once again for the coefficients p_1, p_2, q_1 and q_2, we readily get

$$|a_3| \leq \frac{4\alpha^2}{\left(1 - \lambda + [2]_q \lambda\right)^2} + \frac{2\alpha}{1 - \lambda + [3]_q \lambda}.$$

This complete the proof of Theorem 1.

Remark 1 *Putting $q \to 1$ in Theorem 1, we get the Theorem 2.2 given by Frasin and Aouf [8].*
Remark 2 *Putting $q \to 1$ and $\lambda = 1$ in Theorem 1, we get the Theorem 1 given by Srivastava et al. [17].*

3 Coefficient bounds for the function class $B_{\sum}(q, \lambda, \beta)$

Definition 2 *A function $f(z)$ given by (1.1) is said to be in the class $B_{\sum}(q, \lambda, \beta)$ if the following conditions are satisfied:*

$$f \in \sum \quad and \quad Re\left((1 - \lambda)\frac{f(z)}{z} + \lambda D_q f(z)\right) > \beta (0 \leq \beta < 1, \lambda \geq 1, 0 < q < 1, z \in \mathcal{U}) \tag{3.1}$$

and

$$Re\left((1 - \lambda)\frac{g(\omega)}{\omega} + \lambda D_q g(\omega)\right) > \beta (0 \leq \beta < 1, \lambda \geq 1, 0 < q < 1, \omega \in \mathcal{U}) \tag{3.2}$$

where the function g is defined by (2.3).
We note that,

1. For $q \to 1$, the class $B_\Sigma(q, \lambda, \beta)$ reduces to class $B_\Sigma(\lambda, \beta)$ introduced and studied by Frasin and Aouf [8].

2. For $q \to 1$ and $\lambda = 1$, the class $B_\Sigma(q, \lambda, \beta)$ reduces to class $H_\Sigma(\beta)$ introduced and studied by H. M. Srivastava et al. [17].

Theorem 2 *Let $f(z)$ given by (1.1) be in the class $B_\Sigma(q, \lambda, \beta), 0 \leq \beta < 1, 0 < q < 1, \lambda \geq 1$. Then*

$$|a_2| \leq \sqrt{\frac{2(1-\beta)}{1-\lambda+[3]_q\lambda}} \tag{3.3}$$

and

$$|a_3| \leq \frac{4(1-\beta)^2}{(1-\lambda+[2]_q\lambda)^2} + \frac{2(1-\beta)}{1-\lambda+[3]_q\lambda}. \tag{3.4}$$

Proof. It follows from (3.1)and (3.2) that there exists p and $q \in P$ such that

$$(1-\lambda)\frac{f(z)}{z} + \lambda D_q f(z) = \beta + (1-\beta)p(z) \tag{3.5}$$

and

$$(1-\lambda)\frac{g(\omega)}{\omega} + \lambda D_q g(\omega) = \beta + (1-\beta)q(\omega), \tag{3.6}$$

where $p(z)$ and $q(\omega)$ in P and have the forms (2.8) and (2.9), respectively.

Equating the coefficients in (3.5) and (3.6) yields

$$(1 - \lambda + [2]_q\lambda)a_2 = (1-\beta)p_1 \tag{3.7}$$
$$(1 - \lambda + [3]_q\lambda)a_3 = (1-\beta)p_2 \tag{3.8}$$
$$-(1 - \lambda + [2]_q\lambda)a_2 = (1-\beta)q_1 \tag{3.9}$$

and

$$(1 - \lambda + [3]_q\lambda)(2a_2^2 - a_3) = (1-\beta)q_2. \tag{3.10}$$

From (3.7) and (3.9), we get

$$p_1 = -q_1 \tag{3.11}$$

and

$$2(1 - \lambda + [2]_q\lambda)^2 a_2^2 = (1-\beta)^2(p_1^2 + q_1^2). \tag{3.12}$$

Also, from (3.8) and (3.10), we find that

$$2(1 - \lambda + [3]_q\lambda)a_2^2 = (1-\beta)(p_2 + q_2).$$

Thus, we have

$$|a_2|^2 = \frac{(1-\beta)(p_2+q_2)}{2(1-\lambda+[3]_q\lambda)}$$

$$|a_2| = \sqrt{\frac{2(1-\beta)}{1-\lambda+[3]_q\lambda}}$$

which is the bound on $|a_2|$ as given in (3.3). Next, in order to find the bound on $|a_3|$, by subtracting (3.10) and (3.8), we get

$$2(1 - \lambda + [3]_q\lambda)a_3 - 2(1 - \lambda + [3]_q\lambda)a_2^2 = (1-\beta)(p_2 - q_2)$$

or equivalently

$$a_3 = a_2^2 + \frac{(1-\beta)(p_2-q_2)}{2(1-\lambda+[3]_q\lambda)}.$$

Upon substituting the values of a_2^2 from (3.12), we obtain

$$a_3 = \frac{(1-\beta)^2(p_1^2+q_1^2)}{2(1-\lambda+[2]_q\lambda)^2} + \frac{(1-\beta)(p_2-q_2)}{2(1-\lambda+[3]_q\lambda)}.$$

Applying Lemma 1 for the coefficients p_1, p_2, q_1 and q_2, we readily get

$$|a_3| \leq \frac{4(1-\beta)^2}{(1-\lambda+[2]_q\lambda)^2} + \frac{2(1-\beta)}{1-\lambda+[3]_q\lambda}$$

which is the bound on $|a_3|$ as given in (3.4).
This complete the proof of the Theorem 1.

Remark 3 *Putting $q \to 1$ in Theorem 2, we get the Theorem 3.2 given by Frasin and Aouf [8].*
Remark 4 *Putting $q \to 1$ and $\lambda = 1$ in Theorem 2, we get the Theorem 2 given by Srivastava et al. [17].*

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FACIAL RECOGNITION ATTENDANCE MANAGEMENT SYSTEM

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ABSTRACT*: Image Processing is the field of research under which Human Face detection is a wide area for research, gained huge attention in the last few decades. The attendance is the common practice in all schools, colleges with traditional method professor record the attendance on paper and update it in the database later which is full of flaw.In this paper, we try to review the method to use the face as an identity for uniquely identify students present in the class. In this paper a process is described to estimate the presence precisely using the result of face recognition obtained by continuous observation, the reason to use continuous observation is that it improves the efficiency of the system. OpenCV and face_recognition libraries of python are used to build the system and GUI is on Android as Android is the most used operating system and can be handled easily. This method is the most efficient way to mark the attendance among may biometric and traditional methods, where there is a large strength of students.*

KEYWORDS: *Face Recognition, Face detection, Video, Histogram, Gradients, Binary Patterns, Attendance management,OpenCV, Extraction.*

I. INTRODUCTION

Attendance Management System is the process of storing and managing the attendance virtually for an organization it may be school or college. It is one of the basic criteria for evaluating the students, however performing this practice traditionally it requires a lot of time and even though the rigidity may not be guaranteed, the traditional once include a ton of manpower and paper-work, there is an alternative to that use of biometric systems, they are also time-consuming. But this Management system is based on Human Face which is rarely the same and can be used to uniquely identify the students and update their records in the database.

The Basic of the System is defined by the Flowchart below.
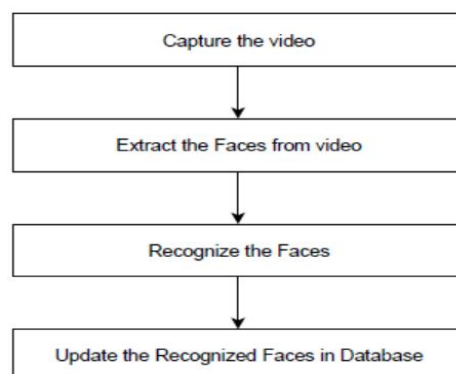
I. I SYSTEM WORKING

Once the system is initiated a clip is captured on which an automation process of real-time face detection is performed. After successfully detecting the faces from the clip are undergo the process of recognition of those faces, once all the faces are recognized the database is updated according to the unique Identity given to each candidate.

I.II FACE DETECTION AND RECOGNITION

The dataset is created while training the model. Thealgorithm used to train the model for recognition is LBPH(Local Binary Pattern with Histogram), which is a visual Descriptor used for classification in computer vision and Histogram of oriented gradients(HOG) descriptor are used to improve the detection of faces.

The first process is the Detection of features using HOG we can have a 256-dimensional feature vector.
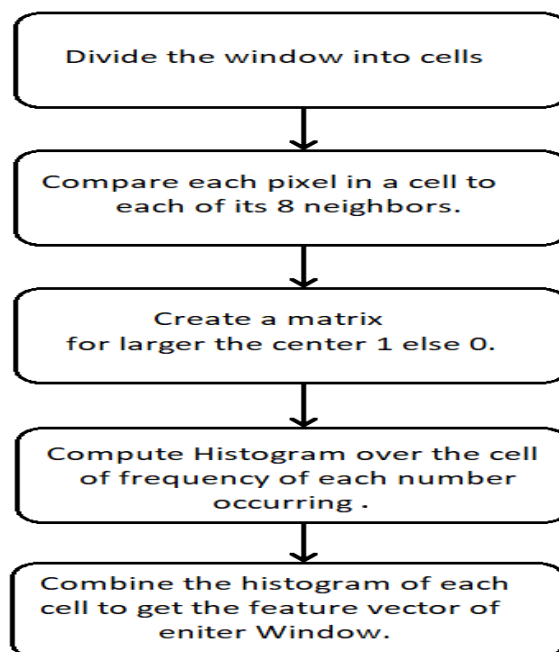
Now we have the features of all candidates face we save them in a single file along with the Unique Identity number hence the dataset is created, which will be further used to distinguish among different faces.

While recognizing the face we also extract the features of all faces present in the video and compare one by one with the dataset and returns the UID associated with them.

The successful return of UID means the recognition is successful and the attendance is updated in the database and the image of all detected face is also stored on the hard drive with the UID for authentication purpose. This implies the dual verification of the candidate present in the room while attendance is taken.

II.LITERATURE SURVEY

In [1] There is the brief description of the exploration of various Face Recognition Techniques.

In[2] The method of Object detection using Viola-Jones Algorithm which gives the basic idea of object detection and can be used for face detection and recognition.

In [3] the author also proposed a system which implements automatic attendance using face recognition. The system which

can extract the object in the face such nose, mouth by using MATLAB with Principal Component Analysis (PCA).

In [4] Student Attendance is Recorded Using Face Recognition with GSM. It was tested with dissimilar face images. This idea is working properly with a different panel. All windows are running separately and equivalent.

In [5] The System designed to resolve the issues of attendance marking system such as time-consuming. As a result of the experiment show that this paper, the system can recognize in case the dark background or difference view of the face in the classroom.

In [6] Face Recognition using Principle Component Analysis and Linear Discriminate Analysis Comparative Studyis used for attendance management. They had used three databases ORL Database, KVKR-Face Database, and IIT-Indian Database.

In [7] A Model was explained which uses the biometrics feature fingerprint and RFID chips to manage the attendance of the candidates.

III. CONCLUSION

This model has been proposed for managing the attendance, Motive behind this is to remove the drawback of the traditional attendance management system.

The main area of focus is to remove most of the human effort and automate the system, reducing time consumption along with the reduction of wastage of paper. One more thing the proxy will be annihilated.

The efficiency of the System could also be expended by accommodating various countenance in the future development of Model.

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PUBLIC SECTOR UNDERTAKINGS IN INDIA: LOOKING BACK AND AHEAD

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ABSTRACT

During post independence period, India was paralyzed with social, political, economic and many other problems, which included inequitable income and wealth distribution, unemployment, weak industrial infrastructure base and the like. Therefore, for the future journey for Public Sector self reliance is a pre-requisite for their growth. The statement on Resolution of Industrial Policy in July, 1991 was the new significant initiative taken by the government. It brought in fundamental amendments in the Monopolies and Restrictive Trade Practices (MRTP) Act. The statement reviewed and re-analyzed the prerogative of the public sector. This research paper contains brief historical background regarding the emergence of Public Sector Undertakings (PSUs) in form of commercial institutions, major emerging challenges for PSUs and ingredients of financial management. Liberalization, Privatization, Globalization (LPG) has been found to be an effective instrument for the Government for improving efficiency in the PSUs. They have understood that effectiveness and efficiency in financial management is of prime importance, to ensure their survival in the present competitive environment with scarce resources and competition with private sector is a major challenges. The authors are of the view that ensuring managerial autonomy to the PSUs enhances the role of government rather than limiting it. In short, it could be concluded that the importance of efficiency in public sector undertakings is same as the importance of soul in a human body.

KEYWORDS

Public sector undertakings, industry, economic development, financial management, Central Public Sector Enterprises (CPSEs), privatization, Corporate Social Responsibility.

INTRODUCTION

The public sector initially, was limited to industries strategic and core importance. The second phase witnessed the nationalization, sick units acquisition from the private along with investment into areas like consumer goods manufacturing, contracting, transportation, consultancy services to list a few. The Industrial Policy Resolution, 1948 demarcated the significance of the Indian economy and its incessant growth in the production and equitable distribution. In this process, the policy resolution proposed and envisaged the active participation of the State in the growth and development of industries. In 1973, the precision of large industrial houses was adopted in compliance with that of Monopolies and Restrictive Trade Practices Act, 1969 and incorporated companies whose assets overshoot

Rs 200 million. In the post Independence era, special encouragement was given to PSUs and several impositions came into being-industrial licensing, import license, price control, control on distribution of selected industrial products, existence of foreign exchange control, etc.

After realising the importance of private sector, the then Prime Minister, along with his Finance Minister, Prof. Manmohan Singh initiated economic liberalization in July 1991 to remove the inefficiencies prevailing in the economic system at that time. Public Sector Undertakings often called as government owned enterprises are completely or partly owned, managed, looked upon and controlled by the government and produce merchantable goods and services. PSUs have played a significant and strategic role in the growth of Indian economy. The key instruments subscribing to the fortification of these undertakings are the requirement of urbanization and industrialization at expeditious rate with fair and equitable distribution of income and wealth. By 1980s, fall in the performance and efficiency of PSUs was recognized and various stringent steps were taken to improve their productivity and effectiveness. Now, the endurance and withstand of PSUs entirely depends upon performance efficiency, effectiveness and profitability.

LITERATURE REVIEW

PSUs contribute significantly to the economic growth and prosperity of a country as its services are focused at overall social and economic welfare, and they assist other industries, institutions and businesses as well. They function in a slightly different manner when compared with private sector undertakings. Private sector and PSUs also differ in their sources of funding. It is generally observed that PSUs end up being controlled by political factors rather than market factors. The short, flexible and incumbent tenures of politicians and bureaucrats make it difficult to bring about the moderate changes in the administration and management of PSUs (Fernandez & Rainey, 2006). PSUs experience more turbulence, interference and disagreements in their decision-making in comparison with private enterprises (Nutt, 2006 and Geetha-Taylor & Morse, 2013). Formal rules, regulations and procedures, multi-layered hierarchical organizations, organizational silos, lack of economic inducement and motivation, divided political leadership; public bureaucracies and red tapism tend to muffle innovation and creativity in PSUs. (Gupta, Chopra, & Kakani, 2018). Leslie and Canwell (2010) observe that leaders must possess insights for successful and prompt change within complex structures, cognitive skills to handle the continuously-evolving dynamic environment, emotional intelligence to support and motivate people, and should be proactive in building leadership at all levels of the organization. Hansen and Villadsen highlighted that in comparison with other disciplines, "leadership theory has received little recognition in public management, administration and research".

However, the Indian PSUs have been criticized and condemned for a long time period for lacking efficiency, rooted in corruption and offering poor quality of goods and services (Khatri, 2016).   Ravinder and Rupinder's (2007) observed that private sector undertakings have remarkably improved the levels of profitability, sales, marketing, operational effectiveness, after sales services, net income and dividend payments. Mishra and Lakshmi (2006) examined the performance of PSUs in the phase of economic liberalization by using the primary, secondary and tertiary level data. In the post LPG period PSUs profitability has been improved. Rath (2001) explained the significance behind the disinvestment of PSUs. Instead of investing the resources in industries, businesses, trade and commerce, the government developed social, political and economic infrastructure for purporting and facilitating the smooth functioning of the private sector. According to Ghuman (1999), the

pace of divestment has improvised with the establishment of Disinvestment Commission. Malik (2003) stated that the Indian approach towards the disinvestment policy have been wrong, because it was centered between the doctrinarian side on one hand and laissez faire side on the other. Arun and Nixson (2000) argue that the main objective of disinvestment is to reduce the borrowing of public sector at the cost of restructuring and rationalization of PSUs in particular and the public sector in general. He expressed discontentment with the disinvestment process due to the alleged under pricing of the shares sold, lack of efficiency and transparency and divided targets between the Central Government and the Disinvestment Commission. Gouri (1996) has argued that due to the lack of a crystal clear policy on privatization, disinvestment and PSU restructuring in India, it may favor political expediency in the shorter run but will result in sacrificing sound economic management in the longer run.

Objectives

The main objective of this research paper is to provide help to entail the following two main objectives: (a) To understand Liberalization, Privatization and Globalization methods to enhance the efficiency of PSUs. (b) To study the outcome of the new policies on PSUs' with respect to the following sub objectives:

  (1) Throw the light on the growth of Public Sector in India in Pre and Post Liberalization Period.
  (2) To analyse the objectives of New Economic Policy (NEP) , 1991
  (3) To study the impact of Financial Management in PSUs.
  (4) To highlight the performance, status and CSR responsibilities of PSUs in India.

Data

The data on growth in the real investments/gross block in the Central Public Sector Enterprises (CPSEs) in India (2002-2003 to 2016-2017) and the data on macro view of performance of the Central Public Sector Enterprises (CPSEs) (2016-2017) has been taken from Public Enterprises Survey (2017-2018).

Methodology

The analysis is basically concentrated on those enterprises where the level of equity holding of the Government of India was more than 50%. To get the trend of profitability, simple percentage of profits to capital employed has been calculated over the years. In the same manner, the share of PSUs in the Gross Domestic Product and the share of PSUs in the gross domestic capital formation have been calculated. In order to evaluate the strategy adopted for the purpose of research and development, the investment in research and development activities with regard to total sales of the industry have been calculated. Furthermore, the share of internal resources mobility by the central PSUs has been calculated with respect to the plan outlay.

Analysis and Results

Leadership and Motivational Factors in PSUs

Managers in the public sector are believed to be prompted to contribute to public services, whereas private sector firms look to meet the demands and satisfy individual customers. They are also less materialistic and are less motivated by pay expectancy. Various studies

and researches conclude that public sector workers are more intrinsically than extrinsically motivated through the following factors- value job content, self-development opportunities, recognition in the society, autonomy in the work, freedom from job boredom and the opportunity to learn new things. Organizational commitment and devotion is believed to be lower in the public sector because of the inflexibility of governmental procedures (bureaucracy and red tapism) and the feeble relationship between performance and reward. Employees in PSUs are motivated by job security and stability. This attributes greater value to work that benefit others and the society, involvement in important public administration policies and rely greatly on greater responsibility and integrity. Employees in the PSUs value pride in their work and social status of their job more than the employees in the private sector. Rules, laws, impositions and regulations take away more discretion from public leaders than those in private sector, since their duties and responsibilities are clearly stated. Given these roadblocks, many researchers and economists have studied the competencies and efficiencies required to lead PSUs. Van Wart classified leadership behavior in three categories :- (a) task-oriented – involving activities related to planning, organizing, innovation and problem solving; (b) people-oriented – including personnel management, staffing, directing, motivation and employee development; and (c) organizational-oriented – relating to strategic planning, controlling and aligning all activities of the organization.

Public sector undertakings in India exhibit a soft work culture, where main work seems to be diverged from being the supreme activity by non-work activities like social affairs, obligations, social welfare and responsibilities, fulfillment of political agendas, etc. Indian organizations have large power-distances, weak risk and uncertainty avoidance and often tend to be masculine and collectivist. Social systems prevailing in the country are steeply hierarchical and Indians are sometimes highly status conscious. Indian employees have a different cultural orientation than those of other countries, and have a different understanding regarding job status. They prefer to work in superior-subordinate type of settings rather than as equals. Hierarchical organizational structure is prevalent in Indian organizations, which follows top-down communication approach primarily. In the Indian context, leadership is hence very crucial to the development of an organization. Leadership behavior in Indian public sector is found to have significant bearing on job motivation, job satisfaction, industrial relations and internal motivation of employees.

Growth of Public Sector in India in Pre and Post Liberalization Era

Indian economy on the eve of independence was in a miserable state with poor, unemployed and mostly illiterate section of the society wanting the politicians and other leaders to building Independent India that will ensure upliftment in a promising manner. The first Prime Minister stressed that the Government should play prime role in growth and development which led to the creation of public sector by the First Industrial Policy of India. Planning Commission was formed in 1950 with stringent instructions for a dominant role for public sector in the forthcoming 5 year plans. Second Five Year Plan stated - "The adoption of the Socialist pattern of the society as the national objective, as well as the requirement for planned and rapid development requires that all industries that are of basic and strategic importance, or in nature of public utility services, should be in public sector."(Planning Commission, Second Five Year Plan, 1956).

Table 1: GROWTH IN REAL INVESTMENT /GROSS BLOCK IN CPSEs IN INDIA (2002-2003 TO 2016-2017)

Growth in Real Investment/Gross Block in (2002-2003 to 2016-2017)	Central Public Sector Enterprises (CPSEs) in India		
(Rs. in Core)			
Years	Accumulated Gross Block @ in CPSEs	Gross During Year	Growth Over Previous Year (In %)
2002-2003	525301	34903	7.12
2003-2004	596727	71426	13.6
2004-2005	649245	52518	8.8
2005-2006	715108	65863	10.14
2006-2007	782668	67560	9.45
2007-2008	862240	79572	10.17
2008-2009	978167	115927	13.44
2009-2010	1129983	151816	15.52
2010-2011	1237051	107068	9.48
2011-2012	1408046	170995	13.82
2012-2013	1555575	147529	10.48
2013-2014	1756530	200956	12.92
2014-2015	1906796	150266	8.55
2015-2016	2026315	119389	6.26
2016-2017	1808372	143197	8.60

Source: Public Enterprises Survey (2017-18)

Figure 1 : GRAPHICAL REPRESENTATION OF GROWTH IN REAL INVESTMENT IN CPSEs_IN INDIA (2002-2003 TO 2007-2008) (Growth over Previous Year (%))
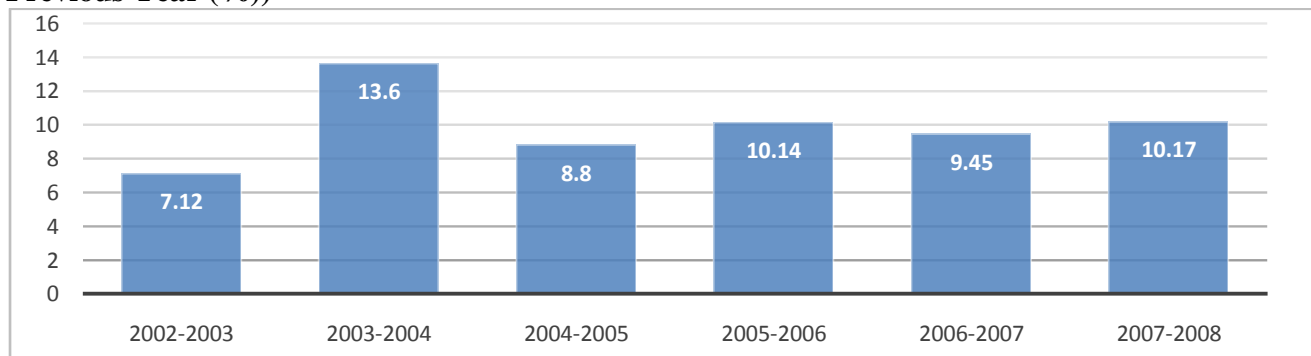
Source: Author's Representation

The period from 2003 to 2004 witnessed the growth of 13.6 % in real investment as compared to 7.12 % growth rate of 2002-2003. The growth further declined to 8.8 % in 2004 to 2005 and saw a mixed trend of increase and decrease during the period from 2005 to 2008. Growth in the real investment during the period 2008- 2009 has been 13.44 % as compared to 10.17 % during the period 2007- 2008, given the fact that India faced global financial crisis during September, 2008. This clearly indicates that India, which is a developing country, took the crisis as a challenge and improved in various areas with the help of policymakers and economists. After the crisis of 2008, India's growth prospects and exports capability had fallen down with an unexpected rate. Reserve Bank of India intervened to control the situation and lowered down the interest rates from 7 % to 3.5 %.

Moreover, there was an expansion in the fiscal deficit from 2.5 % of Gross Domestic Product during 2008 to 6 % during 2009 and 6.5 % during 2010 by the Central Government. Due to all these factors, the GDP growth of India rose in comparison with the pre – crisis level during 2010. Portfolio investments were brought to a normal pace and appreciation in the Indian currency was witnessed during mid – 2011 which was 44 US $ as compared to 50 US $ during 2009. As a result, even more higher rate of growth of 15.52 % was observed during 2009 to 2010. Periods during 2010 to 2014 show the mixed trend of rise and fall due to the economic crisis that occurred during 2012 – 2014. After 2014, there has been decline in the growth of real investment in CPSEs especially during 2014- 2016 due to disinvestment measures taken up by the Government frequently because of the fact that these enterprises were running inefficiently and were incurring heavy losses.

Figure 2 : GRAPHICAL REPRESENTATION OF GROWTH IN REAL INVESTMENT IN CPSEs   IN INDIA (2008-2009 TO 2016-2017).
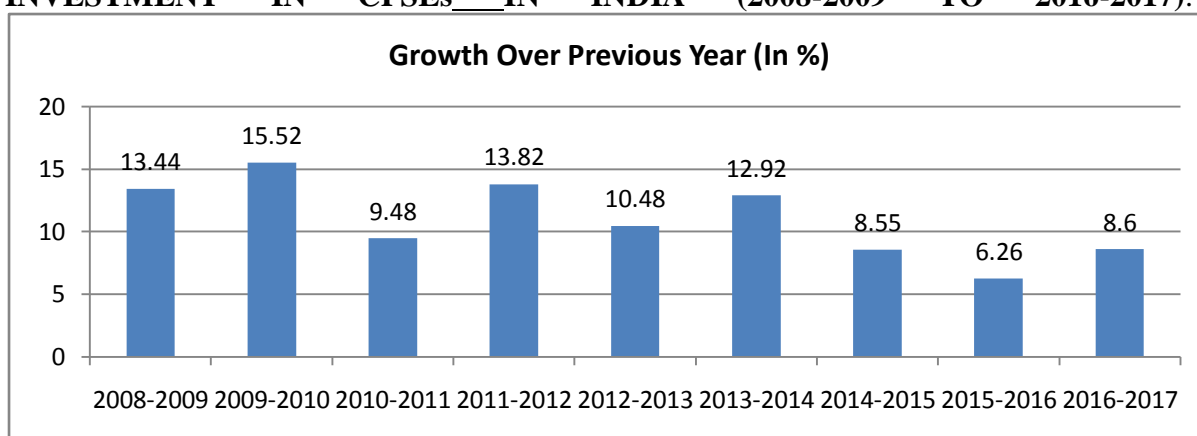
Source: Author's Representation

Evolution and growth of public sector in India can be studied over Pre Liberalization Period from 1947 to 1991 and Post Liberalization Period from 1991 onwards.

This Pre Liberalization period started in 1947 and lasted till the introduction and implementation of the New Economic Policy (NEP) in 1991. In this era, 'Nehru Model' of economic growth and development was accompanied by his doctrine of "Democratic Socialism" which served as a base for his model (B.R. Tomlinson, 1998). The Indian National Congress, under the guidance and leadership of Nehru set up the National Planning Commission towards the end of 1938, which stated that- 'State should own, manage and control all key industries and services, mines, mineral resources, railways, waterways, shipping and other factories, industries which were likely to become monopolistic in character. The principle of "Democratic Socialism" envisaged by Nehru was a mix of significant characteristics of both Socialist and Capitalist Models of the economy. Some of its peculiar features are mentioned below:-

- Strong belief in democratic ideals and principles of governance for individual good and benefit.
- Eradication of poverty in the society at mass level.
- Role of the State Government in providing and fulfilling minimum basic requirements of all.
- Prominent role of state in the reduction of economic imbalances and inequalities.
- Economic gains not for the sake of profit earning but for the purpose of social equity and justice.

- State's prominent role in checking and controlling the monopolistic tendencies in society.

The Industrial Policy Resolution, 1956 divided industries into three categories with respect to the role played by the State Governments: The first category (Schedule-A) included industries under the responsibility of the state. The second category (Schedule-B) included industries taken by the state but private participation would also be entertained. The remaining industries, which were left to the operation under private sector fell under the third category. *In* 1969, growth of PSUs saw a new era in which the nationalization of 14 major banks took place. The Industrial Licensing Policy, 1970 placed various impositions and restrictions on enterprises belonging to large industrial houses.

The year of 1991 was a turning point in India's official position on economic plans and strategies. Introducing Economic Reforms was the main agenda of the Congress Party which again came to power in 1991 under the regime of P.V. Narsimha Rao as the new PM of India. "Diminishing official reserves, huge deficits in balance of payments and sharp decline in GDP Growth in almost all sectors of the economy demanded urgent attention and solution."   Dr. Manmohan Singh, had a new doctrine based on the logic of economic development. Dr. Singh announced the statement on Industrial Policy on 24th July, 1991. This statement was the New Economic Policy of 1991 which intended to bring about the major reforms in the economy of the country (Sunanda Sen, 2009).

Objectives of New Economic Policy include-
- To reduce fiscal deficit and to ensure an era of relative price stability.
- To reduce the operation of public sector and to open up more areas for private sector.
- To liberalise Industrial Policy and abolish Industrial licensing for most of the private sector undertakings.
- To encourage the inflow of foreign capital by granting more concessions to FDI.
- To liberalise the foreign trade by reducing tariffs, custom duties and abolishing quota restrictions in case of many imports.

 In pursuit to achieve these objectives, the Government of India announced a series of initiatives which are to be taken in respect of policies relating to areas of Industrial licensing, Public sector policy, MRTP Act, Foreign investment and technology

The reforms in the New Economic Policy of 1991 in the PSUs was focused on reducing the number of reserved industries for public sector from 17 to 8 which was later reduced to 3 namely arms-ammunition along with defence equipments, atomic energy and railway transport. The disinvestment of shares of the selective set of PSUs in order to raise necessary resources and to encourage the wider participation of general public in the ownership stake of PSUs, The policy towards sick PSUs should be the same as that for the undertakings under private sector. Efforts for improvement in the performance through MoU system by which the administration is to be granted not only the greater authority but also held accountable for desired results.

FINANCIAL MANAGEMENT IN PSUs

PSUs are blamed for inefficiency and irregular financial management for a number of factors. Low credibility and lack of accountability are the major issues. Financial advisor functions as the principal advisor to the Chief Executive of the enterprises on all financial

matters. Concurrence of the financial advisor is required regarding all financial implications of decisions of the proposals put forward before the Board of Directors. In some PSUs, he is designated as Financial Advisor and Chief Accounts Officer (FA and CAO), while others have expanded the role of the financial advisor and raised his position by designating him as Director (Finance). Functions and Responsibilities of Financial Advisor include: To determine financial needs of the firm, To analyse the financial results of all operational costs so as to improve future operations, To reduce costs and improve efficiency and profitability and To examine feasibility studies and detailed project reports.

Capital Budgeting, Capital Structure decision, Working Capital, Audit and Capital Expenditure Decisions -

In order to ensure the proper evaluation and implementation of the capital budgeting decisions, Guidelines provided by the Government, Delegation of investment decision making power, Approval of public investment proposals are some points are to be considered. Capital structure decision refers to the determination of the debt-equity mix. It includes the identification of various sources of long term finances viz. Equity shares, preference shares, debentures, bonds, etc. The Government of India had decided way back in 1961 that the financing pattern would have a debt-equity ratio of 1:1. Every new project or proposal will have half of the investment in equity capital and the other half in debts. After a proper and detailed study at Ministry, the proposal is either sent to the Public Investment Board or Project Appraisal Division depending upon the cost involved in the project/proposal. After scrutinizing at Ministry level, the proposal goes to the Investment Planning Committee constituted under the Planning Commission. The Advisor (Industries) also examines the proposal and then if satisfactory and appealing, it is recommended to be included in ongoing or forthcoming 5-year plan.In case of foreign mergers or collaborations, the Foreign Exchange Board is consulted.

STATUS OF PSUs IN INDIA

The share of the PSUs in the net domestic production of the country has been gradually increasing. One-fourth of the total income of the nation is accounted to the public sector. The comparison of the compound rate of annual growth of the public sector and the private sector revealed that it was 6 % in the former case and 2.8 % in the latter. While comparing the relative efficiency of public and private sector undertakings in terms of investment, we reached to the conclusion that the private sector undertakings are, on an average, 2.5 times more profitable than PSUs. If 100 rupees are invested in the private sector undertakings, then they yield a return of Rs. 11.40, while the same amount in the PSUs yield only Rs. 4.70. We must not neglect the fact that PSUs are concentrated mainly in basic, key, core and heavy industries. It is evident that these industries generate a very nominal rate of return. Due to this reason, sick industries are being overtaken by the Government, such as the National Textile Corporation, Air India, MTNL, Coal India Limited, etc.The economic efficiency and effectiveness of a PSU should be considered in terms of the transformation of the industrial structure, modernization, higher labor productivity on a countrywide scale, high output yielding machinery, adequate techniques of production, etc. The fact which is to be highlighted here is that a higher proportion of the value produced by the public sector industries is realized outside this sector and it is therefore very difficult to estimate the efficiency of PSUs in terms of cost and profitability.

Table 2 :Macro View of Performance of CPSEs (Rs. in crore) 2007-08 to 2016-17

Particulars	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
No. of Operating CPSEs	214	213	217	220	225	230	234	236	244	257
Capital Employed	724,009	792,232	908,007	1,153,833	1,337,821	1,508,177	1,710,453	1,833,274	2,037,318	2,144,924
Total Gross Turnover	1,096,308	1,271,536	1,244,805	1,498,018	1,822,049	1,945,814	2,066,057	1,995,176	1,834,635	1,954,616
Total Net Income/Revenue	1,102,772	1,309,639	1,272,219	1,470,569	1,804,614	1,931,186	2,056,336	1,965,638	1,764,113	1,821,595
Net worth	518,485	583,144	652,993	709,498	776,162	850,921	926,663	962,518	1,079,953	1,107,981
(PBDIEET)	195,049	186,836	211,184	216,602	250,654	255,936	289,361	270,400	275,457	297,478
Depreciation, Depletion & Amortization	42,470	44,441	51,168	57,118	63,591	66,109	69,817	77,500	67,764	73,287
DRE/Impairment	5,802	7,661	9,565	187	154	436	851	554	347	(318)
(PBIEET) (6-7-8)	152,579	142,395	160,017	159,298	186,910	189,390	218,693	192,346	207,346	224,509
Interest	32,126	39,300	36,060	26,521	36,152	38,184	51,638	44,942	51,449	47,105
(PBEET) (9-10)	120,453	103,095	123,957	132,777	150,758	151,207	167,055	147,412	155,897	177,404
Exceptional Items	-	-	-	(1,479)	3,957	(13,525)	(14,618)	(1,335)	7,766	(3,645)
(PBET) (11+-12)	-	-	-	134,256	146,801	164,732	181,673	148,747	148,131	181,049
Extra-Ordinary Items (	(2,549)	(2,684)	(8,280)	(2,695)	(428)	(1,276)	(1,550)	(1,394)	(9,553)	(38)
(PBT) (13+-14)	122,023	117,695	132,222	136,951	147,230	166,008	183,223	150,141	157,684	181,087
Tax Provisions	40,749	33,828	40,018	44,871	48,985	51,025	55,178	47,230	43,653	53,266
Net Profit/Loss after Tax from Continuing Operations (15-16)	81,274	83,867	92,203	92,079	98,245	114,982	128,045	102,911	114,031	127,821
Net Profit/Loss after Tax from Discontinuing Operations	-	-	-	49	1	(1)	250	(45)	208	(219)
Overall Net Profit/Loss (17+-18)	81,274	83,867	92,203	92,129	98,246	114,981	128,295	102,866	114,239	127,602
Profit of Profit-making CPSEs	91,577	98,488	108,434	113,944	125,929	143,543	149,636	130,364	144,998	152,647
Loss of Loss-making CPSEs	(10,303)	(14,621)	(16,231)	(21,816)	(27,683)	(28,562)	(21,341)	(27,498)	(30,759)	(25,045)
Profit -making CPSEs (No.)	160	158	157	158	161	151	164	159	164	174
Loss -making CPSEs (No.)	54	55	60	62	64	78	70	76	79	82
CPSEs making no Profit/Loss (No.)	-	-	-	-	-	1	-	1	1	1
Dividend	28,123	25,501	33,223	35,700	42,627	49,703	65,115	56,527	68,583	78,133
Dividend Tax	4,722	4,132	5,151	5,372	5,877	6,704	8,709	8,642	10,598	14,477

Source: Public Enterprises Survey (2017-18)

The number of loss making units has increased from 54 in 2007-08 to 82 in 2016-17. On the other hand, the profits earned and dividend paid by PSUs is steadily improving. There is a gradual improvement in the amount of capital employed. This indicates the CPSEs expansion and effectiveness in using investible funds. To retain profitability in future, PSUs should achieve a higher competency with respect to resource generation and procurement. With the passage of time, the functioning and performance of Government is becoming more and more transparent. With the commencement of Right to Information, 2005, every citizen has access to most of the Government information. Functioning in PSUs is also now under public scrutiny every moment now and then.

Underutilization of Available Capacity and Resources, Over-Capitalization, Administrative Inefficiency, Price Policy not guided by profit , Takeover of Sick Units, Higher Social Cost, Red-Tapism, over-staffing, poor inventory management are some reasons for poor

performance of PSUs. While most of the PSUs are deficient there exists an exemption. In project formulation and execution, Delhi Metro Rail Corporation Limited (DMRCL) has set a role model where the cost over the delayed execution of the project/proposal was largely tackled showing extra ordinary brilliant approach in the project execution and its management.

Corporate Social Responsibility of PSUs, Government's Role and Media

 In April, 2010, the Department of Public Enterprises issued the CSR Guidelines applicable to all the CPSEs. CSR is an environmental friendly commitment given by the company to perform and operate in a sustainable manner, while keeping in mind its stakeholders. With the help of CSR, companies agree to take the responsibility for the effect that their operations have on consumers, suppliers, shareholders, employees and environment in general. The main areas of concern include inclusive public growth, social welfare, capacity building, catering to the socio-economically backward, neglected ensuring sustainable development.

 Abiding by these guidelines, CPSEs are required to create a CSR budget as a specified percentage of net profit of the previous year, through a Board Resolution, mandatorily.   If CPSE earns the profit less than Rs. 100 crores, then the CSR is 3-5% of net profit of previous year, if CPSE earns the profit between Rs. 100 to 500 crores, then the CSR is 2-3% (subject to minimum of Rs. 3 crore) if CPSE earns the profit more than Rs. 500 crores, then the CSR is 0.5-2% of the net profit of previous year. Those companies who are making losses are not allowed to give specific funds for CSR activities however this objective can be achieved by integrating business activities with social activities, if possible. The CSR funds are normally non-lapsable. However, special focus has been put proper control, monitoring and completion of projects undertaken during a given year. According to the guidelines of CSR, the economic projects and commercial activities should be done in the periphery of it.

For a developing country, there exists the lack of research in PSUs, specifically in the area of leadership. Emphasis is laid on doing the SWOT analysis of PSUs. However, many researches have been done previously to reveal the general, peculiar and special features of PSUs, we attempted to work on the ground reality in the functioning and performance of Indian PSUs. This has been done by using retrospective approach and making enquiry into the challenges faced by it. Indian Public Sector Undertakings require more focus and attention due to the fact that the research done in the public sector field is scarce (Roberts, 2017). We hope that our research will provide the basis for further findings in the future.

Strengths, Limitations and Directions for Future Research

The methodology used throughout the study contains some trivial limitations which are minimized by adopting appropriate procedures and models. This qualitative study can be utilized for further research work by emphasizing more on the quantitative aspects. Different PSUs operate in different political, economic and social environment. Due to this fact, covering PSUs of every nature becomes difficult. However, efforts have been made to give the complete overall view of the Indian PSUs. The important point is the background of PSUs, which is purely Indian. This indicates that this research paper can only be applied to those organizations which have the similar social, political and cultural orientations.

CONCLUSION

Government has clarified that PSUs need to be selective in the coverage of its activities with investment to be focused on strategic hi-tech and essential infrastructure. It has also been made clear that the PSUs should work for itself and cease to rely on budgetary support. Liberalization, Privatization, Globalization has came as an instrument of the Government to generate efficiency in the PSUs. It refers to the policy of reforming and restructuring PSUs and aims at reducing involvement of the state in the economic activities of the nation. Greenfield Privatization has made progress after the New Economic Policy (NEP) 1991. This has introduced De-licensing, Reduction in budget allocation, correcting anomaly in duty structure, Decision making systems.

 Earlier, Financial Management was of limited horizon and related to only accounting of various financial transactions in PSUs. Now, PSUs have understood that efficiency and effectiveness in financial management is of supreme importance, if the PSUs are to survive in the present competitive environment. The challenges are also from within i.e. scarce resources of the Government and from the outside world i.e. competition with private sector. A lot has been done and much more is still required to bring efficiency in the functioning and performance of PSUs. In the global economic scenario, institutional failures generally result from inappropriate policies, strategies, plans and inefficient corporate governance. In India too, there is a continuous battle amongst stakeholders for value maximization and increasing credibility, transparency and accountability. Definitely each PSU is unique with its own strategically defined goals, objectives and way of functioning and hence, demands for a unique set of structured governance policies. However, corporate governance need to be specific, categorical and strategic over most of public enterprises to provide a common performance evaluation platform. This would consist of providing autonomy (authority along with the responsibility) to the public sector along with monitoring it. Ensuring managerial autonomy to the PSUs enhances the role of government rather than limiting it. In short, it could be concluded that the importance of efficiency in public sector undertakings is same as the importance of soul in a human body.

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GLOBALIZATION AND CURRENT ACCOUNT DEFICIT OF INDIA: AN OVERVIEW

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ABSTRACT

During 80s Indian economy was facing a deep crisis when balance of payments going increasingly negative year by year and in 1991 foreign currency reserves had fallen to almost $1 billion; Inflation had roared to an annual rate of 17 percent; fiscal deficit had become unsustainable; foreign investors and NRIs had lost confidence in Indian Economy. Capital was flying out of the country and the India was near to default on international loans. To makeover of its sick financial health India decided to change its economic policies and go for major economic reforms. Then economic liberalization and globalization was adopted by Indian Government to enable it to get further foreign exchange loans from World Bank as its foreign exchange reserves was reduced to mere 20 days outflow and for making the Indian economy as globally competitive. In this paper we will study the balance of payments account and its components followed by the pattern and trends in Current account deficit of India. We will also evaluate the impact of globalization on India's Current account deficit by analyzing the current account deficits for the period of 1977-2017 using systematic sampling method.

Keywords: Globalization, Balance of payments, Balance of trade, Balance of current account, Current account deficit.

INTRODUCTION

Trade of one country with other countries in the world is a very old concept. But the globalization gave it a terrific boost. Globalization has no general meaning but broadly it means fully-free economic operations across the borders of countries, without any restrictions or barriers by governments of the countries. So the process of globalization is also described as a gradual removal of barriers to trade and investment between nations. The term globalization refers to the integration of economies of the world through open trade, financial flows, and free inter-country movement of labour and through mutual exchange of technology and knowledge. In today's scenario Globalization is not limited to only trade relationship, but it includes integrated national & regional economies, societies and cultures. As per United Nation there are about more than 24 crore migrants around the world and they are largely from underdeveloped countries to developed countries. These immigrations and other human links have changed socio-cultural face of various countries the world over. Many International organizations like International Monetary Fund, World Bank and world trade organization are regularly working for the promotion of international trade and providing financial aids to underdeveloped and developing countries. But it is also a fact that through these international organizations the developed countries forced underdeveloped and developing countries to adopt globalization by opening up their local markets to world trade by removing different barriers to such trade.

Since Independence in 1947 to 1990 India held traditional values such as self reliance and socialistic policies of economic development, which resulted in the segregation, inefficiency of the economy with a host of other problems. In India globalization has been identified with the economic policy reforms of 1991, which implied opening up the Indian economy to foreign direct investment by providing facilities to foreign companies to invest in different

fields of economic activity in India by removing constraints to the entry of MNCs in India, allowing Indian companies to enter into foreign collaborations and to set up joint ventures abroad, carrying out liberalization programs etc. The economic reforms of 1991 are also known as LPG i.e. Liberalization, Privatization and Globalization.

Balance of Payments Account
The balance of payments account is that account which records all the financial flows between a country and the rest of the world. This account consists of financial flows resulted from international trade, international transfers, international investments, international borrowing and loan repayments. Balance of payments account has two sides i.e. **debit side and credit side**. All the events or transactions that results in inflow of money into the country are recorded in credit side of the account for example export receipts, capital transfer in the country etc. And all the events or transactions that results in outflow of money from the country are recorded in debit side of the account for example imports payments, direct and portfolio investment out of the country etc. For the better presentation of International financial flows balance of payments account is generally divided/classified into two sub accounts (also called components of balance of payments account). These are current account and capital account. But the International Monetary Fund (IMF) splits what the rest of the world calls the capital account into two divisions viz. capital account and financial account. In accordance with the definition of IMF financial account can be taken as the third sub account or component of balance of payments account. These three sub accounts records financial flows according to its nature. Relationship between the balance of payments account and its components is as follow-

Balance of Payments Account = Net Current account balance +
Net Capital account balance+Net financial account balance
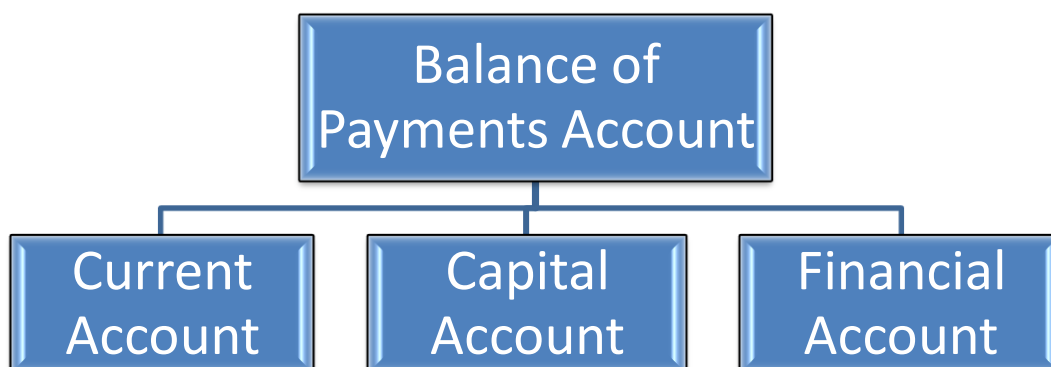
Current Account
The current account consists of net exports of goods and services, net primary income (net factor income) and net cash transfers (net secondary income) that have taken place over a given period of time. Net exports are derived by subtracting the total value of Imports of goods and services from the total value of exports of goods and services. When the value of Imports is more than exports, value of net exports will be negative and vice-versa. This difference in the monetary value of exports and imports is called **balance of trade.**
Net primary income also called net income from abroad refers to the difference between the receipts and payments of employee compensation to nonresidents and investment income

(includes incomes on direct investment, portfolio investment, other investments, and receipts on reserve assets). Current transfers take place when a certain foreign country simply provides money/currency to another country with nothing received as a return. Typically, such transfers are done in the form of donations, aids, or official assistance.

A country's current account balance (CAB) can be measured by the following formula:

CAB = (X-M) + NY + NCT

(Where, X = exports, M = imports, NY = Net primary Income, NCT = Net cash transfers)

Current account is called balanced when net difference between the credit and debit sides of the current account is nil. If the credit side exceeds debit side then it is current account surplus and if debit side exceeds credit side then it is called current account deficit.

Capital account

Capital account records all the transactions, between the residents of a country and the rest of the world, which causes a change in the assets or liabilities of the residents of the country or its government. Capital account consists of net flows of capital transfers, disposals and acquisitions of capital assets, migrants' transfers, foreign direct investments, portfolio investments, reserve assets and other financial flows (like bank deposits from overseas residents, loans into a country from abroad and so on) between a country and the rest of the world. When the inflow of foreign money in a country is more than its foreign money outflow then capital account will be in surplus and vice-versa. In balance of payments account capital account is used to absorb the surplus of current account and to finance the deficit in current account.

Division of capital account as per the definition of International Monetary Fund (IMF) :

Capital account	Financial account
Capital account consists of the disposals and acquisitions of non-produced nonfinancial assets, such as land sold to embassies and sales of leases, copyrights, trademarks and licenses, as well as capital transfers like debt forgiveness and migrants' transfers.	The financial account records all the transactions that results in changes of ownership of a country's foreign financial assets and liabilities. The financial account consists of Net flows of foreign direct investments, portfolio investments, Reserve assets and other financial flows between a country and the rest of the world.

A deficit or surplus on the current account is offset with an equal and opposite surplus or deficit on the capital account and/or financial account. Therefore **overall** the Balance of payments must balance i.e. all inflows of money into the country should be matched by an equivalent outflow of money from the country. But in practice, this is simply not going to happen. There are so many transactions and they are so complex that it would be impossible to record them all cent percent accurately. And as data for the current account, capital account and financial account come from different data sources, a balancing item called **net errors and omissions** is included in the balance of payments account to ensure that the balance of payments balances.

Thus, Balance of Payments account =

Net Current account balance + Net Capital account balance +
Net financial account balance + Net Errors and omissions = 0

Current Account Deficit

Current account deficit (CAD) is that condition when the debit side of current account is more than its credit side i.e. inflow of money in the country is less than outflow of money from the country. Generally, a current account deficit is when a country's residents spend more on imports than they save. To fund the deficit, other countries lend to, or invest in, the deficit country's businesses. The lender country is usually willing to pay for the deficit because its businesses profit from exports to the deficit country. In the short run, the current account deficit is a win-win situation for both countries. Current account deficit is advantageous especially for a developing country. But if the current account deficit continues for a long time, it can negatively impact the economic growth of deficit country. Because in long run the foreigners will have greater claim on domestic assets and the foreign lenders will begin to doubt whether they will get an adequate return on their investment. Large current account deficit could be unsustainable if financed by foreign borrowings and it could also cause depreciation in exchange rate and it may indicate the economy as unbalanced economy.

Current Account Deficit in India

As shown in table 1, Current account deficit (CAD) of India was -2.12 billion US$ for the year 1977. In that year current account balance of country had a surplus balance, which represent that there was net inflow of foreign currency in India. For that year Net primary income and Net secondary income was -0.15 and 1.31 billion US$ respectively. Net exports was 0.96 billion US$ and that is the only year in which the net exports is positive for India (i.e. exports are more than imports) since the year 1977. In Next period i.e. year 1982 CAD becomes positive and reached to 2.52 billion US$. As we can see from the table net primary Income and net secondary income have moved in positive directions as compared to previous period. Although the Increase in both the primary and secondary income the balance of current account declined by 219%. It was only because of the huge decline in the net exports of the country. For the year 1977 net exports was 0.96 billion US$ but for the year 1982 net exports are -5.36 billion US$.

Table 1

						(figures in US$ Billions)
Year (1)	Exports of goods and services (2)	Imports of goods and services (3)	Net trade in goods and services (Net Exports) (4)=(2)-(3)	Net primary income (5)	Net secondary income (6)	Current Account Deficit (7)=(4)+(5)+(6)
1977	7.57	6.60	0.96	-0.15	1.31	-2.12
1982	12.16	17.52	-5.36	-0.08	2.92	2.52
1987	15.25	22.29	-7.04	-1.16	3.03	5.17
1992	24.95	29.67	-4.71	-3.91	4.14	4.49
1997	44.81	58.17	-13.36	-3.52	13.91	2.97
2002	70.62	75.74	-5.12	-3.91	16.09	-7.06
2007	240.08	278.79	-38.70	-6.52	37.14	8.08
2012	443.85	579.91	-136.06	-20.84	65.44	91.47
2017	489.40	561.61	-72.21	-26.42	60.47	38.17

 (Source: World Bank group open data)

In the year 1987 CAD further increased and reached at 5.17 billion US$, this time decrease in the net exports and net primary income was the reason for that. For the period 1992 CAD decreased as compared to previous period (year 1987), in that period net primary income decreased by more than 238% but because of increase in the net exports and net secondary income CAD decreased. Net exports for the period 1997 decreased by 185.5% as compared to the net exports for the year 1992 but effect of this decline was set off/nullified by 236.17% increase in the net secondary income of the country. And thus period 1997 witnessed further decrease in CAD by 33.89%. In the next period that is 2002, CAD of India was negative that is there was current account surplus. CAD for that period was -7.06 billion US$, Increase in the net exports of country by 61.66 % from the previous period was the main cause for that. In the period 2007 again CAD increased by more than 214%. Net secondary income for that period increased by 130.84% but net exports decreased by more than 655%, this caused the CAD to reach at 8.08 billion US$.

For the period 2012 CAD of India was 91.47 billion US$, which is the highest of all time. It is more than 11 times of CAD of 2007. In that period net exports and net primary income both decreased by 251.5% and 219.88% respectively. Exports and Imports both witnessed huge growth but growth rate of imports was more as compared to exports. So, the net exports of the country reached to -136.06 billion US$ in the year 2012. In the next period i.e. 2017 CAD decreased by more than 58% as compared to the CAD of year 2012 and reached to 38.17 billion US$. In 2017 the net primary income and net secondary income both deceased from the previous period. But the increase of 53.3 billion US$ in net exports improved the CAD for the year 2017 as compared to CAD of the year 2012.

Fig.1 - Current Account Deficit (BoP, current US$ Billions)
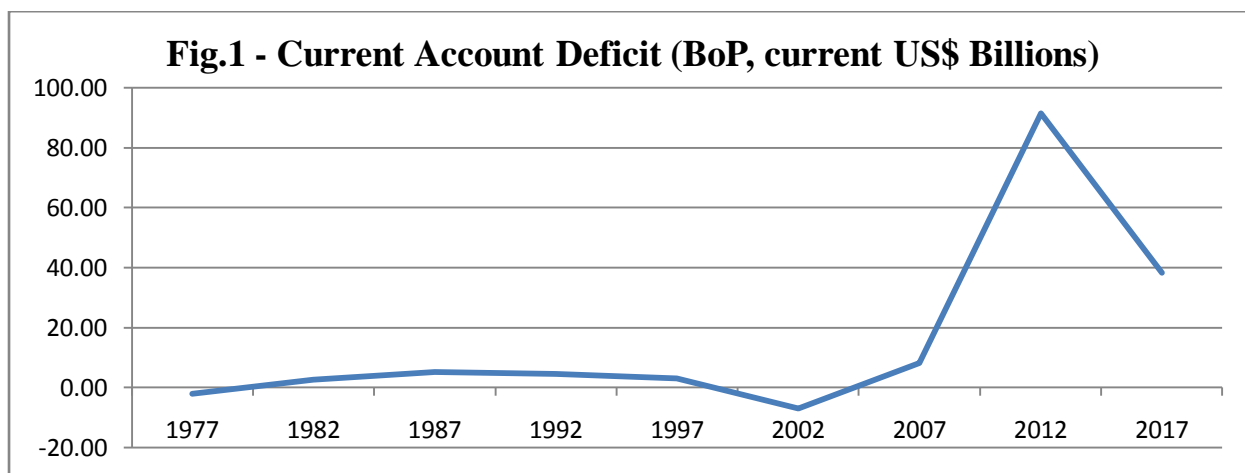
(Source: World Bank group open data)

From the above graphical presentation of CAD it can be easily understood that between the period of 1977 and 2007 CAD of India was fluctuating normally ranging from -7.06 to 8.08 billion US$. Average CAD for 15 years prior to globalization (1977 to 1991) was 3.17 billion US$ and for the 15 years after the globalization of Indian economy (1992 to 2006) average CAD was 2.59 billion US$. This indicates that globalization negatively impacted the CAD of India and increased the inflows of foreign money in the country. But between the period of 2007 and 2012 trend analysis line is almost vertical straight line moving upward and showing extreme growth in CAD during that period. After reaching at the top in the year 2012, growth line declined with a high speed and looks like going back to normal range of CAD. This graphical presentation firmly indicates towards something extra

ordinary or big changes/events happened after year 2007 at global market, which transformed horizontal look like trend line of India's CAD in to vertical look like line

Fig. 2 - Current account Deficit of India (% of GDP)
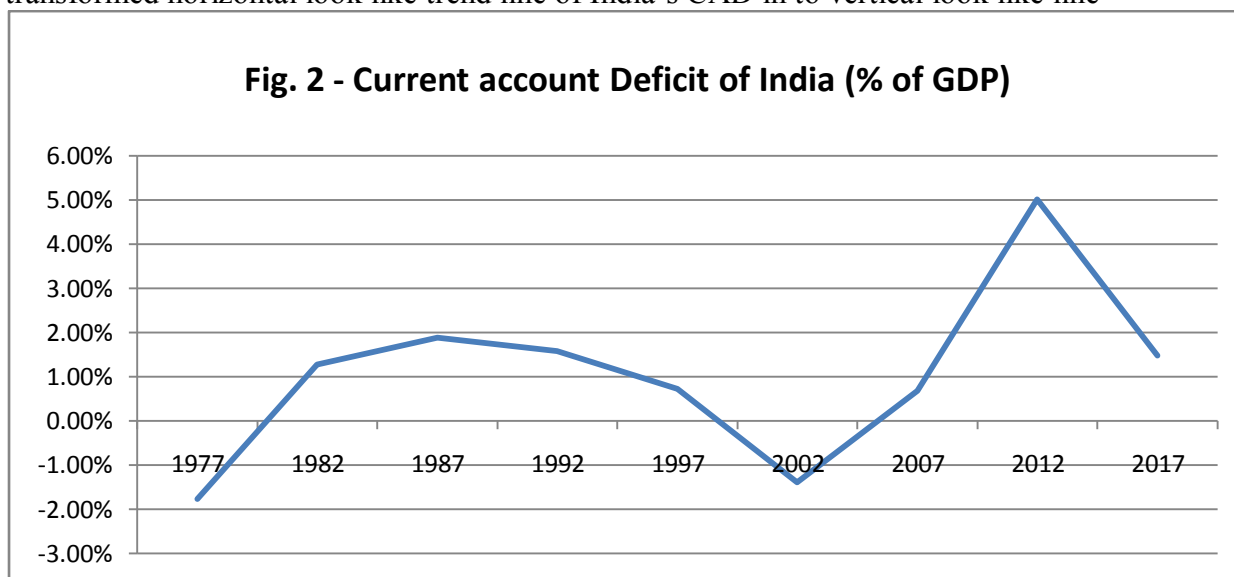
(Source: World Bank group open data)
Current account deficit of India for the year 1977 was -2.12 billion US$ which was the -1.77 percent of the Growth domestic product of the country. For the following periods i.e. 1982, 1987, 1992 and 1997 CAD was the 1.27%, 1.88%, 1.58% and 0.72% of the GDP respectively. In the period 2002 as the CAD becomes negative, it was -1.39% of GDP. For the period 2007 CAD was 0.63% of GDP. Average percentage of CAD to country's GDP for the 15 years prior to globalization (1977 to 1991) was 1.17% and for the 15 years after the globalization of Indian economy (1992 to 2006) average percentage of CAD to country's GDP was 0.60%. This indicates that globalization negatively impacted the CAD of India. But in the period 2012 CAD touched the highest line of percentage to GDP and it was about 5% of GDP of India. In 2017 again CAD as percentage of GDP reached to its normality, for this period CAD was about 1.47% of GDP.

CONCLUSION
On the basis of above study it can be said that for India it is the net exports that decides the direction of current account balance. Net exports have the direct impact on current account deficit; CAD increase with decrease in net exports and vice-versa. Trends in net primary income revealed that compensation income to employees and investment income of India is negative for all the selected years. Which means India makes more payment to foreign countries than receive from them in the form of compensation income to employees and investment income. Opposite to net primary income net secondary income is positive for all the selected years, this indicates that India is the net receiver of the current transfers from the rest of the world. Study also indicates that globalization had positively affected the current account deficit in absolute term as well as ratio to GDP. Globalization has increased the volume of international trades in many times. Exports for the year 2017 have increased by more than 1860% from the exports for the year 1992. With the increase in exports, imports and net incomes, CAD of India has also increased by more than 750% as compared to CAD for the year 1992. On the other side, globalization has increased the inter-dependency of all the countries and this inter-dependency was one of the main reasons behind the CAD for the year 2012, which was about 5% of the GDP of India. This is the

largest CAD of India till now. During the study it is found that current account deficit of India is relatively less and sustainable. For the year 2015, 2016 and 2017 CAD of India is about 1.07%, 0.53% and 1.47% of GDP. As the sustainable CAD that is safe for India is said to be in the range 2.4% to 2.8% of GDP as per the result of a study by Rajan Goyal, Director in the department of Economic and policy research, Reserve Bank of India. CAD only for the year 2012 was more than the sustainable CAD and this extreme growth in CAD was the result of the financial crisis and recessions in the foreign countries with whom India trade.

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A STUDY ON SERVICE QUALITY DIMENSIONS OF GREEN MARKETING

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INTRODUCTION

Building long lasting relations with customers has become a critical strategy for organizations in nowadays competitive markets. Customers built intention to switch from one product to another if their needs are not satisfied. Firms can raise customer satisfaction by increasing the remuneration that they are providing with the product or services.

Consumer behavior, including the results of any actions by the customer is always subjected to the risk, the customer cannot forecast unpleasant possibilities and results [Bauer, R. A,1960]. Risk has many forms: functional, physical, financial, social, and psychological. High levels of risk frustrate many customers. Communication can receive a reduced risk or even destroy it in complete[Battle, John Bull,2012]. Bauer in his influential article, stated that consumer behavior in this respect, includes the risk, that any action by consumer is followed by results in the consumer which brings it with some uncertainty. Furthermore, Bauer argued that consumers build some methods by means of information, so as to reduce the risk, and this enables them to act with trust in uncertain situations. Other marketing research has addressed this concept that information on risk reduces uncertainty and conflict.

Paying attention to service quality should be the practice of today if airlines aspire to improve market share and further enhance financial performance in both domestic and international markets. A necessary procedure should be followed by airlines in order to have valid and reliable measures to better understand the variables likely to have a bearing on the service quality offered by their organisation such as perceptions and expectations of airline passengers.

Evidence from both production and service organizations indicate that service quality becomes increasingly important for today's business, particularly in high-customer involvement industries such as healthcare and financial services (Anderson and Zeithaml, 1984; Taheri et al., 2013). Two types of quality are considered in service organizations: technical quality and functional quality (Carman, 2000). Technical quality or, in fact, quality in health services is determined by properness of diagnosis and medical procedures (JCAHO, 1987).
Therefore, considering patients' perceptions of service quality is of critical importance. Although different attempts have been made to measure the quality of services, there is no general agreement on how this concept should be measured. In this research the researcher identified various service quality dimensions of Green marketing and impact of consumer buying behavior.

REVIEW OF LITERATURE

PanelGiulioM.Gallarotti*(1995)It pays to be green: The managerial incentive structure and environmentally sound strategies. The Columbia Journal of World Business.Volume 30, Issue 4, Winter 1995, Pages 38-57. Notwithstanding the recent proliferation of literature on the benefits of green management, many managers continue to see environmentally sound strategies as detrimental to the principal goals of profitability, maintaining markets, controlling costs and efficient production. There are also many opportunities for managers to profit from environmentally sound strategies that are independent of public pressures. Together, these two types of incentives serve to turn the traditional vision about the incompatibility between good business and the environment on its head: it is becoming increasingly apparent that, indeed, pollution prevention pays while pollution doesn't.

Lynette Lowness(2000)An Analysis of the Wealth Effects of Green Marketing Strategies.Journal of Business Research.Volume 50, Issue 2, November 2000, Pages 193-200. This study methodology is used to examine the wealth effects, or stock price reactions, to corporate announcements of green marketing activities. Announcements for green promotional efforts produce significantly negative stock price reactions. Sampling by financial and operational characteristics shows that firms with higher growth in earnings, larger firms, and firms with higher advertising-to-sales ratios experience relatively less negative stock price reactions. Managerial implications of the results and directions for future research are also presented.

Dr.RajeshManchanda et al (jun'2008), The beginning of new century and millenium is witnessing the rapid expansion of industrial activity all over the world. The emergence of multinational and modern technology bought with it the feature which is popularly known as mass production and mass consumption and in turn it has created largo number of problems to the environment. To overcome the problem and to achieve the sustainable development, several non government organizations, manufacturers and government has joined their hand in building the awareness about green products and the ill impact of organic product on human life and on environment as a whole. The present paper is an attempt to identify perceptions of people about green products and its uses in future. The study indicated that majority of consumer are aware with the green marketing .they are willing to purchase eco friendly product and ready to pay extra premium for eco friendly products.

Ching-Hsun Chang(2011)The Influence of Corporate Environmental Ethics on Competitive Advantage: The Mediation Role of Green Innovation.Journal of Business Ethics December 2011, Volume 104, Issue 3, pp 361–370. This study utilizes structural equation modeling (SEM) to explore the positive effect of corporate environmental ethics on competitive advantage in the Taiwanese manufacturing industry via the mediator: green innovation performance. Taiwanese manufacturing companies can increase their corporate environmental ethics and green product innovation to enhance their competitive advantages.

AseemPrakash(2012) Green marketing, public policy and managerial strategies Business strategy and Environment,Volume 11, Issue 5. Green marketing subsumes greening products as well as greening firms. In addition to manipulating the 4Ps (product, price, place and promotion) of the traditional marketing mix, it requires a careful understanding

of public policy processes. This paper focuses primarily on promoting products by employing claims about their environmental attributes or about firms that manufacture and/or sell them. Drawing on multiple literatures, it examines issues such as what needs to be greened (products, systems or processes), why consumers purchase/do not purchase green products and how firms should think about information disclosure strategies on environmental claims.

Babita Saini (dec'2013), ISSN (Online): 2319 – 6734, ISSN (Print): 2319 –6726, The aim of the study is how consumer buying behavior is affected by the green marketing and how companies can get the competitive edge by adopting it. The results from this illustrates that companies need to increase their communication with the customers for going green, and that attributes like price and quality are more important than "environmental responsibility". The research study took place in Rohini district of Delhi. The data has to be collected from multiple sources of evidence to understand the importance of green and sustainability management, inaddition to books, journals, and websites.

JavadShahlaeeBagheri(jun'2014), ISSN (Online): 2322 – 4479, The aim of this study was investigation of green marketing and its impacts on consumer behavior in sports shops in East Azerbaijan province of Iran. The present study is functionalized by objectives and done by field. Results shows that a significant relationship between green products features, green promotion, green pricing and green distributing with consumer green behavior; and education, income, and age, but not marital status, gender had a moderating effect on consumer green sports behaviour.

Wong FuiYeng& Rashad Yazdanifard,(2015), ISSN: 2249-4588 & Print ISSN: 0975-5853, Environmental issue is a sizzling topic nowadays as almost every country's government and society has started to be more aware about these issues. This leads to a trend of green marketing used by the firm as one of the strategies in order to gain profit and protect the environment. This paper will be discussing the green marketing and its sustainability as well as the tools and marketing mix of green marketing. Other than that, the green consumer and branding will be discussed in further in thispaper as this will attract more consumers. Lastly, firm will be benefited once green marketing strategy is applied.

Dr. Seema Laddhaal(Jan-Dec 2015), ISSN 2455-0264, One type of environmentally conscious behaviour is environmental consumerism (green buying)- -purchasing and consuming products that are benign towards the environment. The rising number of consumers who prefer and are willing to buy eco-friendly products are creating opportunity for businesses that are using "eco-friendly" or "environmentally friendly" as a component oftheir value proposition. This change in consumer behaviour and future trends must be spotted by a marketer and offer their products and services to consumer in order to retain market share and build future green brands. Many scholars have done survey on green marketing and allied subjects shows that consumer preferences arechanging due to this global phenomenon. It is clear that there is growing concerns about environment and increasing inclination towards green product. This trend throws an opportunity to marketer to offer green products and catch the theme.

Dr. Meghna Sharma , Prachi Trivedi (Jan'2016), Various Green Marketing Variables and Their Effects on Consumers" BuyingBehaviour for Green Products, ISSN 2278 – 2540, This paper identifies those variables and the effect of each on consumer's green buying behaviour. There are eight such variables namely eco-labels, eco-brands, environmental

advertising, environmental awareness, green product, green price, green promotions and demographics. Each variable is equally significant for the green marketer.

AyeselBoztepe (feb'2016), This study aims to give information about the effect of green marketing on customers purchasing behaviors. According to the results of the analysis, environmental awareness, green product features, green promotion activities and green price affect green purchasing behaviors of the consumers in positive way. Demographic characteristics have moderate affect on model.

A S M Saifur Rahman al(2017), ISSN: 2249-4588 & Print ISSN: 0975-5853, This study highlights the resolution of the efforts set by marketers in promoting green brand awareness in the consumer's mind relative to the non-green products. This study holds that despite there is a lot of scope in Bangladeshi market for green products to be utilized more within consumer groups that have pro-environmental preferences, green product marketing communication isn't revealing enough to consumers. The study urges that the greater use of marketing and brands to promote and sell products that are environmentally favorable and function effectively.

Deepika K N, AN EMPIRICAL STUDY ON "CONSUMER BUYING BEHAVIOR TOWARDS THE GREEN MARKETING, ISSN 2455-4839, Green marketing is one of the best tactics which is used by the organization to build or to create a brand image in the minds of the customer. The promotional activities and product quality should form as a differentiation in terms of providing brand image and builds the core competency among the existing companies this should intern create a change in the buying behavior and consumer attitude towards perceiving a brand. This will lead to strong base towards developing a strong brand image and also serves as a major contributor for growth of the firm.

Oshma Rosette Pinto al,(june 2017) ISSN(Print) 2249-0302 ISSN (Online)2231-2528, INFLUENCE OF GREEN MARKETING ON CUSTOMERS BUYING BEHAVIOUR, The reason for the concept of green marketing has evolved due to the collapsing of our natural assets like eruption of soil, depletion of ozone layer, global warming, and other environment hazards. Here the study is focused on how to evaluate the relationship between green marketing tools and customers buying behavior and to understand the government policies that help in formulating green marketing policies. The data is collected through questionnaire where it is divided into six sections. The first part is for demographic details. Second part focuses on customers perceiving on environmental awareness. The third part focuses on pricing, fourth on product features, fifth focuses on promotion and the last is on our dependent variable customer buying behavior. The tools used for analysis is factor analysis, Descriptive and multiple regression analysis. From the study we find that the respondents agree that the environment awareness are helpful in providing content about the eco-friendly products, the other factors fall in line with the customer buying behavior. The hypothesis results show that the there is a significant relationship between Green product features and customer's buying behavior.

OBJECTIVES OF THE STUDY
1. To determine the service quality dimensions of Green Marketing in the study area.
2. To measure the impact of service quality dimensions on customer satisfaction.

HYPOTHESES OF THE STUDY
1. There is no significant difference among different dimensions of service quality.

2. There is no relationship between service quality dimension and customer satisfaction.

INFLUENCE OF SERVICE QUALITY DIMENSIONS ON DEMOGRAPHIC FACTORS

Gender is the important factor that determine the purchasing behaviour of the people.

Table – 1   Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
	1	260	52.0	52.0	52.0
Valid	2	240	48.0	48.0	100.0
	Total	500	100.0	100.0	

The above table shows that 52% of the male customers and 48% of the female customers are representing in this analysis of service quality dimensions of Green Marketing

Table – 2   Income

		Frequency	Percent	Valid Percent	Cumulative Percent
	1	146	29.2	29.2	29.2
	2	92	18.4	18.4	47.6
Valid	3	84	16.8	16.8	64.4
	4	89	17.8	17.8	82.2
	5	89	17.8	17.8	100.0
	Total	500	100.0	100.0	

From the above table it can be found that the sample unit is represented by 29.4% of less than 10,0000 yearly Income, 18.4% of 1-2 lakhs and 16.8% by 2-3 lakhs and 17.8% of 3-4 Lakhs and above 5 lakhs.
It shows that less than 1 lakh of income level is dominated than other income groups.

Table – 3   Occupation

		Frequency	Percent	Valid Percent	Cumulative Percent
	1	146	29.2	29.2	29.2
	2	126	25.2	25.2	54.4
Valid	3	116	23.2	23.2	77.6
	4	112	22.4	22.4	100.0
	Total	500	100.0	100.0	

The above table shows that 29.2% of self employed sectors, 25.2% of others,23.2% of Government sectors and 22.4% of the private sector.

It indicates that selfemployed sectors are higher than others, government sectors and private sectors.

REGRESSION ANALYSIS

The reliability consist of FIVE variables and it subsequent influence over customer satisfaction is measured through linear multiple regression analysis. The results are presented below

Table – 4 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.968[a]	.936	.936	.304

a. Predictors: (Constant), R5, R3, R2, R1, R4

From the above table it is found that R=.968 R square = .936 and adjusted R square .936. This implies the reliability variable create 93% variance over the customer satisfaction. The cumulative influence of five variables of reliability over customer satisfaction is ascertained through the following one way analysis of variance.

Table – 5 ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	670.101	5	134.020	1454.405	.000[b]
	Residual	45.521	494	.092		
	Total	715.622	499			

a. Dependent Variable: C1
b. Predictors: (Constant), R5, R3, R2, R1, R4

Table 5 presents that f=1454.405 p=.000 are statistically significant at 5% level. This indicates all the five variables cumulatively responsible for customer satisfaction. The individual influence of all this five variables is clearly presented in the following co-efficient table.

Table – 6 Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.140	.048		2.902	.004
	R1	-.035	.035	-.038	-1.006	.315
	R2	.320	.036	.300	8.844	.000
	R3	-.020	.024	-.028	-.829	.408
	R4	.289	.034	.334	8.480	.000
	R5	.402	.043	.427	9.341	.000

a. Dependent Variable: C1

From the above table it shows that reliability (Beta=-.038, t=1.006, p=.315),Responsiveness (Beta=.300, t=8.844, p=.000), Assurance (Beta=-.028, t=-.829, p=.408), Empathy

(Beta=.334, t=8.480, p=.000), Tangibles (Beta=.427, t=9.341, p=.000) are statistically significant at 5% level. This indicates that thequality of the Green Products highlighted create reliability among the customers and they measure them during the realization of satisfaction of service quality of Green Marketing.

FINDINGS AND CONCLUSIONS

1. Service quality dimensions are reliability, responsiveness, empathy, tangibles and assurance attracts many
2. Customers are prefer the Green Marketing only for the quality of the goods.
3. Customers are likely to prefer reliability than the other service quality dimensions.
4. Service quality dimensions of green marketing admire the customers and they are getting satisfaction.

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VEDANTA-THE MANAGEMENT TOOL FOR BETTER LIVING

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"Jantunaam nara Janma Durlabham"

Among all creations, human creation is not only the greatest creation, but also the difficult one.

"Aahara nidra bhaya maidhunamcha-samaname thath pasubhirnaranam".

There is no difference between human beings and animals in the aspects of intake of food, sleep, and fear etc. Onlywisdom identifies the man as he is.This is why man is called "buddhi jeevi". Education that makes a man's birth meaningful with good character leads to wisdom.This is the essence of real education. A true education is a beacon which shows the path to pass through the arduous journey of life, gives an immense strength for forbearance of ups and downs in ones life.

The present day culture is going through a toxic phase, which is creating panic in the society. There is a huge divide between education imparted and the mental status of the people.If a question arises about "What is a true education"?, an education not only should help an individual to rise to higher realms also it should help in the rising from the downfall of life. Such an education which imparts knowledge would help an individual to transform from animal level to a complete human being. The source of such education which imparts highest knowledge, acts as an anti dote is "Vedanta".Life is ever changing.The knowledge which is acquired should help developing observance to overcome the weak situations and also absorbing things which are relevant and ignoring which are not.Knowledge is confined to the books but should be related to the bottlenecks which one faces in the life, also should strive towards achieving the solutions for such problems.

 Even if the correct solution is not drawn for such situations, the perception, the changed outlook towards the difficult situation will transform the personality of oneself. It is for this reason, observed that there is a gap between the knowledge evolved from the customs and the practice in the daily life.

At times, though a man has a clarity in life as to what it ought to be and not ought to be, nevertheless, one falls prey to emotions and reacts to the situations intensely and gets into troubles. The moments of despair leads to the development of a human being, more than the happy situations. If one can learn from every experience of life, there can be a proper understanding towards it. Every one becomes a student as there is no end for learning. Let us try to understand how one tries to utilize Vedanta to find solution to his trials in ones life:

1.**Acceptance of trials**: Instead of questioning oneself, "why I am only inflicted"? and feel low, if one can move ahead with steadfast hope, it amounts to acceptance of life. Instead, if the problem is not accepted, one will succumb to emotions and gets into the grip of fear. One will also inflict others.

"thasmathpariharyardhe natwam shochitumarhasi"

Bhagavadgita.

One cannot cry on things which are uncontrollable, also cannot exercise control over the problems. The one who accepts the problems and encounters them, will be playing an active role in the life.

2**. Forbearance**:If there is any option of changing the intensity of a problem in the life, one should try attempting in that direction. Otherwise, one has to follow as is said in Bhagvadgita-

" Tham sthithikshaswa bharata"

Which means, "you will forbear such things". Similarly, one will bear such situations. For this purpose, one should have forbearance. This is known as a quality of maturity.

3.**Perceiving the reality as it is**: One should not rule out that are no issues for oneself, but at the same time , the issues should not also be magnified.Without bloating the emotions, if one could observe the reality and the intensity of the problem, more than the actual difficulty, the way we perceive it appears to be more intense. If one could imbibe this, the intensity of the trouble is reduced.

4. **Do not attribute love and hatred***:* When one looks at the problems within the frame of fear, it is perceived with hatred and appears to be more complicated. Because of the perceived fear, the problems remains unsolved. One will get into more internal conflict instead of getting rid of the problem. This conflict leads to inferiority complex develops the suicidal tendency. All these are created by oneself. So one should perceive the problem objectively   instead of subjective outlook. Instead of perceiving the issue with our outlook, if it is absorbed as it is, one could try finding more dimensions towards solutions. The appropriate solutions should be understood, accepted, imbibed and applied in the life it becomes easier and does not lead to chaos.

5.**Awareness:** The problem is independent of sorrows or will not create any emotions. The sadness arise only when one tries to defy the reality in the problem along with the imagination of the consequence with great intensity.   One should always try to introspect the reactions towards the issue and try to control and analyze, then there is a chance of finding answer to the situation.

6. **Analysis***:* As per Bhagavadgita, while doing the work one should have the following feel:

 "karmanyevadhikaaraste maa phaleshu kadachana, maakarmaphalaheturbhuhu mateasangostwakarmana"

Which means,

One has the authority in choosing the work, but doesnot have any control over the result.

7.**Prasada buddhi**: When one completes the task, it gives a result which could be a favourable or unfavourable to oneself. One has to grasp that there is an unseen, intricate and a valuable resultexisting within the work. One should exercise the discretion in choosing the work. After one has completed the execution of the work, the result should be taken with equanimity irrespective of the type of the result.where there is no expectation on the result and accepting it as it is, is referred to as "Prasada Buddhi".The outcome of this quality is one can accept the result and develops the wisdom and performs many more jobs with much

enthusiasm. Ex. Thomas Alva Edison, after attempting 99 times to invent the bulb, which was futile, has accepted the result happily and identified his mistakes in every attempt and rectified for the next attempt and achieved success in his 100th attempt.

"Prasade sarva dukhanam haani rasyopa jayathe"

Which means- all sorrows can be disappears when one possess prasada buddhi. The essence of life is live the life with happiness. If there are no sadness that is bliss. One should correlate the essence of Vedanta to the daily life. Only then the life can turn to blissful mode.Without any contest, one can submit that such knowledge acts as a medicine with divinity, which is imparted through Vedanta strengthens oneself.

INTEGRATION OF CLOUD COMPUTING WITH INTERNET OF THINGS AND THE ISSUES INVOLVED

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ABSTRACT: *Today, everything is going to be connected to the internet. Internet of Things is a new technology which is growing rapidly. IoT allows billions of devices to be connected and share information by communicating to each other device. On the other hand, user can access network, database, storage, applications on demand using cloud computing. Mobile and wireless users can access all the information that is required in the IoT by using the cloud. So, it is important to integrate it with cloud computing. Both are already part fo our life and important component of the future internet. This paper deals with overview of the integration of the cloud with the IoT. There integration bears some key issues which are also discussed.*

Key Words: Cloud Computing, Internet of Things, Integration, Issues

INTRODUCTION

Ethiopian IoT is becoming so prevalent that it is becoming an issue to handle the data produced by its objects. IoT has limited capabilities. For this, one of the solution is cloud computing. In near future, number of connected devices would be greater than the number of people on the earth. Time demands integration of IoT and Cloud Computing. The integration of cloud computing with the IoT provides convenience to storage and reduces complexity and cost to data management.

1.1 Internet of Things

Internet of Things is a system of interconnected devices. IoT has changed the current meaning of internet to advanced internet. In which all physical objects are identified uniquely and these objects communicate to each other through various data communication methods. Objects include physical entities like sensors or digital devices that perform some computational tasks. So the main purpose of IoT is to transform our living style by developing ambient intelligent devices which will perform our daily task and chores automatically without intervention of human being. It will bring huge changes to future society and future business infrastructure. The IoT architecture is usually considered to have four layers:

1.1.1 Perception Layer: It is also known as "Sensor" layer. This layer collects all information from the physical objects and identifies the real world with the help of object properties, physical equipment like RFID reader, Sensor, GPS etc.

1.1.2 Network Layer: Data routing and reliable transmission of information between different IoT nodes and devices over the internet through perceptual layer is provided by this layer. To exchange information between devices, internet, mobile network infrastructure and communication protocol are required.

1.1.3 Processing Layer: It is the middle layer between application layer upward and network layer downward. In this layer, all types of intelligent computing power are to be organized using network grid and cloud computing

1.1.4 Application layer: It is user level layer. User can access IoT through the direct interaction by application layer. This layer provides authenticity, integrity and confidentiality of data. This layer guarantees services to user according to their requirements.

1.1   Cloud Computing

Cloud computing is a recent trend in IT. It provides computing, storage, services and applications over the internet and users don't need to think about maintenance and management of all the resources. Only they have to pay the cost of services, provided by cloud. It is called Pay-as-You-use. Cloud computing is broadly divided into four categories: Software as a Service (SaaS), Platform as a Service (PaaS), and Infrastructure as a Service (IaaS). SaaS runs on distant computers that are owned and operated by others and through this, users connect to cloud. Users don't need to install and maintain the application. But to access the services, they only need internet connectivity. Saas services provider rents out these services in the cloud. User need not to invest into their own hardware. Services are provided on demand. PaaS is a complete development with all toolkits and resources. This enables user to deliver everything through cloud. For this, users need to purchase resources; they need from a cloud service provider and can access these resources using internet connectivity. IaaS is a self-service model to access, monitor and manage remote infrastructure. IaaS provides rental basis storage services and computation. Using IaaS, user not only stores their data but also can access this data all over the world through internet. Naas provides to users a virtual network. Any number of networks can be created by user with difference type of nodes, policies etc. using NaaS. Naas providers have specific focus areas. User can avoid a lot of the capital investment expenses for network hardware. Some main features of cloud are outlined to determine its functionality.

1.2.1 Cloud Storage: It uses Transmission Control Protocol/ Internet Protocol (TCP/IP) to link server and storage devices. Using cloud computing user can store data on the internet. Cloud computing provider manages all data storage and user needs not to take any tension. This stored data can delivered on the demand of user.

1.2.2 Cloud services: Cloud provides to users online services at any time all over the world over internet.

1.2.3 Security: It provides enhanced security. If user loses their personal devices, they can backup their data using cloud. Disaster involving hardware doesn't halt user business processes.

1.2.4 Energy Efficiency: In current trends, user demands wide range of services within optimal resources and minimal cost. Cloud computing delivers more services for same energy input.

1.2.5 Cloud Computation: A system is high computing device if it meets the requirement and provides results as we want by making the right calculations. A cloud environment leverages a shared IT infrastructure and reliable internet connection to users. Now user needs not to carry floppies, USBs etc. to access stored files. Users use multiple applications to handle workload challenges quickly from anywhere using any device.

1. INTEGRATION OF IoT AND CLOUD:

The number of connected devices is more than the total population of the earth and is growing more rapidly. Since there is going to be a lot of data as well. Such huge data can't be stored locally and temporally. So storage space is going to be needed to store this huge data on rent. And also, this data must be utilized in right way. This data can be processed and accessed by the user at any time and on demand. The processing of such huge data is not possible at the IoT end, where IoT devices are low cost and light weighted. Processing and Computation must be available there on rental bais. There comes cloud computing. IoT and Cloud Computing have seen a different evolution. Cloud computing can be used as a base technology in the use of IoT. Integration of cloud and IoT have several advantages and can be seen in the future. By integrating cloud with IoT, special features of cloud like virtual unlimited resources and capabilities can be added to IoT. Cloud provides such a platform to IoT that consumes data produced by objects. Some advantages of integration of IoT and Cloud are:

2.1 Storage Capacity: IoT can connect a number of objects which produce a lot of data. IoT have to do processing. It is convenient to use cloud to deal with such data and provides low cost and on demand storage and also provides security by using standard APIs.

2.2 Computational Capabilities: IoT devices have limited processing capabilities resources and also these resources don't provide on-site data processing. Data is transmitted to powerful devices where data processing takes place. But this transmission is impossible to achieve without proper channel. So cloud can be used with IoT to satisfy and enable processing needs. Cloud has unlimited processing capabilities and provides data on demand.

2.3 Communication Capabilities: IoT provides communication of IP-Enabled devices though dedicated hardware but such communication is very expensive. Cloud provides cheap solution for this communication. Cloud helps IoT to connect to remote objects in cheap and effective way.

2.4 New Capabilities: IoT is a high heterogeneity device and protocols. That's why it is very efficient to achieve interoperability, efficiency, security, scalability and reliability. But cloud computing solves such problems to certain extent.

2. CHALLENGES FACING INTEGRATION OF CLOUD AND IoT:

Though the integration of IoT and cloud computing have many merits, there are many issues which could prevent the IoT integration with Cloud. These issues include:

3.1 Protocol Support: Protocols are used to connect different objects through internet whether objects are homogenous or non-homogenous. Sensors in IoT may work on different protocols. Some protocols may be supported by gateway devices or some may be not. From the user's point of view, a cheaper and easily accessible sensor would be preferable. It cannot be guaranteed whether a sensor which is newly added will be successfully configured or not. So mapping of standardized protocols in the gateway is a solution of this problem.

3.2 Service Manager: Cloud manager provides new services to the users. Any object or mobile can take part in IoT at any time and can also leave IoT at any time. So it would be an issue to discover new services and accordingly update these

services. For all of this, IoT manager may be necessary to perform all duties like manage the IoT nodes status, track mobile nodes and keep the track about updated status of existing and newly added nodes in IoT.

3.3 Data Storage: Location for data storage is also a big issue on different ways. It would be better to store time sensitive data in original location which would be nearest to the users.

3.4 IPv6 Deployment: We have started to use IPv6 because IPv4 address space has run out. For IPv6, a proper efficient and standardized mechanism should be available.

3.5 Latency: Latency is the time between offloading the computation and getting back the results from the cloud.

3.6 Big Data: IoT is the core source of big data and cloud provides the storage of this huge data. Handling such huge amount of data is a big issue because all performance dependent on data management service. A perfect solution of data management is still a big issue.

3.7 Energy Efficiency: Data is frequently transmitted from IoT objects to the cloud, which consumes node energy fast. It is an issue to generate efficient energy to process and transmit the data.

3.8 QoS: Quality of services is determined by bandwidth of channel, packets loss ratio and delay of packets. It is also an issue as amount of data and its type is increasing.

4. CONCLUSIONS:

The IoT is a important computing service which requires huge amount of data storage and processing capabilities. But IoT has limited capabilities. So the integration of cloud computing with the IoT provides convenience to storage and reduces complexity and cost to data management. Cloud offers many possibilities, but also place several issues as well. In this paper, we represented Internet of Things technology with an explanation of its types and uses. Moreover, we represented the some features of cloud computing. At the end, the key issues of the integration of IoT and Cloud Computing were discussed. Regarding the rapid development of both technologies, the issues must be solved or reduced to produce a better integration model.

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A STUDY OF CUSTOMER SATISFACTION REGARDING HEALTH INSURANCE IN HARYANA

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Abstract

Purpose- The purpose of this paper is to find out the customer satisfaction level and problems of the health insurance policy holders, having insurance policies from various private and public companies.

Design/methodology – Descriptive study has been conducts in Haryana. Data is collected with the help of questionnaire from 500 respondents. Interviews are also conducted with marketing executives of the health insurance companies to understand the satisfaction level of the customers regarding premium, claim settlement & compliant handling. Quantitative aspects are based on frequency distribution, pie charts & Mann Whitney u test to find out the satisfaction. Also factor analysis has been done to study the problems faced by customers

Findings: Study has found that customers are satisfied with the services of health insurance companies. Majority of the respondents will renew the policies once they will expire. "Time taken by the companies issuing the policy"" Guidance provided by the employees" considered to be very important by respondents. Those who had made claims considered "claim processing time" "Claim settled with in terms and conditions" as important factors.

Research Implications- Study has been conducted in Haryana only. Study conducted at different place may conduct different results.

Practical implication :- Present study emphasis on factors influenced the customer decision will help top management to develop the product according the changing requirements of customers and to marketing &Sales force for effective marketing and for developing master plan.

Keywords :- health insurance, customer perception, purchase factor, Mann Whitney u test

Introduction
A satisfied customer is the best business strategy of all.

Michael LoBoeuf

The service industry, customer is the king customer satisfaction is directly experienced by the customers with the services provided by insurance companies. With advent of technology and knowledge about the insurance products customers are centrally using internet to get all the details of the prices and products of the companies and can easily compare with the other companies product. So marketing department of the insurance company's tent to attract the customers with attractive schemes, to give better services to the clients. Insurance companies with attractive products appointing experienced staff those who serves customers better. Potential customers always trust the experience of existing client word of mouth advertisement attracts many potential customers.

In insurance policies customer satisfaction is related with getting a product easily rate of premium, claim processing and settlement time and complaint handling mechanism. So customer satisfaction leads to look for new customers with the expansion of existing customer base.

Customer satisfaction also leads to customer loyalty which leads to repurchase of the products. Increase in competition in insurance market, all the companies wants to attract the customer with prices, quality of services.

Similarly in health insurance market customers plays an important role. Customers are now a days more aware about the health insurance products. On the basis of cost, coverage of diseases hospitals, services provided by the companies, compare the service of Health insurance providers. Health is the major concern with all of us. So companies tries to give better services which leads to improve customer satisfaction. In this section satisfaction of the consumer is tested with the help of asking questions regarding insurance of policy, claim settlement and complaint handling mechanism.

Literature review
Following studies have been found regarding health insurance:-

Jacaob A(2018) studied customer perception towards health insurance in Ranny thaluk. 50 respondents have been studied. It is found that 36% of respondents are satisfied, 20 % of respondents are highly satisfied, 10% are dissatisfied. Study showed the major reason for choosing particular health insurance company is easy accessibility of Linked hospitals followed by prompt claim procedure with least formalities.

Vijay A, Krishanaveni (2018) Found that majority of policy holders resides in semi urban comprises 52.66 % male and 47.33% females. According to the study respondents are more satisfied with private health insurance as companies than public companies. Group policy holders are more satisfied than family floater and individual health insurance policies. Renewing the policy and selection of the company is the important factor regarding customer satisfaction.

Varier M (2016) studied satisfaction level of policyholders of public and private health insurance companies. On the basis of premium charged people are more satisfied with private companies. People are least satisfy with public sector insurance companies on basis of pre-hospitalisation service. It is found that claim settlements are easier with public sector companies. In conclusion, Private insurers plays important role than public sector.

Joshi & shah(2015) attempts to know the perception among customers towards health insurance of various service providers to find out customers purpose and various factors for

purchasing Health insurance. They concluded that age, risk coverage, tax benefits, protection against high unexpected medical cost, ease of premium and extra risk coverage are factors which influence the buying decision of consumer regarding health insurance policies.

Garg Arunesh(2013) investigates the satisfaction and problems of the health insurance policyholders of various public sector and private sector general insurance companies. Policy holders have generally complained of delay in policy issue, excessive documentation, non-responsiveness and non-cooperatives on the part of company and its officials, delay/denial in case of claim settlement, lack of transparency etc.

Beenish Shameen & Dr. Sameer Gupta (2012) evaluated the marketing strategies in insurance sector & how these strategies to boost sales & marketability of product which ultimately lead to customer satisfaction. It concluded that companies instead of focusing only on improving the variety of products needs to focus on targeting new segments and Implement innovative strategies in order to achieve sustained growth and ensure profitability of business as well as growth of insurance coverage.

Mohammed et al(2011) studied understanding client satisfaction with a health insurance scheme in Nigeria. Marital status, general knowledge and awareness of contributions positively influenced client's satisfaction. Length of employment, salary income, hospital visits and duration of enrolment slightly influenced satisfaction, improved knowledge and better awareness of the scheme's activities by enrollees could be augmented through the provision of requisite available information to insured at all times.

Rao(2005) in his study figured out that policyholders expect fairness in evaluation of claims. Customers should be provided with adequate and clear information regarding claim settlement process, dealing hand, timescales involved in processing of claims and reasons for rejection of the claims.

Sharma (1993) studies satisfaction with the services of Employee state Insurance Corporation. It is found that dissatisfaction of the insured is due to unavailability of medicines, delay in reimbursement, inconvenient dispensary timings, poor physical facilities.

Research Objectives:
Following are the objectives of the paper;
- To examine the satisfaction level of the customer regarding health insurance policies.
- To study the chances of renewing the policy and with the same company.

Research Methodology
Health insurance sector holds lots of potential in Indian Market. Increase in health care cost consumers tends to invest more in health insurance. Policyholders are getting tax incentive on premium paid.

Data analysis
Present study has been done in major districts in Haryana.Ambala,Kurukshetra, panchukla ,Hisar, Yamunagar, Sonipat, Karnal, Panipat has been taken for study. These districts of Haryana is very prominent as per 'Statistical Abstract of Haryana" .Literacy rate in these districts is more than 75%, whereas per capita income of the districts are more than Rs. 50000. Primary data was used in the study. Required information was collected with the help of a well-structured questionnaire. Questionnaire for the study contained open ended & close ended questions. Data is collected from the health insurance users. Likert-scale has been used in questions to study the factors. Likert scale depicts the value 1 for strongly

agree and 5 for strongly disagree. Data has been collected with the help of questionnaire from 550 respondents and 500 found suitable for the studies. From 500 respondents, there are 349 respondents are having health insurance and 151 respondents are not having health insurance. Various questions have been asked regarding the satisfaction about health insurance of the respondents.

From the data, it is found that customers invested in public and private sector companies. Whereas maximum number of respondents invested in standalone health insurance companies. Data shows that 63.3.% respondents purchase health insurance through family floater scheme followed by 34.7 % invest through individual health insurance schemes.

Demographic profile of respondents

Majority of respondents are male members, decision regarding finances in the family majorly take by male members of the family. Majorly respondents are from age of 41-50 years (37.2%) followed by 31-40 years(25.6%),age group of 51-60 years having 16.4 % respondents whereas below 30 & above 60 are having approx 10 % respondents. Whereas Education is concerned, 39.2% of respondents are postgraduate, 29.6% of respondents are graduates 17.2 % of respondents are having secondary qualification. From the above table, Income 44% of respondents are having income more than 5 Lakhs followed by 28.8 % are from 3 lakh to 5 lakh income group. 27.2% are from income group of 1 lakh – 3 Lakhs.

Data Analysis

Data has been collected in districts of Haryana with the help of well-structured questionnaire. For analysis frequency distribution, Mann- Whitney u test, pie charts and graphs has been used.

Table 1: Frequency distribution of respondents regarding the services of the company

		Frequency	**Percent**
Do you agree the services provided by insurance company are delivered effectively?	Yes	309	88.5%
	No	40	11.5%
	Total	349	100.0%

Table depicts that consumers those who have availed health insurance are satisfied with the services of health insurance providers. Table shows 88.5% consumers are satisfied with the services whereas only 11.5% respondents are not satisfied.
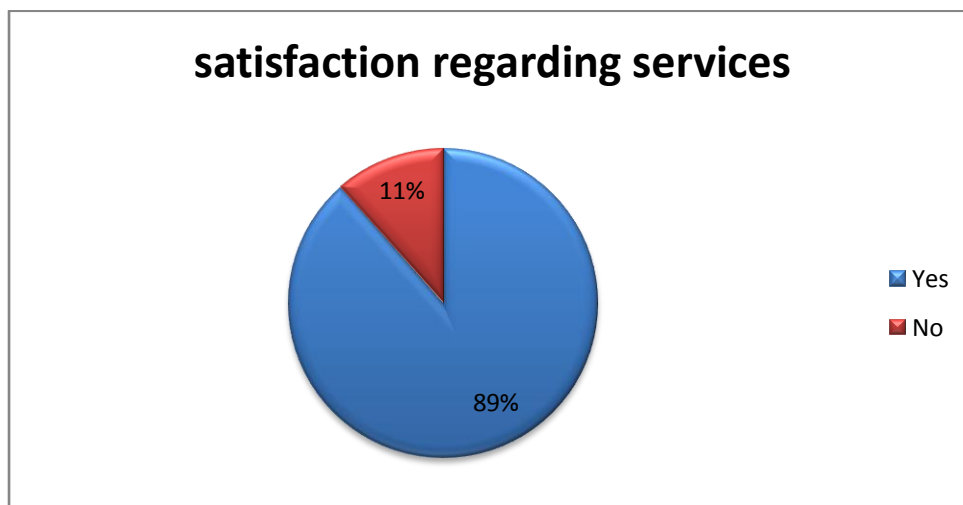
Fig 1 : satisfaction regarding services.

Above graph shows that majority of respondents are satisfied with the services provided by health insurance providers.

Table 2 : Frequency distribution of respondents regarding the stay with plan

		Frequency	**percentage**
Q : If you get a chance to change the plan or the company?	Very likely to stay with the plan or company	258	73.9%
	Change the plan or company	91	26.1%
	Total	349	100.0%

Fig 2: chances to change the plan
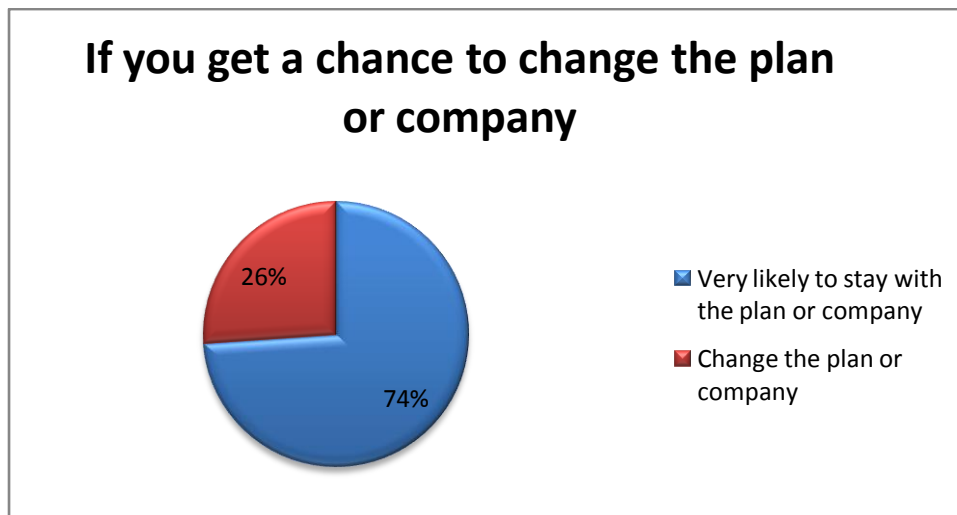
Table 2 & fig2 depicts that respondents if get a chance want to change the plan or the provider. It shows that customers are satisfied they don't want to change the policy or the provider and if the customers are not satisfied with the services, they are likely to change the plan. Study shows that 73.9% respondents are very likely to stay with the plan and company. 26.1% respondents want to change the plan or the company.

Table 3 : Frequency distribution of respondents for renewing the policy.

		Frequency	**percentage**
What are the chances of renewing the service after the expiry of present policy?	100%	246	70.5%
	50%	69	19.8%
	25%	34	9.7%
	0%	0	0.0%
	Total	349	100.0%

Table depicts that there are 100 % chance of 70.5% respondents will renew the policy after the expiry of the present policy. 50% chance of 19.8% respondents that they will renew the service after the expiry of present policy.Still 9.7% respondents are having 25% chance for renewing the policy.
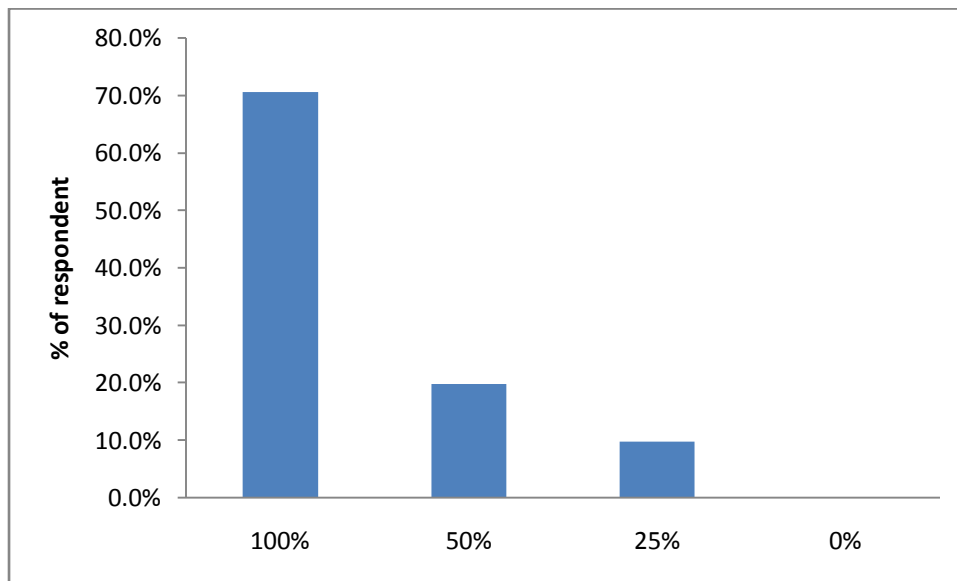
Fig 3: renewing the policy after expiry
Above graph represents the respondents those who are likely to renew the policy after the expiry of present policy.

Table 4 : Ranking regarding the services of health insurance provider

Gender		N	Mean Rank	Sum of Ranks	Mann-Whitney U (z)	p-value
Guidance & corporation of employees at the time on taking up policies	Male	191	180.18	34413.50	1.191	.234
	Female	158	168.74	26661.50		
Procedure while taking policy	Male	191	161.07	30764.00	3.007	.003**
	Female	158	191.84	30311.00		
Time taken for issuing the policy	Male	191	158.40	30254.00	3.616	.0001**
	Female	158	195.07	30821.00		
Mode of premium payment is suitable	Male	191	169.42	32359.50	1.212	.226
	Female	158	181.74	28715.50		
It is easy to buy health insurance policy	Male	191	171.98	32847.50	.643	.520
	Female	158	178.66	28227.50		

The Mann-Whitney test basically replaces all scores with their rank numbers: 1, 2, 3, 4, 5 through 18 for 18 cases. Higher scores get higher rank numbers. If our grouping variable (gender) doesn't affect our ratings, then the **mean ranks should be roughly equal** for male and female. Our first commercial shows the largest difference in mean ranks between male and female respondents. Table 1 exhibits that "Time taken for issuing the policy" shows the largest difference in mean ranks between male and female respondents: females seem much more enthusiastic about it. The reverse pattern -but much weaker- is observed for "It is easy to buy health insurance policy". Since p-values for "Procedure while taking policy" and

"Time taken for issuing the policy" are 0.003 and 0.0001 (<0.01), hence females rates the "Procedure while taking policy" and "Time taken for issuing the policy" more favourably than male**.** The others "Guidance & cooperation of employees at the time on taking up policies", "Mode of premium payment is suitable" and "it is easy to buy health insurance policy" didn't show a gender difference (p > 0.05).
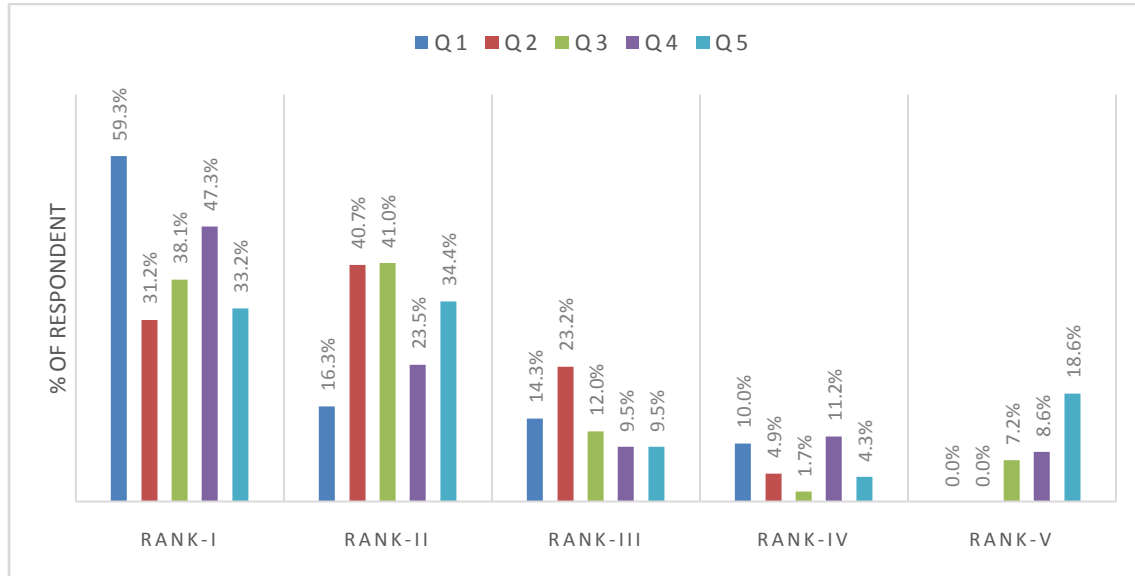
Fig 4: Experience regarding health insurance service providers

Table 5: frequency distribution regarding claims

		Frequency	**Percent**
Have you ever made a claim for health insurance?	Yes	191	54.7%
	No	158	45.3%
	Total	349	100.0%
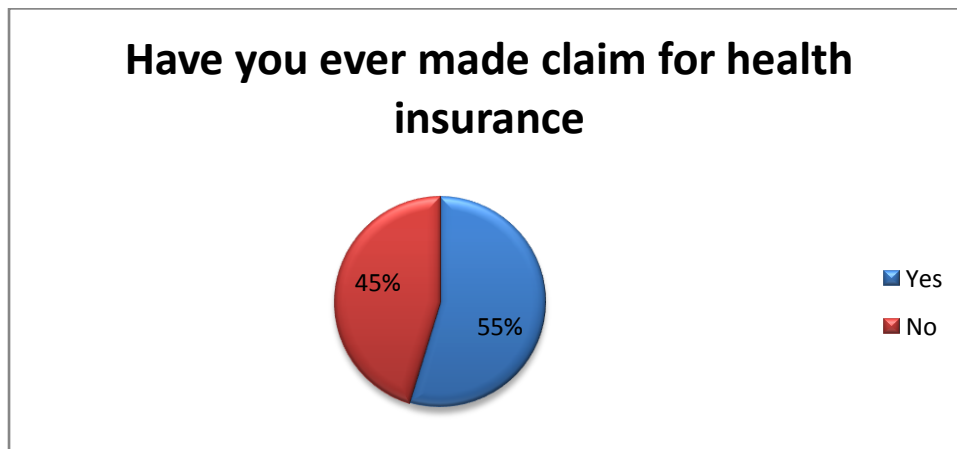
Table depicts that there are 54.7% respondents who had made claim of their health insurance policy.45.3% respondents never made a claim.

Table 6 : Distribution table of experience of respondents regarding the claim settlement

Gender		N	Mean Rank	Sum of Ranks	Mann-Whitney U (z)	p-value
Claim processing time	Male	119	97.33	11582.50	.494	.621
	Female	72	93.80	6753.50		
Amount sanctioned by the company	Male	119	92.45	11002.00	1.226	.220
	Female	72	101.86	7334.00		
Documentation required for claim settlement	Male	119	86.82	10332.00	3.068	.002**
	Female	72	111.17	8004.00		
Time taken by TPAs	Male	119	100.35	11942.00	1.459	.145
	Female	72	88.81	6394.00		
Claim settled with limited terms and conditions	Male	119	96.55	11490.00	.188	.851
	Female	72	95.08	6846.00		
Less no of hospital empanelled	Male	119	94.26	11217.50	.606	.545
	Female	72	98.87	7118.50		
Expected amount not settled	Male	119	95.90	11412.00	.034	.972
	Female	72	96.17	6924.00		
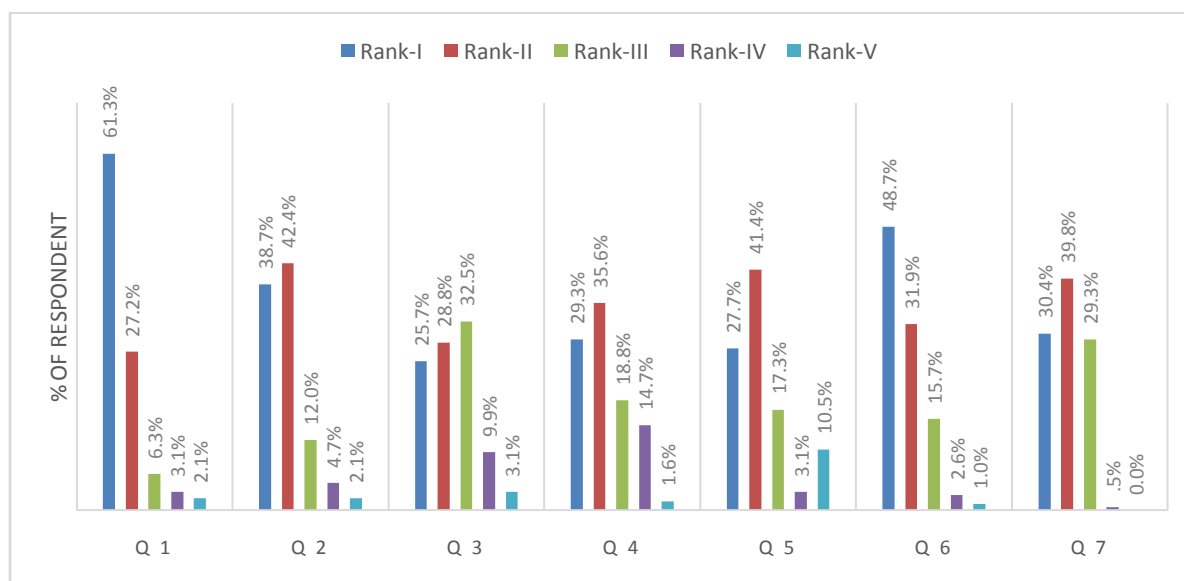
The Mann-Whitney test basically replaces all scorers with their rank numbers: 1, 2, 3, 4, 5, 6, and 7 through 18 for 18 cases. Higher scores get higher rank numbers. If our grouping

variable (gender) doesn't affect our ratings, then the **mean ranks should be roughly equal** for male and female. Our first commercial shows the largest difference in mean ranks between male and female respondents. From Table 1, we can reveal that "Documentation required for claim settlement" shows the largest difference in mean ranks between male and female respondents: females seem much more enthusiastic about it. The reverse pattern -but much weaker- is observed for "Expected amount not settled".

Since p-values for "Documentation required for claim settlement" is 0.002 (<0.01), hence females rates the "Documentation required for claim settlement"more favorably than male. The others "Claim Processing time", "Amount Sanctioned by the company", "Time taken by TPAs", "Claim settled with limited terms and conditions", "Less no of hospital empaneled" and "Expected amount not settled" didn't show a gender difference (p > 0.05).

Conclusion & findings

Customer satisfaction plays very important role, for a company satisfaction will always leads to retention, loyalty, profits. Customer satisfaction surveys always helps companies to find the operational problems as soon as they arise.
Following are the major findings from the survey:

- Nearly 88% customers are satisfied those who availed health insurance services.
- Majority of respondents, if they get chance to change the plan or company then 73.9% respondents likely to stay with the plan.
- There are 100% chances for renewing the policy after expiry.
- "Guidance & corporation of employees" at time of taking up policies ranked highest by the respondents regarding their experience with health insurance companies i.e 59.3% followed by "time taken for issuing the policy" ranked second, respondents are satisfied by the services provided by companies. "Mode of premium "is found satisfactory while using health insurance policies.
- 54% respondents have taken claim for health insurance. They are satisfied with "claim processing time" "amount sanctioned by the company" has the highest rank.

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A PRAGMATIC STUDY ON THE SELECT MANAGERIAL PRACTICES OF PUBLIC & PRIVATE SECTOR BANKS TO BUILD WORK LIFE BALANCE OF WOMEN EMPLOYEES IN TELANGANA STATE

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Abstract

Women has performed multiple roles and balanced these responsibilities significantly forever, every woman employee has always faced tremendous obstacles ahead of her in every corner of personal and career life narrowing the immediate need of work-life balance. Post globalization India witnessed maximum number of changes in working scenarios of women employees, however the plight of women employees still screams for help in the segment of job satisfaction and life satisfaction resulting work life balance. The spotlight of this paper is on how effecting these managerial practices are on the life of women employees in the banking sector of Telangana state. This paper is intended to focus on the impact of these factors on women employees and need of the essential concept of "work life balance" as well. This paper further throws light on the importance of work life balance achievability of women employees being the most primitive necessity.

1.1 Introduction

This research focuses on studying the various managerial practices implemented to build work life balance of women employees in public and private sector banks of Telangana state. This paper analyses the managerial practices of the banking sector of Telangana corresponding to the main objective,-"*To study the managerial practices of the select public and private banks to set up Work-Life Balance of Women employees*".In order to achieve this statistical tools are employed on the data received from the respondents of both public (SBI) and private (ICICI) banks consecutively and tested in SPSS Package version 16.

1.2 Review of Literature:

o **Renuka Devi S.V.** and **Kanagalakshmi L. (2015)[5]**The objectives of the study searched stress related factors influencing work-life balance of women in I.T sector as well designed tools to measure and compare these factors. The findings of the

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[5]Renuka Devi S.V.; Kanagalakshmi L. (2015), Factors Influencing Work Life Balance of Women Employees in Information Technology Companies, IOSR Journal of Business and Management, Vol.17 Issue.6 P.01-04

study revealed two predominant factors (psychological factor & extricating strategy) causing stress in women: further most, the research study recommended extricating *strategy* to bring out women from the psychological perturbs leading to work-life balance. However, the research conducted on these I.T sector women concluded that though women in Indian society cannot forego the domestic responsibilities and the 365/24/7 schedule operating in the organization demand huge advancements in every venture resulted in vast work life imbalance leading to abundance stress and pressure health wise.

o **Poonam Sharma; Dr. Purshottam Dayal (2015)**[6]has carried out the research work on 300 women employees experiences working with public- private and co-operative sector banks. The study aimed to explore various influencing factors of women employees Work Life challenges, and also gained better insight between public and private sector banking policies related to Work-life balance existing with them. The major findings were 78% from public sector, 93% from cooperative sector and 89% from private sectors women employees stated they couldn't pursue their career with the same pace after marriage and child birth 'break' responsibilities and striking a balance between them is harder on either end. However the statistics also revealed that more than 70% of women employees from all the three sectors accepted the fact that there marital relationships are negatively influenced with work schedules. The final suggestions given out by them were Time Management, flexi Hours and prioritization of work and life responsibilities.

o **J. Sudha; Dr. P. Karthikeyan (2014)**[7] The study concluded with certain strategies such as planning, organizing and setting limits by the women employee to be applied at home and as well in organization by both the players for resolving the imbalances among work and life.

o **Ajayi Mofoluwake Paula (2013)**[8]The study carried out with an objective to scrutinize work life policies, determinants, work schedules, coping strategies existing among women to achieve work family balance in the banking sector and the sample five banks of Nigeria region resulting in few of the major findings as, Maternity leave policy being limited to 3 months and the extension of this is dependent on the status (relation with superiors) of women desiring for it. Time factor is another crucial requirement deprived by the women to spend for family, coping strategies viz. delegating duties, multitasking, sleeping late, waking up early enough, waiving leave, setting alarms as reminder couldn't achieve work-life balance as perceived. The study concluded that banking sector in Nigeria is a 'non conventional female field' and emphasized the feat or failure of any system to its organisation culture, it further calls for a systematic approach rather than individual-based to implement work-life balance policies effectively.

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[6]Poonam Sharma; Dr. Purshottam Dayal (2015) Work - Life Balance : Women Employees Working In Banking Sector Of India, International Conference On Recent Research Development In Environment, Social Sciences and Humanities, University of Delhi-India, ISBN No: 978-81-931039-8-2 P.188-195

[7]J. Sudha; Dr. P. Karthikeyan (2014), Work Life Balance Of Women Employee: A Literature Review, International Journal of Management Research & Review, Vol.4 Issue.8 P. 797-804 ISSN: 2249-7196

[8]Ajayi Mofoluwake Paula (2013), Work-Family Balance Among Women In Selected Banks In Lagos State- Nigeria, Thesis submitted to Covenant University Department of Sociology; Dec-2013

- o **Divya Negi and Seema Singh (2012)[9]** stated in there comparative studies about work-life balance in banking sector that employee perform better when their personal and family interests are met.
- o **Ratzon et al., (2011)[10]** stated that work-life balance policies positively influence negative staff retention, decreased negative spill-over's, fatigue, reduced extended hours of work, higher productivity, resulting in minimal stress as well as better, healthier, and safer lifestyles of an individual at work place

1.3 Objective of the Study:

1. To study the managerial practices of the select public and private banks of Women employees

2. To study the managerial practices of the select public and private banks to set up Work-Life Balance of Women employees in Telangana State

1.4 Managerial Practices of Public and Private sector Banks to set Work-Life Balance:

To Study about the Managerial Practices to set Work Life Balance of women employees in public and private sector banks of Telangana State this research is further progressed by applying Factor Analysis to the respondent's information. The Managerial Practices construct consists of seven sub-variables in five point rating Likert Scale. The application of factor analysis over these seven variables derived the following results, the basic representation of each managerial practice at public and a private sector bank are tabulated in the table 4.1 below with the codes mentioned for factor analysis and is run in SPSS version 16:

Table 4.1: Managerial Practices of Public & Private Banks

Item Code	Description of each Variable where N= 186 (ICICI) + 174 (SBI)= 360 (Total respondents)
WLB_{68}	organization provides medical insurance to me and my family
WLB_{69}	organization offer transport facility for women safety
WLB_{70}	Flexible working arrangements like work from home, flexi time, compressed hours are executed effectively for women employees
WLB_{71}	organization offers study leaves for women as part of career development program
WLB_{72}	Wedding break or marriage leave is given to women employees
WLB_{73}	The salary is on time as a Work Life Balance initiative to develop employee satisfaction and motivation
WLB_{74}	The maternity benefits-medical insurance provided by the organization to build WLB

1.5 Hypothesis:

[9]Dr. Divya Negi & Seema Singh (2012) 'Work Life Balance for Banking Employees: A Comparative Study', International Journal of Research in Commerce, Economics & Management Volume No. 2 (2012), Issue No. 6 (June) ISSN 2231-4245, Pp: 115-118
[10]Ratzon, N., Schejter, T., Alon, E., & Schreuer, N. (2011). Are young adults with special needs ready for the physical work demands? Research in Developmental Disabilities, 32 , 371–376, ELSEVIER

H$_O$:   There is no significant association between the managerial Practices to build work life balance of women employees in public sector banks and private sector banks of Telangana state

H$_a$:   There is significant association between the managerial Practices to build work life balance of women employees in public sector banks and private sector banks of Telangana state

    i.   **Descriptive Statistics:** In this context all the variables of managerial practices are subjected to calculate descriptive statistics using Mode and Frequencies in SPSS version.16. in the table below:

Table.4.2: Descriptive Statistics measuring Mode and Frequency

Description	WLB68	WLB69	WLB70	WLB71	WLB72	WLB73	WLB74
N	360	360	360	360	360	360	360
Mode	4	4	4	4	4	5	4
Frequency	156	98	92	130	144	154	144
Percent (%)	43.33	27.22	25.55	36.11	40	42.77	40

      All the above seven sub variables of Work-Life Balance practices describes about the various work-life balance practices provided tothe women employees at the bank. Therefore descriptive statistics has been applied to all the variables of the data to check the statistic measures of central tendency, the calculated Mode score andFrequencies are shown in Table. 4.2.Further from the above it has been illustrated that for all the seven variablesof work-life balance practices formulated in the banking sector the Mode score is 4 and 5 representing strongly agree and agree choice of women employees at banking sector. The computed response of both public and private sector Bank women employee's shows that the variable work-life balance practices (strongly agreeing) is found to be in the similar direction with calculated percentage values ranging from 27% to 43%. Additionally, correlation analysis is performed.

    ii.   **Correlation Analysis:**

Correlation analysis is performed to measure the strength of association between the variables of work-life balance practices to build work-life balance of women employees.

Table.4.3: Correlations

			WLB68	WLB69	WLB70	WLB71	WLB72	WLB73	WLB74
Spearman's rho	WLB68	Correlation Coefficient	1.000	.220**	.027	.215**	.262**	.303**	.376**
		Sig. (2-tailed)	.	.000	.608	.000	.000	.000	.000
	WLB69	Correlation Coefficient	.220**	1.000	.613**	.387**	.511**	.159**	.188**
		Sig. (2-tailed)	.000	.	.000	.000	.000	.002	.000
	WLB70	Correlation Coefficient	.027	.613**	1.000	.567**	.512**	.021	.087
		Sig. (2-tailed)	.608	.000	.	.000	.000	.697	.097
	WLB71	Correlation Coefficient	.215**	.387**	.567**	1.000	.439**	.237**	.320**
		Sig. (2-tailed)	.000	.000	.000	.	.000	.000	.000
	WLB72	Correlation Coefficient	.262**	.511**	.512**	.439**	1.000	.291**	.274**
		Sig. (2-tailed)	.000	.000	.000	.000	.	.000	.000
	WLB73	Correlation Coefficient	.303**	.159**	.021	.237**	.291**	1.000	.451**
		Sig. (2-tailed)	.000	.002	.697	.000	.000	.	.000
	WLB74	Correlation Coefficient	.376**	.188**	.087	.320**	.274**	.451**	1.000
		Sig. (2-tailed)	.000	.000	.097	.000	.000	.000	.

**. Correlation is significant at the 0.01 level (2-tailed).

Further, from the above Table **4.3** the correlation coefficient value is found to be positive. Hence there is a positive correlation between all the sub-variables of work-life balance practices. Therefore it can be concluded that the work-life balance of women employees increases with the increase in the formulation and implementation of work-life balance practices to set work-life balance achievability of women employees. The 'P' value is found to be 0.000, which is less than 0.05 and therefore H0 is rejected proving alternate hypothesis "There is significant association between the managerial Practices to build work life balance of women employees in public sector banks and private sector banks of

Telangana state" Hence it can be concluded that work life balance practices to a women at the work place help in setting work-life balance of themselves.

iii. Factor Analysis:

The impact of work life balance factors on the job performance of the women employees working in private and public sector banks of Telangana State is analyzed in this section using Factor Analysis techniques in SPSS analysis package which is a technique of data reduction. The factor analysis is a vital tool utilized to investigate the relationship of variables and is said to be an exploratory technique applied to a set of observed variables that aims to search out subsets of variables.The chief goal of Factor Analysis is to reduce the large number of variables to lesser number in order to support data interpretation course of action. Principal Component Analysis is applied on the correlation matrix of the observed variables which are understudy and is further investigated using orthogonal rotation technique called as 'Varimax Rotation Method'. The factor loadings present in the factor analysis represents the contribution of each factor as well as the correlation between the factor and the variable which in simple terms is explained as a measure of relationship among them, thus the finest task is determining the appropriate and suitable factors for the research problem understudy. The sums of the squares of the factor loadings of a variable are called the 'communality'. Since there are more sub-variables in each variable selected to perform factor analysis, therefore it becomes imperative to apply few test for the measure of Sampling Adequacy.

iv. Sample Adequacy Test:
Kaiser-Meyer-Olkin Test is conducted to test the sampling adequacy of the data, whose value ranges from '0' to '1'. The resulting value of '1' or closer to 1 is considered to be better and 0.6 is the least recommended value to be accepted. Concurrently the Bartlett's test is applied to test the Hypothesis, providing least standard to further conduct factor analysis.

Table 4.4: KMO and Bartlett's Test – Managerial Practices

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.746
Bartlett's Test of Sphericity	Approx. Chi-Square	714.009
	Df	21
	Sig.	.000

Hence, from the above table 4.1 it is found that KMO value is 0.746indicating the sample adequacy and Bartlett's test of sphericity with approximate Chi-Square value 714.009 statistically significant at 0.05 level of significance with p-value(Sig) .000< 0.05. It denotes thesample is adequate tostudy the managerial practices of the select public and private banks to set up Work-Life Balance of Women employees.

Thus, the null hypothesis is rejected. Hence, it is proved that "There is significant association between the managerial Practices to build work life balance of women employees in public sector banks and private sector banks of Telangana state" .The seven variables obtain show considerable variance to represent in setting the managerial practices to build work life balance of women employees. The following communality table indicates the range of variance exhibiting by seven variables of work life balance practices.

Table 4.5 Communalities

Item	Variable Description	Initial	Extraction
WLB68	Organization provides medical insurance to me and my family	1.000	.514
WLB69	Organization offer transport facility for women safety	1.000	.656
WLB70	Flexible working arrangements like work from home, flexi time, compressed hours are executed effectively for women employees	1.000	.795
WLB71	organization offers study leaves for women as part of careerdevelopment program	1.000	.556
WLB72	Wedding break or marriage leave is given to women employees	1.000	.611
WLB73	The salary is on time as a Work Life Balance initiative to developemployee satisfaction and motivation	1.000	.576
WLB74	The maternity benefits-medical insurance provided by theOrganization to build WLB	1.000	.640

Extraction Method: Principal Component Analysis.

From the above table: 4.5, it is found that the variance ranges from 0.514 to 0.795. It denotes the variance of the variable ranges from 51.4% to 79.5%. This variance designates the formation of significant factors. Hence all the variables are considered for factor analysis because the value is >0.5.The following total variance table 4.6 below indicates the individual and cumulative variance of the derived factors:

Table 4.6: Total Variance Explained

Item	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.939	41.99	41.99	2.939	41.99	41.99	2.543	36.322	36.322
2	1.407	20.106	62.096	1.407	20.106	62.096	1.804	25.774	62.096
3	0.748	10.69	72.787						
4	0.652	9.313	82.099						
5	0.536	7.661	89.76						
6	0.423	6.048	95.808						
7	0.293	4.192	100						

Extraction Method: Principal Component Analysis.

In the above table it is found that the seven factors are reduced into two predominant factors with individual variance 41.99 and 20.106, and cumulative variance is 62.096. These variances are significant to individually considering derived factors. The following Rotated Component Matrix has been produced indicating the composition of the variables selected as factors. The first section of the table indicates the Initial Eigen values, the second section represents extraction sum of squared loadings and the third section corresponds to rotation sum of squared loading which has not been generated to this variable. Further, the component matrix for the variables relating to study the relation between managerial practices of banks and work-life balance achievabilityof the women employees belonging to public sector and private sector banks of Telangana state is given below in the Table 4.7.

Table 4.7 Component Matrix[a]

	Component - 1	Component - 2
WLB68		0.544
WLB69	**0.762**	
WLB70	**0.747**	
WLB71	**0.731**	
WLB72	**0.747**	
WLB73		0.589
WLB74		0.615

Extraction Method: Principal Component Analysis. Value <0.5 eliminated.

a. 2 components extracted.

Table 4.8: Rotated Component Matrix[a]

Managerial Practices of Bank for Women Employees		Component - 1	Component - 2
WLB70	Flexi Work Practice	**0.891**	
WLB69	Transport Facility	**0.796**	
WLB72	Wedding Break or Marriage Leave	**0.76**	
WLB71	Career Development Program	**0.703**	
WLB74	Maternity Benefits		**0.79**
WLB73	Salary promptness		**0.751**
WLB68	Medical Insurance		**0.706**

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

Table 4.9: Factor Analysis Variables

Managerial Practices of Bank for Women Employees		Factor Loadings	Communalities
WLB70	Flexi Work Practice	**0.747**	.795
WLB69	Transport Facility	**0.762**	.656
WLB72	Wedding Break or Marriage Leave	**0.747**	.611
WLB71	Career Development Program	**0.731**	.556
WLB74	Maternity Benefits	0.615	.640
WLB73	Salary promptness	0.589	.576
WLB68	Medical Insurance	0.544	.514

Findings:

From the above table 4.9 it is apprehended that, amongst the variables of managerial practices the constructs WLB70, WLB69, WLB72, and WLB71 constitute Factor 1 with Highest Factor Loadings respectively. These predominant described factors are Flexi work practices, Transport Facility, Wedding Leave, and Career development programs show factor loadings 0.747, 0.762, 0.747, 0.731 respectively. The communality value indicates the importance of variables in explaining the managerial practices likely to build work life balance of women employees in public and private sector banks of Telangana state. From the above table, it is also inferred that the first four variables pertaining to managerial practices to set work life balance in component one has the higher communalities indicating that the variables within factor (component) 1 have high association in setting work-life balance of women employees of banking sector. Further Factor(component) 2 constitutes to the remaining three variables of managerial practices to set work life balance, they are described as WLB68, WLB73, WLB74 with lower factor loadings, thus Factor analysis has been applied to analyze the association of managerial practices to set up Work Life Balance among the women employees of public and private banking sector concluding that flexi work options, availability of transport facility to workplace , leave benefit for wedding or vacations, and various career development programs aid in setting work-life balance of women employees consecutively holding higher impact of women employees of public and private sector banks.

The Factor Analysis computed four sub-variables of managerial practices to set work-life balance of women employees in Factor-1 with highest factor loadings such as 0.747, 0.762, 0.747, and 0.731 respectively. It is further explained that women employees are able to achieve work-life balance in the banking sector with the proper implementation of managerial practices such as transport facilities to commute between home place and work place and leave benefits which inspire them to work more effectively and efficiently at their job place in order to perform effectively and achieve work-life balance.

Conclusions:

The phenomenon of work-life balance among women employees vary from one woman to another in the journey of her work and family life. Every woman desires for equilibrium in their lives but attaining this has become a complex task. The work-life balance policies so far formulated in the banking sector keeps differing for unmarried, married, widow, and divorced women employees at the work place because of their diverge demands and expectation as well as roles and responsibilities.

A STUDY ON THE PROCESS OF IDENTIFYING FINGERPRINTSUSING FINGERPRINT PATTERN AND MINUTIAE

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ABSTRACT

The method of fingerprint matching is getting popular these days as it very simple and easier to implement. It is one of the oldest techniques for user authentication.This technique of identification of fingerprints is used widely by the forensic firms for the purpose of the identification of the victims of crimes.

A fingerprint is just like a blueprint of the ridges pattern of a finger. The basic information about the identification of fingerprint is that these prints do not change over time. Hence, the fingerprint of a person remains the same from birth until death.

Actually, finger size changes over time but the pattern of the fingerprints of a person don't modify. The next thing is that the fingerprints of a person is unique from others. There is something difference in the pattern of the fingerprint pattern of two individuals.An interesting point is that even the twins have the different pattern of fingerprints. The current paper highlights the process of identifying fingerprints using fingerprint pattern and minutiae.

KEYWORDS:

Fingerprint, Matching, Identification

INTRODUCTION

The usage of fingerprint matching technique is increasing day by day. Now, the smart phone companies have started to offer the service of fingerprint matching in their smart phones to enhance the scope of security.

This method of fingerprint identification is flexible and versatile in nature as it can be implemented easily in any device. This technique is widely used in the applications where the usage of a key or password is done.

This methodology is also used in doors, online services and companies. Fingerprint readers are adjusted in the models of smart-phones so that the authentication of the users can be done efficiently.

During the process of identification of fingerprint, the fingerprint of a user is compared with that of already stored fingerprint data. If the pattern is matched then the user is verified otherwise, the verification process of a user is failed on not matching the current fingerprint pattern with the stored fingerprint.

For the storage of the fingerprint of an individual, a database of identification system is built and in some cases, a chip or access card is used for the purpose of storing the fingerprints.

Doorside fingerprint reader is used in the identification locations where this reader is attached to a computer or laptop. In smart phones, a fingerprint reader is placed.

Mainly, there are two modes of fingerprint identification. In first mode, a fingerprint to be identified is matched with stored fingerprints. In second mode, the fingerprint to be identified is matched with the fingerprints of particular individual.

In the access-control system of companies, the first mode of fingerprint identification is used where the fingerprints of an individual are compared with several fingerprints stored in company's database. This mechanism is implemented at the door and before the entry of a person, his/her biometric data is matched. After positive response from the machine, the individual is allowed to enter into the company.

The second type of method of identifying the fingerprint is usually observed in the radiation therapy system where the fingerprint pattern of an individual is matched with the previous pattern.

Also, during the process of the identification of the fingerprints, the patterns are recognized in terms of loops and arches of ridges of the fingerprint and are allowed to match with that of saved data.

Here, the process of identification takes place in three categories:

1. An image of the fingerprint is taken. This picture can be taken from camera either optically or electronically. In some special cases, both the techniques can be used.   In this technique, black and white photograph of the ridges is obtained.

2. After that, these fingerprints are converted into anumerical model which are used to store the unique features of the fingerprint like arches and loops as a series of numbers.

3. Finally, a recognized numerical model is matched with already saved numerical model to relate similarities.

PROCESS OF IDENTIFYING FINGERPRINTS USING FINGERPRINT PATTERN AND MINUTIAE

Fingerprint identification is nearly always combined as a part of another system, such as a locking system.Fingerprint identification is used to verify a person's identity, after which the system can perform the required actions, such as opening a lock, allowing a person to use software, or enabling a machine to start.

The fact that the skin on our fingertips is flexible poses a challenge for identification. This is why, for example, the dryness of the skin, the surrounding temperature and the force with which the finger is pressed against the reader surface affects the created fingerprint.

During the past few years, fingerprint identification and related pattern recognition have taken significant leaps forward, and also most of the more difficult cases are now being identified reliably.

The quality of the stored fingerprint data also has a great effect on the actual identification later. Thus, it is worth performing the enrolment process well, and if there are any problems with the identification, it pays off to repeat the data storage.

Different fingerprint readers have significant differences in how well they can withstand becoming dirty. On sites where there is no possibility for regular cleaning of the fingerprint reader, it is useful to choose a technology that is not affected by dirtiness.

At present, fingerprint identification is extremely fast. The technology has seen some significant advances during the past years, and identification is now performed in a fraction of a second. Especially with readers that utilize electronic fingerprint reading, the identification is amazingly quick.

Identification reliability is at a very high level, and nearly all fingerprints can be identified. Even with an identification reliability of nearly 100%, it is not foreseeable that absolutely all fingerprints would be successfully identified in the next few years.

For example, the fingerprints of persons working in specific professions can be so damaged that a sufficient number of identification points cannot be read. Such professions include those where the skin on the fingertip is repeatedly burned or corroded by chemicals. Fingerprints are restored after single damaging incidents, so a few injuries have no effect fingerprint identification.

Due to rising concerns about security and fraud, government1 and commercial organizations have substantially increased their own deployment of fingerprint-based recognition systems in several non-forensic applications, including physical and logical access control, ATM transactions, border control, and consumer device access. The fingerprint is the dominant biometric trait in these applications compared to other common traits such as face, iris, and voice, and new emerging traits, including gait, ear, and palm-vein

A fingerprint recognition system can be used for both verification and identification. In verification, the system compares an input fingerprint to the "enrolled" fingerprint of a specific user to determine if they are from the same finger (1:1 match). In identification, the system compares an input fingerprint with the prints of all enrolled users in the database to determine if the person is already known under a duplicate or false identity (1:N match). Detecting multiple enrollments, in which the same person obtains multiple credentials such as a passport under different names, requires the negative identification functionality of fingerprints.

The growing list of commercial and government applications for fingerprint recognition, coupled with the advent of compact and inexpensive sensors and powerful processors, have increased demand for fully automated, highly accurate, real-time systems. Developing these next-generation systems presents both challenges and opportunities.

DISCUSSION

Volar skin is not unique to humans; all primates have this regular pattern of interweaving ridges and valleys on their palms and soles. Because friction ridges appear on the epidermis layer of the skin, they are also called epidermal ridges. In fact, the inner layer of the epidermis also has a ridge pattern similar to the surface layer. Embryology research has shown that the process of friction ridge pattern formation is preceded by the formation of volar pads at about the sixth week of fetus development. Friction ridges appear in about the fourth month of gestation as a result of the stresses during growth of the fetus; the ridges are not elevated on the skin until about the 18th week. Minutiae are formed as ridges separate and create space for forming new ridges due to the growth of the finger surface.

A typical good-quality fingerprint image contains about 20-70 minutiae points; the actual number depends on the size of the sensor surface and how the user places his or her finger on the sensor. The system stores the minutiae information— location and direction—along with the user's demographic information as a template in the enrollment database. During the identification phase, the user touches the same sensor, generating a new fingerprint image called a query print. Minutia points are extracted from the query print, and the matcher module compares the query minutia set with the stored minutia templates in the enrollment database to find the number of common minutia points. Due to variations in finger placement and pressure applied on the sensor, the minutia points extracted from the template and query fingerprints must be aligned, or registered, before matching. After aligning the fingerprints, the matcher determines the number of pairs of matching minutiae—two minutia points that have similar location and directions. The system determines the user's identity by comparing the match score to a threshold set by the administrator.

Fingerprints can be sensed using numerous technologies. The traditional "ink and paper" method, still used by many law enforcement agencies, involves applying ink to the finger surface, rolling the finger from one side of the nail to the other on a card, and finally scanning the card to generate a digital image.

Optical sensors based on the frustrated total internal reflection (FTIR) technique are commonly used to capture live-scan fingerprints in forensic and government applications, while solid-state touch and sweep sensors—silicon-based devices that measure the differences in physical properties such as capacitance or conductance of the friction ridges and valleys—dominate in commercial applications. Latent fingerprint impressions left at crime scenes require manual "lifting" techniques like dusting.

The most significant characteristics of fingerprint readers are their resolution and capture area. The standard fingerprint image resolution in law enforcement applications is 500 pixels per inch (ppi), but some readers now have dual-resolution capability (500 and 1,000 ppi). The sensing surface of readers used by law enforcement tends to be large so that they can capture palmprints and all four fingers simultaneously—such sensors are referred to as 10-print scanners.

Low-resolution and small-area readers are preferred in commercial applications so that they can be easily embedded in consumer devices. Sweep sensors are popular in mobile phones, PDAs, and laptops because of their small size (for example, 14 mm $\times$ 5 mm) and low cost (under \$5). However, such sensors require users to sweep their finger across the sensing surface; the reader fuses overlapping image slices obtained during sweeping to form a full fingerprint. Fingerprint sensors embedded in mobile phones or PDAs are also used to support navigation and hotkey functions, with each finger assigned to a specific functionality.

A fingerprint matching module computes a match score between two fingerprints, which should be high for fingerprints from the same finger and low for those from different fingers.

CONCLUSION

Fingerprint matching is a difficult pattern-recognition problem due to large intra-class variations (variations in fingerprint images of the same finger) and large interclass similarity (similarity between fingerprint images from different fingers). Intra-class variations are caused by finger pressure and placement—rotation, translation, and contact area—with respect to the sensor and condition of the finger such as skin dryness and cuts. Meanwhile,

interclass similarity can be large because there are only three types of major fingerprint patterns (arch, loop, and whorl).

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LOSS AND DELAY MODEL FOR STATE DEPENDENT UNRELIABLE M/H$_K$/1/N QUEUEING SYSTEM WITH BALKING

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Abstract

The objective of this paper is to analyze loss and delay phenomenon for M/H$_k$/1 queueing system with setup and unreliable server for both finite and infinite capacity under N-policy. The customers arrive to the system in accordance with Poisson process. The service times follow the k-type hyper exponential distribution. The breakdown and repair times are assumed to follow a negative exponential distribution. The arriving customers may balk, depending upon the number of customers present in the system. The generating function method is used to derive queue size distribution of the number of the customers present in the system. The cost function has been derived in term of cost elements related to different situations in order to determine the optimal operating policy. To explore the effects of various parameters on cost and other indices, the sensitivity analysis is carried out by taking numerical illustrations.

Keywords: N-policy, Unreliable server, M/H$_k$/1 queue, Balk, Set up, Loss and delay, Queue size, State dependent,

1. Introduction

In this investigation M/H$_k$/1 queueing system with service interruption is considered for either infinite capacity or finite capacity where removable and non-reliable server operates under N-policy. The term removable server may be interpreted as turning on and turning off the server in the system depending on the number of units waiting in the system. The non-reliable server means that the server is subject to unpredictable breakdowns. Under N-policy, the server turned on when N ($\geq$1) or more customers are present in the system and turned off when system is empty.

Numerous papers have been published on queueing models for removable and non-reliable server under N-policy. An un-reliable M/M/1 retrial queue with infinite capacity orbit and normal queue was analyzed by Sherman and Kharoufeh (2006). Ke et al. (2010) studied the operating characteristics of a batch arrival queueing system under N policy.

In many realistic situations, the server takes some times before starting the service of the customers that is known as set up or start up time of the server. Diaz and Moreno (2009) studied a queueing system where the service station operates under an N-policy with early setup.

When there are insufficient number of servers, the customer may tend to become impatient and would not like to join the queue; this phenomenon is known as balking. Operating characteristics of an M$^{[x]}$/G/1 queueing system under a variant vacation policy, where the server leaves for a vacation as soon as the system is empty

has been studied by Ke (2007). Jain et al. (2008) dealt with multi component repairable system where the failed units may balk in case of heavy load f failed units.

Queueing model with service interruptions is helpful in predicting the performance of various machining systems. Ke (2006) studied a vacation policy for M/G/1 queueing system with server breakdown, startup and close down time in which the length of the vacation period is controlled by the number of arrivals. Wang et al. (2007) were analyzed various system performance measures for M/G/1 queueing system under N policy for removable and unreliable server. Jain and Upadhaya (2009) examined a multi- component machining system consisting of m operating machines along with k type of spares under N-policy.

In this paper we have studied an optimal management of a removable and non-reliable server for $M/H_k/1$ queueing system by incorporating the startup time of the server and balking behavior of the customers. In section 2, we outline some assumptions and notations in order to construct the mathematical model of the system. Section 3 contains the equations governing the model and analytical expressions of the probability generating functions for different states. In next section 4, average queue length for infinite model has been obtained. Some performance characteristics and cost function are also derived. In section 5, queue length and cost function for finite capacity model have been considered. Special cases are deduced in section 6. Sensitivity analysis is presented to validate the analytical results in section 7. Finally conclusions are drawn in section 8.

2. Model Description

Consider $M/H_k/1$ queue with unreliable server, balking and setup under N-policy along with following assumptions:

- ➢ Two types of customers called delay and loss customers join the system according to Poisson process with rate λ_1 and λ_2, respectively. When the system is empty, the integrated rate of arriving customers is assumed to be λ_0. The delay customer may balk on finding the server in broken down state with probability υ.
- ➢ The server turns on when N customers are accumulated in the system and initiates the service of the customers after a setup time which is exponentially distributed with rate θ. The server turns off when system becomes empty.
- ➢ (i, j, n) denotes the state of the system with n=0,1, 2…; i=0,1, 2,…, k; j=F, D, W; where n is the number of customers in the system, i=0 denotes that there is no customer in the service and I denotes that the customer is in the service of type i (i=1, 2,…, k). Also j denotes the status of the server as

$$j = \begin{cases} F, & server\ is\ turned\ off\ and\ in\ idle\ state \\ W, & server\ is\ turned\ on\ and\ in\ operating\ state \\ D, & server\ is\ turned\ on\ and\ in\ breakdown\ state \end{cases}$$

- ➢ Whenever the server is turned on and being in i^{th} (i=1,2,…k) phase of service, it may breakdown at any time with rate α_i (i=1,2,…,k); the inter-failure time of the server follows a negative exponential distribution.
- ➢ Whenever the server fails during the ith phase service, it immediately goes for repair and repair time is assumed to be negative exponentially distributed with repair rate β_i (i=1,2,…, k).
- ➢ For finite capacity model, L is the capacity of the system.
- ➢ The switch over from repair to working state of the server is instantaneous.

Notations

N   Threshold level of queue length when server turns on
λ_0 Integrated arrival rate of the customers when server is

	idle
λ_1	Arrival rate of delay customers
λ_2	Arrival rate of loss customers
μ_i	Service rate of the ith type service, i=1,2,…,k
α_i	Breakdown rate of the server during i^{th} phase service, i=1,2,…,k
β_i	Repair rate of the server
υ	Joining probability of the customer
θ	Startup rate of the server
$P_{0,F}(n)$	The probability of being n (n=0,1,2…,k) customers in the system when the server is turned off.
$P_{i,W}(n)$	The probability of being n (n=0,1,2…,k) customers in the system when the server is turned on and the customer is in service of type i (i=1,2,3,…,k).
$P_{i,D}(n)$	The probability of being n (n=0,1,2…,k) customers in the system and the server is broken-down state while providing the service to the customer of type i (i=1,2,3,…,k).
$H_i(z)$	The probability generating function of $P_i(n)$
$E(N_i)$	Expected number of customers in the system when the server is in the state i.

3. Infinite Capacity Queue

The steady state equations for N-policy M/H$_k$/1 queueing system with infinite capacity are given by:

$$\lambda_0 P_{0,F}(0) = \sum_{i=1}^{k} \mu_i P_{i,w}(1), \ n = 0$$

(1)

$$\lambda_0 P_{0,F}(n) = \lambda_0 P_{0,F}(n-1), \ 1 \le n \le N-1$$

(2)

$$(\lambda_0 + \theta) P_{0,F}(n) = \lambda_0 P_{0,F}(n-1), \ n \ge N$$

(3)

$$(\lambda_1 + \lambda_2 + \mu_i + \alpha_i) P_{i,W}(1) = q_i \left[\sum_{j=1}^{k} \mu_i P_{j,W}(2) \right] + \beta_i P_{i,D}(1), \ i = 1,2,…,k$$

(4)

$$(\lambda_1 + \lambda_2 + \mu_i + \alpha_i) P_{i,W}(n) = (\lambda_1 + \lambda_2) P_{i,W}(n-1) + q_i \left[\sum_{j=1}^{K} \mu_i P_{j,W}(n+1) \right] + \beta_i P_{i,D}(n), \ i = 1,2,…,k$$

(5)

$$(\lambda_1 + \lambda_2 + \mu_i + \alpha_i) P_{i,W}(N) = (\lambda_1 + \lambda_2) P_{i,W}(N-1) + q_i \left[\sum_{j=1}^{k} \mu_i P_{j,W}(N+1) \right] + \beta_i P_{i,D}(N) + q_i \lambda_0 P_{0,F}(N-1)$$

$$+ \theta P_{0,F}(N), \ i = 1,2,…,k$$

(6)

$$(\lambda_1+\lambda_2+\mu_i+\alpha_i)P_{i,W}(n)=(\lambda_1+\lambda_2)P_{i,W}(n-1)+q_i\left[\sum_{j=1}^{k}\mu_i P_{j,W}(n+1)\right]+\beta_i P_{i,D}(n)+\theta P_{0,F}(n), \; i=1,2,\ldots,k \;\; n\geq N+1$$

(7)

$$(\lambda_1\vartheta+\beta_1)P_{i,D}(1)=\alpha_i P_{i,W}(1)$$

(8)

$$(\lambda_1\vartheta+\beta_i)P_{i,D}(n)=\alpha_i P_{i,W}(n)+\lambda_1\vartheta P_{i,D}(n-1), \quad n\geq 2$$

(9)

Probability Generating Functions

For obtaining the closed form expression of $P_{0,F}(0)$ we use the probability generating function technique. Let us define the following probability generating functions:

$$G_{0,F}(Z)=\sum_{n=0}^{N-1}Z^n P_{0,F}(n)$$

(10)

$$G_{i,W}(Z)=\sum_{n=i}^{\infty}Z^n P_{i,W}(n)$$

(11)

$$G_{i,D}(Z)=\sum_{n=i}^{\infty}Z^n P_{i,D}(n)$$

(12)

Using (1), (2) and (10), we get

$$G_{0,F}(Z)=(1+\sum_{n=0}^{N-1}Z^n)P_{0,F}(0)=\frac{1-Z^N}{1-Z}P_{0,F}(0)$$

(13)

Multiplying (3)-(7) by appropriate power of z and summing over n, we obtain

$$\left(\lambda_1+\lambda_2+\mu_i+\alpha_i\right)ZG_{i,W}(Z)+q_i\lambda_0 ZP_{0,F}(0)=q_i\left[\sum_{j=1}^{k}\mu_j G_{j,W}(Z)\right]+(\lambda_1+\lambda_2)Z^2 G_{j,W}(z)$$
$$+\beta_{i,Z}G_{i,D}(Z)+q_i\lambda_0 Z^{n+1}P_{0,F}(0), \quad i=1,2,\ldots,k$$

(14)

Now multiplying (8)-(9) by appropriate power of Z and summing over n, we get

$$(\lambda_1\vartheta Z-\lambda_1\vartheta-\beta_i)G_{i,D}(Z)+\alpha_i G_{i,W}(Z)=0$$

(15)

Substituting i=1 in equations (14) and (15) and solving, we obtain

$$\left\{(\lambda_1+\lambda_2)Z^2-\left(\lambda_1+\lambda_2+\mu_1+\alpha_1+\frac{\alpha_1\beta_1}{\lambda_1\vartheta Z-\lambda_1\vartheta-\beta_1}\right)Z+q_1\mu_1\right\}G_{1,W}(Z)+q_1\left\{\sum_{j=2}^{k}\mu_j G_{j,W}(Z)\right\}$$

$$=q_1\lambda_0 ZP_{0,F}(0)-q_1\lambda_0 Z^{N+1}P_{0,F}(0)$$

(16)

Similarly for i=2, we get

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$$q_2\mu_1 G_{1,W}(Z) + \left\{(\lambda_1+\lambda_2)Z^2 - \left(\lambda_1+\lambda_2+\mu_2+\alpha_2+\frac{\alpha_2\beta_2}{\lambda_1\vartheta Z - \lambda_1\vartheta - \beta_2}\right)Z + q_2\mu_2\right\}G_{2,W}(Z)$$

$$+ q_2\left\{\sum_{j=3}^{k}\mu_j G_{j,W}(Z)\right\} = q_2\lambda_0 Z P_{0,F}(0) - q_2\lambda_0 Z^{N+1}P_{0,F}(0)$$

(17)

Repeating this process for i=k, we get

$$q_k\left\{_k\sum_{j=1}^{k-1}\mu_j G_{j,W}(Z)\right\} + +q_k\mu_k G_{k,W}(Z) + \left\{(\lambda_1+\lambda_2)Z^2 - \left(\lambda_1+\lambda_2+\mu_k+\alpha_k+\frac{\alpha_k\beta_k}{\lambda_1\vartheta Z - \lambda_1\vartheta - \beta_k}\right)Z\right\}G_{k,W}(Z)$$

$$= q_k\lambda_0 Z P_{0,F}(0) - q_k\lambda_0 Z^{N+1}P_{0,F}(0)$$

(18)

Using Cramer's rule we solve (16)-(18) and obtain probability generating functions

$$G_{i,W}(Z) = \frac{N_i(Z)}{D(Z)}P_{0,F}(0), \quad i=1,2,\ldots,k$$

(19)

$$G_{i,D}(Z) = \frac{\alpha_i N_i(Z)}{(\lambda_1\vartheta Z - \lambda_1\vartheta - \beta_1)D(Z)}P_{0,F}(0), \quad i=1,2,\ldots,k$$

(20)

where

$$N_i(Z) = \prod_{j\neq i}^{k}\phi_j(Z)q_i\lambda_0 Z(1-Z^N)P_{0,F}(0), \quad i=1,2,\ldots,k$$

$$D(Z) = \prod_{i=1}^{k}\phi_i(Z) + \sum_{i=1}^{k}q_i\mu_i\prod_{j\neq i}^{k}\phi_j(Z)$$

$$\phi_i(Z) = (\lambda_1+\lambda_2)Z^2 - \left(\lambda_1+\lambda_2+\mu_i+\alpha_i+\frac{\alpha_i\beta_i}{\lambda_1\vartheta Z - \lambda_1\vartheta - \beta_i}\right)Z$$

Let G(Z) denote the p.g.f. of the number of customers in the system, then

$$G(Z) = \sum_{n=0}^{N-1}Z^n P_{0,F}(0) + \sum_{n=1}^{\infty}Z^n\sum_{i=1}^{k}\left\{P_{i,W}(n) + P_{i,D}(n)\right\}$$

$$= G_{0,F}(Z) + \sum_{i=1}^{k}\left\{G_{i,W}(Z) + G_{i,D}(Z)\right\}$$

(21)

To evaluate $G_{0,F}(1)$, $G_{i,W}(1)$ and $G_{i,D}(1)$, we apply L'Hospital's rule in equations (13), (19) and (20) respectively, and get

$$G_{0,F}(1) = NP_{0,F}(0)$$

(22)

$$G_{i,W}(1) = \frac{N\lambda_0\prod_{i}^{k}\frac{q_i}{\mu_i}}{\left[(\lambda_1+\lambda_2)\sum_{i=1}^{k}\frac{q_i}{\mu_i} + \lambda_1\vartheta\sum_{i=1}^{k}\frac{q_i\alpha_i}{\mu_i\beta_i} - 1 + \lambda_1\vartheta\right]}P_{0,F}(0), \quad i=1,2,\ldots,k$$

(23)

By using normalizing equation

$$G(1) = G_{0,F}(1) + \sum_{i=1}^{k} \left\{ G_{i,W}(1) + G_{i,D}(1) \right\} = 1,$$

(24)

We determine $P_{0,F}(0)$ as

$$P_{0,F}(0) = \frac{\left[(\lambda_1 + \lambda_2) \sum_{i=1}^{k} \frac{q_i}{\mu_i} + \lambda_1 \vartheta \sum_{i=1}^{k} \frac{q_i \alpha_i}{\mu_i \beta_i} - 1 \right]}{\left[(\lambda_1 + \lambda_2) \sum_{i=1}^{k} \frac{q_i}{\mu_i} + \lambda_1 \vartheta \sum_{i=1}^{k} \frac{q_i \alpha_i}{\mu_i \beta_i} - 1 + \lambda \prod_{i}^{k} \frac{q_i}{\mu_i} + \lambda_0 \prod_{i}^{k} \frac{q_i \alpha_i}{\mu_i \beta_i} \right] N}$$

(25)

4. Average Queue Length

The expected number of customers in the N-policy $M/H_k/1$ queueing system with non reliable server is obtained as

$$L_1 = \frac{N(N-1)}{2} + \sum_{i=1}^{k} \left\{ \frac{(\alpha_i + \beta_i)(N_i^{''}(1)D_i^{'}(1) - N_i^{'}(1)D_i^{''}(1))}{2\beta_i D'(1)^2} \right\} P_{0,F}(0)$$

(26)

where

$$N_i^{'}(1) = \prod_{j \neq i}^{k} \mu_j q_i \lambda_0 N, \ i = 1,2,\ldots,k$$

$$N_i^{''}(1) = \prod_{i=1}^{k} q_i \lambda_0 N \left\{ 2(\lambda_1 + \lambda_2) + (N+1) \prod_{j \neq i}^{k} \mu_j + 2\lambda_1 \vartheta \sum_{j \neq i}^{k} \frac{\alpha_j}{\beta_j} \right\}, \ i = 1,2,\ldots,k$$

$$D^{'}(1) = \prod_{i=1}^{k} \mu_i \left\{ 1 - (\lambda_1 + \lambda_2) \sum_{i=1}^{k} \frac{q_i}{\mu_i} + (N+1) \prod_{j \neq i}^{k} \mu_j + 2\lambda_1 \vartheta \sum_{j \neq i}^{k} \frac{\alpha_j}{\beta_j} \right\}, \ i = 1,2,\ldots,k$$

$$D^{''}(1) = \prod_{i=1}^{k} (-2\mu_i) \left[(\lambda_1 + \lambda_2) \left\{ \sum_{i=1}^{k} \frac{q_i}{\mu_i} + \lambda_1 \vartheta \sum_{i=1}^{k} \frac{\alpha_i}{\beta_i} \right\} + \lambda_1 \vartheta \left\{ \sum_{i=1}^{k} \frac{q_i \alpha_i}{\beta_i \mu_i} - \sum_{i=1}^{k} \frac{\alpha_i}{\beta_i \mu_i} \right\} + (\lambda_1 \vartheta)^2 \left\{ \sum_{i=1}^{k} \frac{q_i \alpha_i}{\beta_i^2 \mu_i^2} + \prod_{i=1}^{k} \frac{\alpha_i}{\beta_i} \right\} \right.$$
$$\left. + (\lambda_1 + \lambda_2)^2 \right], \ i = 1,2,\ldots,k$$

In order to design optimal policy we shall derive some performance indices for different system states, which are defined as follows:

 ➢ Idle period (I): This is the length of time per cycle during which the server is turned off.
 ➢ Busy period (B_i): This is the length of time per cycle when server is turned on and is operational and type i (i=1,2,…,k) phase service to the customer is being provided.
 ➢ Breakdown period (D): This is the length of time per cycle during which the server is found to be broken down and under repair.

Let the expected length of idle period, the busy period of type i (i=1,2,…,k), the breakdown period and the busy cycle be denoted by E[I], E[B$_i$], E[D] and E[C], respectively. The expected busy cycle is the sum of idle period, busy period, breakdown period and is given by

$$E[C] = E[I] + \sum_{i=1}^{k} E[B_i] + E[D]$$

$$= E[I] + E[B] + E[D], \quad where \sum_{i=1}^{k} E[B_i] = E[B]$$

(27)

According the memory less property, the length of idle period is the sum of N exponential random variables each having mean $1/\lambda$, therefore E[I]=N/ λ.

4.1. Performance Characteristics

The long run fraction time for which the server is idle, busy and broken down respectively, are given by

$$P_F = \frac{E[I]}{E[C]} = \frac{\left[(\lambda_1 + \lambda_2)\sum_{i=1}^{k}\frac{q_i}{\mu_i} + \lambda_1\vartheta\sum_{i=1}^{k}\frac{q_i\alpha_i}{\mu_i\beta_i} - 1\right]}{\left[(\lambda_1 + \lambda_2)\sum_{i=1}^{k}\frac{q_i}{\mu_i} + \lambda_1\vartheta\sum_{i=1}^{k}\frac{q_i\alpha_i}{\mu_i\beta_i} - 1 + \lambda_0\prod_{i}^{k}\frac{q_i}{\mu_i} + \lambda_0\prod_{i}^{k}\frac{q_i\alpha_i}{\mu_i\beta_i}\right]}$$

(28)

$$P_W = \frac{E[B]}{E[C]} = \frac{N\lambda_0\prod_{i}^{k}\frac{q_i}{\mu_i}}{\left[(\lambda_1 + \lambda_2)\sum_{i=1}^{k}\frac{q_i}{\mu_i} + \lambda_1\vartheta\sum_{i=1}^{k}\frac{q_i\alpha_i}{\mu_i\beta_i} - 1 + \lambda_0\prod_{i}^{k}\frac{q_i}{\mu_i} + \lambda_0\prod_{i}^{k}\frac{q_i\alpha_i}{\mu_i\beta_i}\right]}$$

(29)

$$P_D = \frac{E[D]}{E[C]} = \frac{N\lambda_0\prod_{i}^{k}\frac{q_i\alpha_i}{\mu_i\beta_i}}{\left[(\lambda_1 + \lambda_2)\sum_{i=1}^{k}\frac{q_i}{\mu_i} + \lambda_1\vartheta\sum_{i=1}^{k}\frac{q_i\alpha_i}{\mu_i\beta_i} - 1 + \lambda_0\prod_{i}^{k}\frac{q_i}{\mu_i} + \lambda_0\prod_{i}^{k}\frac{q_i\alpha_i}{\mu_i\beta_i}\right]}$$

(30)

Using eqs (27) - (29), the number of busy cycles per unit time is given by:

$$\frac{1}{E[C]} = \frac{\lambda\left[(\lambda_1 + \lambda_2)\sum_{i=1}^{k}\frac{q_i}{\mu_i} + \lambda_1\vartheta\sum_{i=1}^{k}\frac{q_i\alpha_i}{\mu_i\beta_i} - 1\right]}{\left[(\lambda_1 + \lambda_2)\sum_{i=1}^{k}\frac{q_i}{\mu_i} + \lambda_1\vartheta\sum_{i=1}^{k}\frac{q_i\alpha_i}{\mu_i\beta_i} - 1 + \lambda_0\prod_{i}^{k}\frac{q_i}{\mu_i} + \lambda_0\prod_{i}^{k}\frac{q_i\alpha_i N}{\mu_i\beta_i}\right]}$$

(31)

4.2. Cost Function

Now we develop a cost model by considering N as a decision variable for M/H$_k$/1 queueing system with infinite capacity. Our objective is to determine the optimal value of N (say N*) which minimizes the expected total cost.

In order to construct cost function, the following cost elements are used:
    C$_{su}$ Start-up cost per unit time when the server is turned on

C_{sd} Shutdown cost per unit time when the server is turned off

C_h Holding cost per unit time per customer present in the system

C_o Cost per unit time for keeping the server on

C_f Cost per unit time for keeping the server off

C_b Breakdown cost per unit time for the failed server

The expected total cost function per unit time is given by

$$T[C(N_1)] = C_h L_1 + C_f \frac{E[I]}{E[C]} + C_O \frac{E[B]}{E[C]} + C_b \frac{E[D]}{E[C]} + (C_{su} + C_{sd}) \frac{1}{E[C]}$$

$$= C_h \frac{N-1}{2} + (C_{su} + C_{sd}) \frac{\lambda\left[(\lambda_1 + \lambda_2)\sum_{i=1}^{k}\frac{q_i}{\mu_i} + \lambda_1 \vartheta \sum_{i=1}^{k}\frac{q_i \alpha_i}{\mu_i \beta_i} - 1\right]}{\left[(\lambda_1 + \lambda_2)\sum_{i=1}^{k}\frac{q_i}{\mu_i} + \lambda_1 \vartheta \sum_{i=1}^{k}\frac{q_i \alpha_i}{\mu_i \beta_i} - 1 + \lambda_0 \prod_{i}^{k}\frac{q_i}{\mu_i} + \lambda_0 \prod_{i}^{k}\frac{q_i \alpha_i N}{\mu_i \beta_i}\right]}$$

(32)

4.3. The Optimal Operating Policy

The following inequality can be used to determine the optimal threshold parameter (i.e. N*) that minimize the expected total cost

$$T[C(N*+1)] \geq T[C(N*)] \leq T[C(N*-1)]$$

(33)

The above inequalities can be shown to reduce to

$$N_1^*(N_1^*-1) \leq (C_{su} + C_{sd}) \frac{2\lambda\left[(\lambda_1 + \lambda_2)\sum_{i=1}^{k}\frac{q_i}{\mu_i} + \lambda_1 \vartheta \sum_{i=1}^{k}\frac{q_i \alpha_i}{\mu_i \beta_i} - 1\right]}{\left[(\lambda_1 + \lambda_2)\sum_{i=1}^{k}\frac{q_i}{\mu_i} + \lambda_1 \vartheta \sum_{i=1}^{k}\frac{q_i \alpha_i}{\mu_i \beta_i} - 1 + \lambda_0 \prod_{i}^{k}\frac{q_i}{\mu_i} + \lambda_0 \prod_{i}^{k}\frac{q_i \alpha_i N}{\mu_i \beta_i}\right]C_h}$$

$$\leq N_1^*(N_1^*+1)$$

Assuming N as a continuous variable we obtain the approximate optimal value of N* by setting $\frac{dT[C(N_1)]}{dN} = 0$. Hence the optimal value of N is approximately given by

$$N_1^* = \sqrt{(C_{su} + C_{sd}) \frac{2\lambda\left[(\lambda_1 + \lambda_2)\sum_{i=1}^{k}\frac{q_i}{\mu_i} + \lambda_1 \vartheta \sum_{i=1}^{k}\frac{q_i \alpha_i}{\mu_i \beta_i} - 1\right]}{\left[(\lambda_1 + \lambda_2)\sum_{i=1}^{k}\frac{q_i}{\mu_i} + \lambda_1 \vartheta \sum_{i=1}^{k}\frac{q_i \alpha_i}{\mu_i \beta_i} - 1 + \lambda_0 \prod_{i}^{k}\frac{q_i}{\mu_i} + \lambda_0 \prod_{i}^{k}\frac{q_i \alpha_i N}{\mu_i \beta_i}\right]C_h}}$$

(34)

5. Finite Capacity Queue

In this case we analyze M/H$_k$/1 queueing system when system capacity is finite (say L). The steady sate equations governing the finite capacity model are as follows:

Equations (1)-(6) and (8) for infinite capacity model hold for finite model too. For this model the additional equations are as follows:

$$(\lambda_1+\lambda_2+\mu_i+\alpha_i)P_{i,W}(n) = (\lambda_1+\lambda_2)P_{i,w}(n-1) + q_i\left[\sum_{j=1}^{K}\mu_i P_{j,W}(n+1)\right]$$
$$+ \beta_i P_{i,D}(n), \ i=1,2,...,k, N+1 \le n \le L-1$$

(35)

$$(\mu_i+\alpha_i)P_{i,W}(L) = (\lambda_1+\lambda_2)P_{i,w}(L-1) + \beta_i P_{i,D}(L), \ i=1,2,...,k$$

(36)

$$(\lambda_1\vartheta+\beta_i)P_{i,D}(n) = \alpha_i P_{i,W}(n), i=1,2,...,k$$

(37)

$$(\lambda_1\vartheta+\beta_i)P_{i,D}(n) = \alpha_i P_{i,W}(n) + \lambda_1\vartheta P_{i,D}(n-1), \quad 2 \le n \le L-1$$

(38)

$$\beta_i P_{i,D}(L) = \alpha_i P_{i,W}(L) + \lambda_1\vartheta P_{i,D}(L), \ i=1,2,...,k$$

(39)

The normalizing condition is

$$\sum_{n=0}^{N-1} P_{0,F}(n) + \sum_{n=1}^{L}\sum_{i=1}^{k}[P_{i,W}(n) + P_{i,D}(n)] = 1$$

The expressions for P$_F$, P$_w$ and P$_D$ are respectively given by

$$P_F = \sum_{n=0}^{N-1} P_{0,F}(n), \ P_W = \sum_{n=1}^{L}\sum_{i=1}^{k} P_{i,W}(n) \ \text{and} \ P_D = \sum_{n=1}^{L}\sum_{i=1}^{k} P_{i,D}(n)$$

We can't obtain the closed form expressions for P$_{0,F}$(0) by using the p.g.f. as evaluated for infinite case. A computer program was developed to solve all the probabilities.

From (1), we have $P_F = NP_{0,F}(0)$

Adding equations (33)-(34), we get

$$\beta_i P_{i,D} = \alpha_i P_{i,W}, i=1,2,...,k$$

(40)

where

$$P_{i,W} = \sum_{n=1}^{L} P_{i,W}(n) \ \text{and} \quad P_{i,D} = \sum_{n=1}^{L} P_{i,D}(n) \ \text{and}$$

$$\sum_{i=1}^{k}[P_{i,W} + P_{i,D}] = 1 - P_F = 1 - NP_{0,F}(0)$$

Then from (36), we get

$$P_W = \sum_{i=1}^{k} P_{i,W} = \frac{\beta_i}{\alpha_i+\beta_i}[1 - NP_{0,F}(0)]$$

(41)

$$P_D = \sum_{i=1}^{k} P_{i,D} = \frac{\alpha_i}{\alpha_i+\beta_i}[1 - NP_{0,F}(0)]$$

(42)

5.1. Average Queue Length

The expected number of customers in the N-policy $M/H_k/1$ queueing system with finite capacity model is given by

$$L_2 = \frac{N(N-1)}{2} P_{0,F}(n) + \sum_{n=1}^{L} \sum_{i=1}^{k} [P_{i,W}(n) + P_{i,D}(n)]$$

(43)

5.2. Performance Characteristics

The long run fraction of time when the server is in idle state

$$P_F = \frac{E[I]}{E[C]} = NP_{0,F}(0)$$

(44)

The long run fraction of time when the server is in working state

$$P_W = \frac{E[B]}{E[C]} = \frac{\beta_i}{\alpha_i + \beta_i} [1 - NP_{0,F}(0)]$$

(45)

The long run fraction of time when the server is in breakdown state

$$P_D = \frac{E[D]}{E[C]} = \frac{\alpha_i}{\alpha_i + \beta_i} [1 - NP_{0,F}(0)]$$

(46)

Now we develop a cost model by considering N and L_2 as decision variables for $M/H_k/1$ queueing system with finite capacity. The expected total cost per unit time is

$$T[C(N, L_2)] = C_h L_2 + C_f \frac{E[I]}{E[C]} + C_O \frac{E[B]}{E[C]} + C_b \frac{E[D]}{E[C]} + (C_{su} + C_{sd}) \frac{1}{E[C]} + \lambda C_l \sum_{i=1}^{k} [P_{i,W}(L) + P_{i,D}(L)] + CL$$

(47)

where C_l denotes fixed cost for every lost customer and C is the fixed cost per customer for occupied space.

6. Sensitivity Analysis

In order to determine the performance of k phase service, unreliable server queueing system, we perform a computational experiment using MATLAB software for various combinations of system parameters. The tables 1-3 and graphs 1-6 depict the variation of N*, minimum cost function and average queue length with the variation in different system input parameters.

The parameter corresponding to service time distribution (H_3) are chosen as k=3, q_1=0.6, q_2=0.3, q_3=0.1, $\mu_1 = \mu_2 = \mu_3 = 6$ and N=3. The different sets of cost elements are given below:

Set 1: $C_{su} + C_{sd}$=200, C_o=25, C_f=5, C_b=50, C_h=1
Set 2: $C_{su} + C_{sd}$=200, C_o=25, C_f=5, C_b=50, C_h=5
Set 3: $C_{su} + C_{sd}$=200, C_o=25, C_f=10, C_b=50, C_h=1
Set 4: $C_{su} + C_{sd}$=200, C_o=50, C_f=5, C_b=50, C_h=1

Set 5: $C_{su}+C_{sd}=200$, $C_o=25$, $C_f=5$, $C_b=100$, $C_h=1$

Set 6: $C_{su}+C_{sd}=400$, $C_o=25$, $C_f=5$, $C_b=50$, $C_h=1$

Table 1 summarizes the values of optimal N* and corresponding minimum expected total cost for different sets of cost elements and arrival rates. Table 2 shows the variation of N* and minimum expected cost for different values of (α, μ). It is observed that on increasing the service rate, the total expected cost decreases and on increasing the failure rate (α) of the server, the cost function increases.

8. Concluding Remarks

In this paper, $M/H_k/1$ model for finite capacity and infinite capacity with balking is developed. The optimal value of threshold parameter is determined which is helpful to minimize the expected total operating cost. The incorporation of state dependent rates, startup time and balking probability makes our model more versatile from application point of view. The concept of unreliable server has been included, which can be realized in many real time systems namely computer systems, production and manufacturing systems, etc..

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Cases	$\lambda_0, \lambda_1, \lambda_2$	0.8,0.8,0.8	0.6,0.8,0.8	0.4,0.8,0.8	1.0,0.8,1.2	0.8,1.0,0.4	1,1.2,0.8
Set 1	N*	19.99	19.99	19.99	19.99	19.99	19.82
	T[C(N*)]	70.70	70.65	70.60	86.69	110.58	182.58
Set 2	N*	8.94	8.94	8.94	8.94	8.94	8.94
	T[C(N*)]	80.94	80.92	80.90	96.94	120.91	192.89
Set 3	N*	19.99	19.99	19.99	19.99	19.99	19.99
	T[C(N*)]	75.69	75.64	75.59	91.69	115.61	187.58
Set 4	N*	19.99	19.99	19.99	19.99	19.99	19.99
	T[C(N*)]	75.90	70.80	70.70	86.89	110.73	182.66
Set 5	N*	19.99	19.99	19.99	19.99	19.99	19.99
	T[C(N*)]	70.70	70.65	70.60	86.69	110.61	182.58
Set 6	N*	28.27	28.27	28.28	28.27	28.28	28.28
	T[C(N*)]	130.98	130.85	130.78	162.92	210.80	354.76

Table 1: The optimal value N* and the minimum expected cost T[C(N*)]

Cases	α, μ	0.1, 2.0	0.1, 4.0	0.3, 2.0	0.5, 2.0	0.5, 4.0
Set 1	N*	19.97	8.94	19.98	28.27	28.21
	T[C(N*)]	475.55	155.05	915.03	997.16	958.58
Set 2	N*	8.93	8.94	8.93	28.27	27.22
	T[C(N*)]	485.30	155.05	925.08	998.16	949.69
Set 3	N*	19.97	19.99	19.98	28.27	27.28
	T[C(N*)]	480.54	145.44	920.03	995.16	955.75
Set 4	N*	19.97	19.99	19.98	28.27	26.88
	T[C(N*)]	476.62	145.44	915.58	993.16	950.71
Set 5	N*	19.97	19.99	19.98	28.27	27.18
	T[C(N*)]	475.55	144.96	915.04	933.16	958.56
Set 6	N*	28.25	28.27	28.26	28.27	27.38
	T[C(N*)]	940.13	279.30	991.40	997.16	998.89

Table 2: The optimal value N* and the minimum expected cost T[C(N*)]

Design of Ontology-Based on Movie Actors Bibliotology using predicate Rank

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Abstract

Automatic ontology construction of movie actors refers to a shared conceptualization for a cinema industry of interest that has vastly improved data management and data sharing through the open data movement. The rapid growth and availability of movie actor's bibliographical data make it impractical and computationally expensive to perform manual analysis and query processing with the larger scale ontologies. The lack of ability in analyzing ontologies from such a variety of sources, and supporting knowledge discovery for ontology construction of movie actors should be overcome with new technologies. This paper proposes a novel construction of Bibliographical ontology (Bibliotology) based on the bibliography of movie actors by using predicate rank method. Popular predictive rank is used to assign the rank for the actor's ontology.The predicate-oriented neighborhood pattern model is presented in the perspective of topic detection and query generation for ontologies. The bibliotologyframework enhances knowledge discovery by capturing underlying structures from domain-specific data and ontologies.

Keywords: Bibliotology, Movie actors. Predictive Rank, Ontology

1. Introduction:

In recent years, anamount of ontologies have been accessible for providing details about the movie actors. As a result, there have been increasing demands on knowledge discovery and sharing of the large scale of the movie actor's bibliographical data [1]. The first notable effort shown by the cinema and scientific community toward connecting scattered actor'sbibliographical data is to materialize them through the movement of the open data [2]. Though, most of these ontologies are still not entirelyinterpreted nor associated with other ontologies. The rapid growth and availability ofactor'sbibliographical data make it impractical and computationally expensive to perform manual analysis and query processing with the large scale ontologies [3].

Generally, there is a limited capacity for carrying the dynamic analysis and query processing with these larger-scale datasets. The current cinema ontologies and services are not sufficient to be combined due to the lack of underlying cohesive structure and semantics [4]. The existing work on supposing ontology structure have mostlyintensive on defining whether or not there was a connectionamong a given pair of concepts regardless of the connections among them or the strength of the link [5]. Specifically, the methods have yet to be fully realized on dynamic analysis and query processing with the ontologies. There are endpoint services for bibliographical research, but most of them are not functioning, or even if they are working, specific query content and formats are not at a practical level [6].

Knowledge discovery through analysis of ontologies for actorsbibliotologyresearch has become a challenging task [7]. There is a requirement to an advanced method to comprehensively understand ontologies as an alternative of justreceiving a portion of reference ontology and utilizing them for a decision support or query process [8].

Subsequently, these are crucial to identify what information occurs and what meaningful relations are existing between connected domains (e.g., identification ofthe actor's date of birth, mother tongue, first film). When the ontology structure has been stated, it is advantageous to detect and discriminate the context and strength of impact in domains and remove cohesive arrangement and semantics from ontologies [9,10].

This paper presents a Bibliographical ontology (Bibliotology) to perform a dynamic topic discovery (relationships) and automatic query generation through the analysis of predicates among concepts and role namesin the movie actor's bibliographical ontologies. The proposed ontology can be adopted for all types of languages. The proposed model decides the number of predicates based on the tested search query predicate interactions. By using the proposed bibliotology, the data visualization is simplified, and an active domain based ontology is designed.

The organization of this paper is mentioned in below: Section 2 deals the literature review; Section 3 deals the proposed methodology; Section 4 briefs the results and discussions following by the conclusion and future work in section 5.

2. Literature Review:

Singh, A., & Sharma, A. (2019) [11]proposed a framework for multi-agent-based dynamic user profile generation considering contextual information. It utilized some agents of autonomous software for computerizing the different tasks in profile generation. In this framework described the flow of information along with the system components have been worked in each of agents in this algorithms. With the other obtainable approaches makes greater efficient by the use of automated agents. From this approach, extended with the comparison of different mechanisms for a complete representation of the user profile.

Sun et al. (2015)[12] presented a newmethod of analytics framework combining quality, relevance, and connectivity for predicting in further studies. From the researchers profile was built by three aspects:researcher connectivity,professional quality, and topicrelevancy. The value and efficiency of this approach were verified. Additionally, the system and algorithm can be universal to other personalization applications in websites and digital libraries. Future evidence, lots of questions can be further investigated and built to support extended profile matching. Furthermore, this paper adopted an AHP method as the rank aggregation scheme.

Ibrahim et al. (2017) [13]presented a re-ranking scientometricmethod based on itspointers. It comprises all elements affecting scientific quality.It was based on a score considered for everyscientific editorialreverted by the database of bibliographic. The presented approach was the combination of different scientometric indicators, the choice to allow consumersto describe their favorites andthe cleardeliberation of all kind of consumers.Theseevaluation approach presented the superlative performance given by the integration of the rank.

Silvello et al. (2017) [14] discussed the data modeling and the semantic enrichment of data in IR experiment, which is produced by large-scale evaluation campaigns. Proposed an RDF model for the workflow of two different areas such as scientific production and resource management and also information access system utilised the evaluation workflow. Hence, the semantic enrichment and for augmenting the discoverability, reusability and accessibility has been used in this model. Additionally,inform the extraction of semantic enrichment in the form of scientific publications as in unstructured data were used. Expertise topics were automatically extracted and refer to the documents and to generate expert profiles.

Protasiewicz et al. (2016) [15] proposed the design of the content-based recommender system for choice of reviewers. The system comprised three distinct functional modules, such as (i) recommendation mechanisms, (ii) information retrieval, and (iii) data acquisition. The data acquisition segmentassistances to recover data from organized sources, but anintensive crawler deals with unstructured causes. Cataloging of publications was comprehended by multilingual classification and by a natural Naive Bayes classifiersscheme that is collected of multilingual decision segment and a monolingual classifiers. These mechanism offered the additional user support in choosing potential reviewers; noting the system supports decision-making process of particular importance.

Arour, K., &Yeferny, T. (2017)[16] proposed a user profile modeling approach, based on an addition of formal concept analysis theory, for large scale data retrieval systems, to explain the personalization necessity. This is suitable for LSDS from the Evaluation in the scalability point of view has been showed. In this work, a single possible perspective was to examine the knowledge base management. Hence, activatethiswere used in the different kinds of events. Although, it could serve as a road map to expand the state of the art of personalization and recommender systems.

Gonçalves et al. (2016) [17] presented a newmethod for Interactive Image Retrieval (IIR). The presented methodlowered the semantic gap among low-level features and the high-level semantic perceptions by presenting a Semantic Guided IIR. The major conceptcomprisesrecovering images constructed on their visual structures, connecting such images with their ideas, well-defined by the established ontology, maintained by user interactions. Hence, for assessing the effectiveness of the method was conducted as a set of experiments. From the results,validated that high efficiency could be found in more than one scenarios. Finally, the value of SIIR in two other datasets, reaching high values of the metrics analyzed in both has been demonstrated in the experiments.

Shen, F., & Lee, Y. (2018)[18] proposed the MedTQ framework for topic discovery and query generation through the analysis of ontologies. For the MedTQ framework, newly designed the Predicate Neighboring Pattern (PNP) model and performed similarity measurements, the Hierarchical Predicate-based K-Means clustering (HPKM) algorithm and dynamic query generation algorithm were presented. In particular, a tool for topic discovery and interactive query generation, as well as the SPARQL endpoint for query processing with multiple medical ontologies and datasets from Bio2RDF, was implemented and deployed.

Schneider et al. (2017) [19] presented a new model, CTRLont, which forms the basis to formalize control logic information in BAS. An explicit specifications of the adjacent information areas and control logic are defined to allow integrate the concepts and relationships.From this approach, reduced the period of time spent in BAS, and also occupyadded time on isolating the root source of faults in the engineers and facility managers. The presented ontology can catalyzeformingan understanding of control logic in the automation domain. It enabled a new intelligent method to expand building set-up in the future.

Amar et al. (2017) [20] proposed a framework of constructing core domain ontologies from the content of LMF as structured(ISO24613). In this approaches of ontology learning, the suggested process are independent language for ontology entity generation. Conducted the implemented rule-based system was proven to be trustworthy overset-of experiments on diverse domains. Two main motives explain the choice of Arabic. Additionally, evaluations of both qualitative and quantitative analysis have exposed the system and highlighted the concepts of the core construction importance.

3. Proposed Methodology:

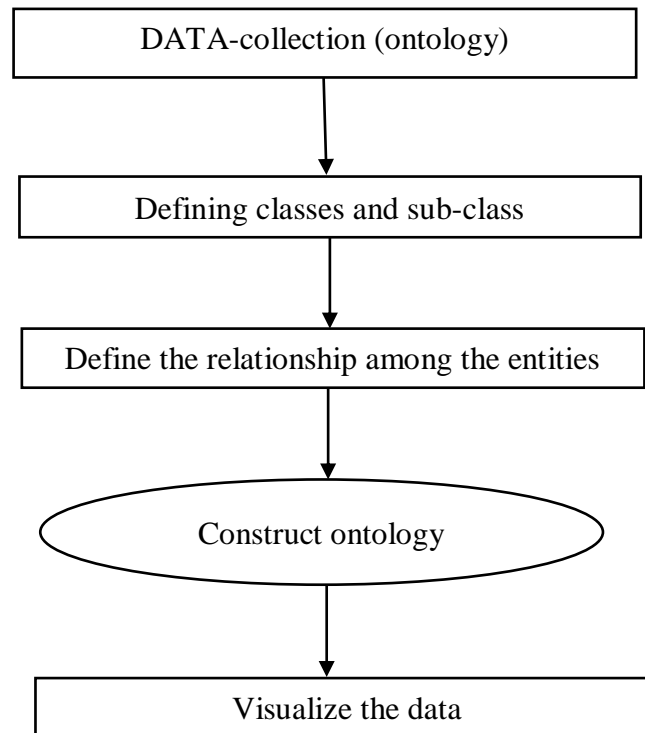Fig.1 shows the framework of the proposed method.

Fig.1 Framework of the proposed system

Developing an ontology includes the data collection, definition of class and sub-classes, definition of the relationship among the entities, ontology construction, and data visualization.In this method, the structured data of the various actor's bibliographies are collected from the web based on the user search query. The required information of the actor is collected from the Virtuoso Spark server. The query of the information has created, and it has entered in that server. The enormous numbers of data sources are there in that server, and the query which has given to that server is processed, and the sources are brought out from the DBpedia. The Virtuoso Spark servers linked with the DBpedia and it is processing quickly and gather the all required information. The data which is in DBpedia is the base source of constructing the ontology. The data sources have different entities, and each of them relates to others, the relationship among each entity to be defined for constructing the ontology.In this proposed method novel framework has introduced to collect and process the data, actorsbibliotology, the relationship of the entities and visualize the data from the constructed ontology.

3.1 Pre-processing

The pre-process is asignificant factor for this work because the raw data is composed of the source as DBpedia. Natural Language Processing is involved in doing the pre-processing works for examples tokenization, sentence detection, Parts of Speech (POS) tagging and stop words removal. Here the composed data is a text form, and that text is to convert token from the artifacts for the determination of easy identification with the detection of the whole sentence. The generally utilizing words are in the sentence to be removed and then the suitable parts of speech to be added in that text and it is shown in fig.2.
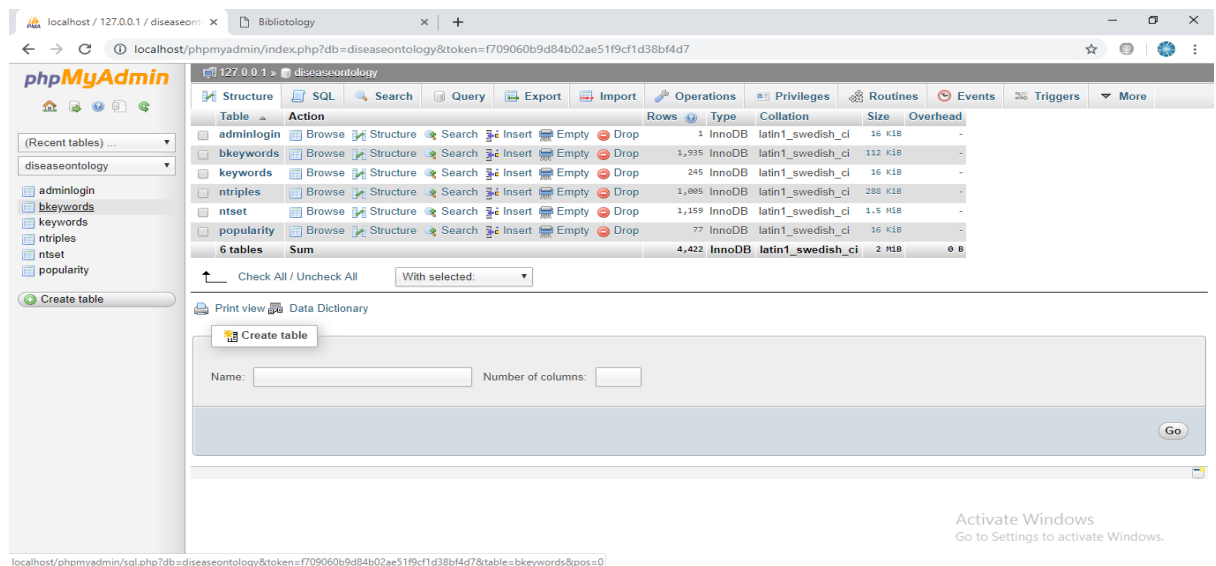
Figure.2 Database for constructing Ontology

3.2 Actor's profile annotation

The actor's profile annotation is the significant block of the proposed framework. The collected actor's bibliography is classified with main elements, and the boundary conditions of entities and their relationship are recognized to form the ontology. The actor's name and details are related to one another; the n-gram represents the number of sources in the data. The data which is in source always in grouping like an example of movies with a various combination of story and their application, similarly the actor's name also in the group which is related with some particular roles. Those parameters have to be considered and identified with maximum and minimum grams of the source with the usage of n-grams.

The query related to the search has entered in Virtuoso SPARQL server, and it labeled the required source. It checks whether the label is meeting with the need or not if it is then the process will move and link with the DBpedia. From that the data will classify with class and number of subclasses. The exact meaning or relation of each data is gathered with the process of mapping. The semantic type of data will be identified with Type Unique Identifier (TUI), and it gives the unique id of each required data, and from this id, the corresponding actor's profile will be mapping. Here the algorithm is used to identify or classify the semantic enrichment and relation extraction.The linked bibliotologyapproach is used to discover the entire details about the actors. The semantic enrichment is used to get the synonyms, definition, category, and ontology is extracted with divided sub-components, and it is easy to identify the data which is in need.

3.3 Predicate (P) Ranking

A 'P' is signifying a binary relation in the ontology and ranking among the two different concepts (c1 and c2). In RDF/OWL, P is signified as a property to define a type of connection among subject and object. It can be whichever from a similar or dissimilar ontologies. In the proposed system, connections are well-defined by the analysis of ontology data. This is mainly concerned with predicates that are dissimilar from existing methods. Except being related, this may distribute other features, e.g., distributionof the same subjects or the identical objects and the connectivity between predicates. This services not only on perceptionsbetween graphs but also relations of the concepts. Based on the similarity measures predicate ranking is provided for every query. If a query has the number of similarities measured, then it is ranked as first and so on.

3.4 Ontology construction

The ontology is constructed based on the composed data by presenting a novel algorithm. The algorithm has extracted necessary information from the source, and entire sources are connected.Some of the data have not to match with others; the ontology can easily recognize it. There are three factors, such as subject, prediction, an object to be considered while constructing ontology. The ontology has all three elements, and it shows the relationship of each other. A novel hybrid approach algorithm will extract the taxonomic of the entire data source.

Step 1:*Load the actor's bibliographic dataset.*
Step 2: Initialize the NTriples Data
NTriples ← new LinkedList<String>();
Step 2:*Initialize the NTSet Data*
NTSet ← new LinkedList<String>();
Step 3:*Initialize the Predicates data*
predicates ← new TreeSet<String>();
Step 4:*Load Virtuoso Server* https://dbpedia.org/sparql live dataset
u ← new URL("https://dbpedia.org/sparql");
Step 5:*Open Connection Stream.*
is ←u.openStream();   // throws an IOException
Step 6:*Read live data line by line.*
dis ← new DataInputStream(new BufferedInputStream(is));
Step 7:*Categories Subject, Predicate, Object list.*
NTSet.add(subject+">~"+predicate+"~"+object);
Step 8:*Sort the NTriples data.*
Collections.sort(NTriples);
Step 9:*Initialize nodes.*
nodes ← "";
nodes+ ← "{id: "+1+", label: '"+ actor's name +"', shape: 'circle'},";
Step 10:*Initialize edges.*
edges ← "";
nodes+ ← "{id: "+(i+1)+", label: '"+ps+"', shape: 'circle'},";
edges+ ← "{from: "+i1+", to: "+(i+1)+", style: 'line', width: 1, length: 200, label:'"+ps+"'},";
nodes ← nodes.substring(0,nodes.length()-1);
edges ← edges.substring(0,edges.length()-1);
Step 11:*Construct Ontology*
Constructontology ← (nodes, edges, NTSet, NTriples).
Step 12:*Ontology Construction Completed.*

### 3.4.1 Algorithm: Bibliotology construction for Movie Actors
4. Results and Discussions

Initially, from the database, the type of ontology is selected by entering the username and password.After an individual log into the ontology page by entering his user name and password, then required actor name is chosen. The toolbar shows various actor names as shown in figure.3. The keyword of the actor is entered on that page, and it shows the constructed biblitology of the system.
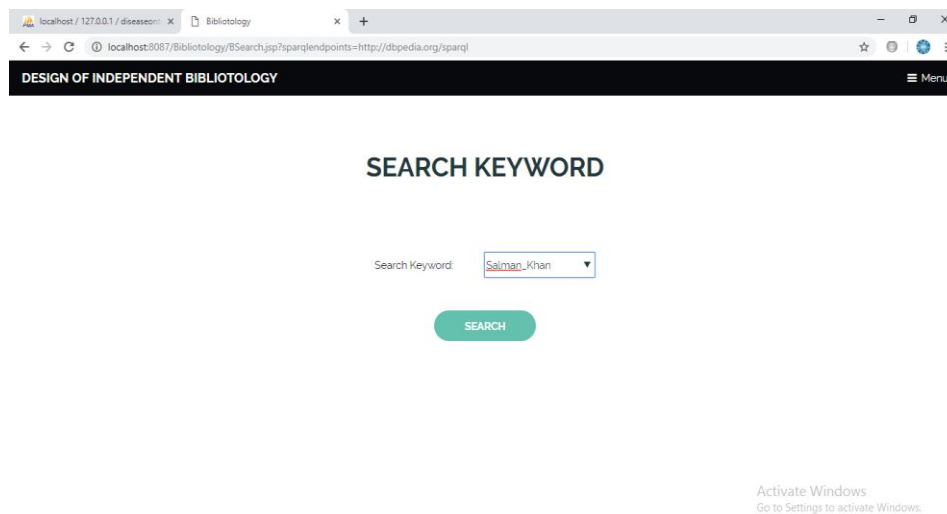
Figure 3. Selecting Keyword of Movie Actors

In figure.4, the design of the bibliotology structure of the movie actor application is illustrated. Once the particular actor is selected, complete information of that and their relationship are also displayed. To visualize the proposedBibliotology is exported using the Protégé Tool.
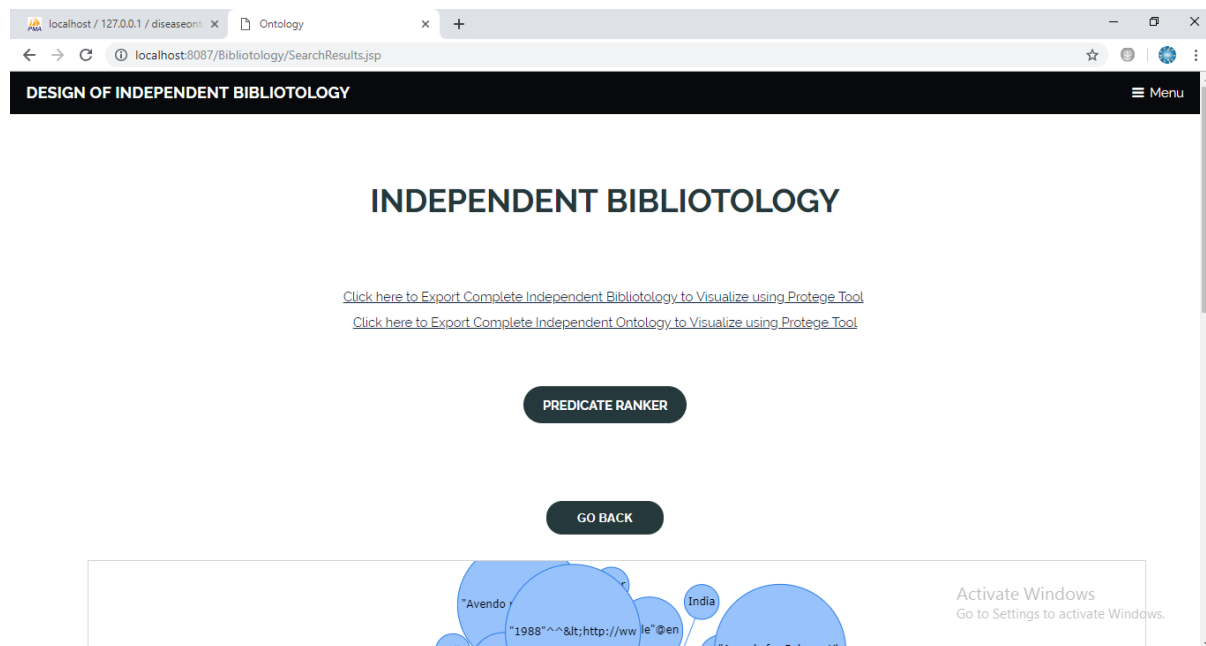

Figure.4 Design the independent bibliotology

Figure.5 shows the construction of the movie actor Bibliotology. Once the particular actor name is selected, complete information and their relationship are also displayed. For example, if Salman_Khan is selected, then it will show the entire information related to Salman_Khan.
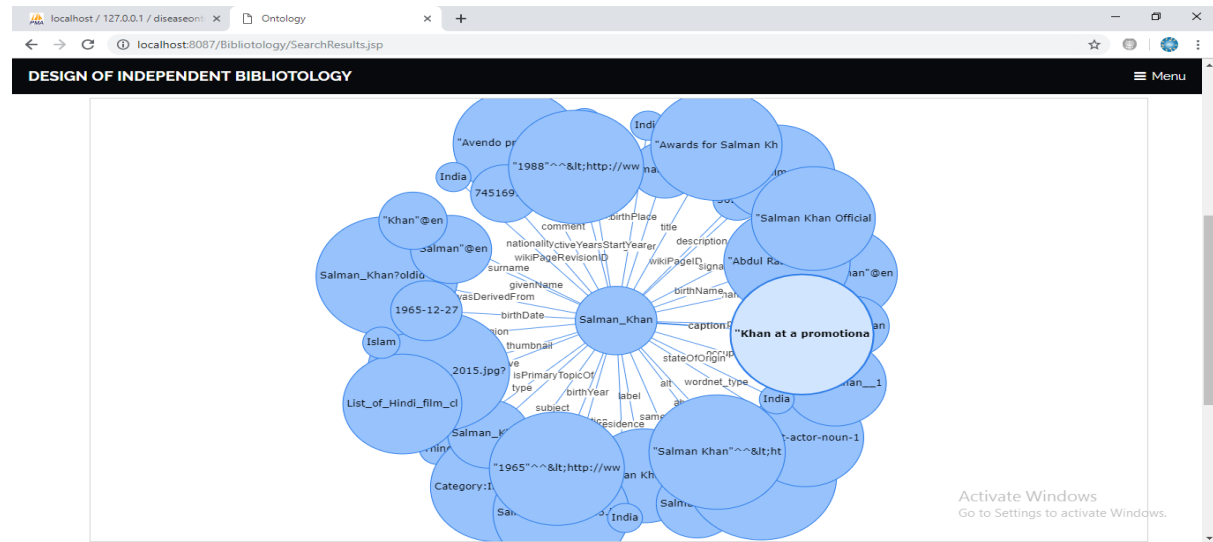
Figure.5Bibliotologyconstruction

Figure.6 shows the bibliotologycreation with the content of the relationship between subject, concept, and predicate. The detailed explanation of the subject is mentioned in the bibliotology structure, and similarly, all the detail about concept and predicate are also explained clearly. From this, the predicate of the chosen subject can be easily obtained.
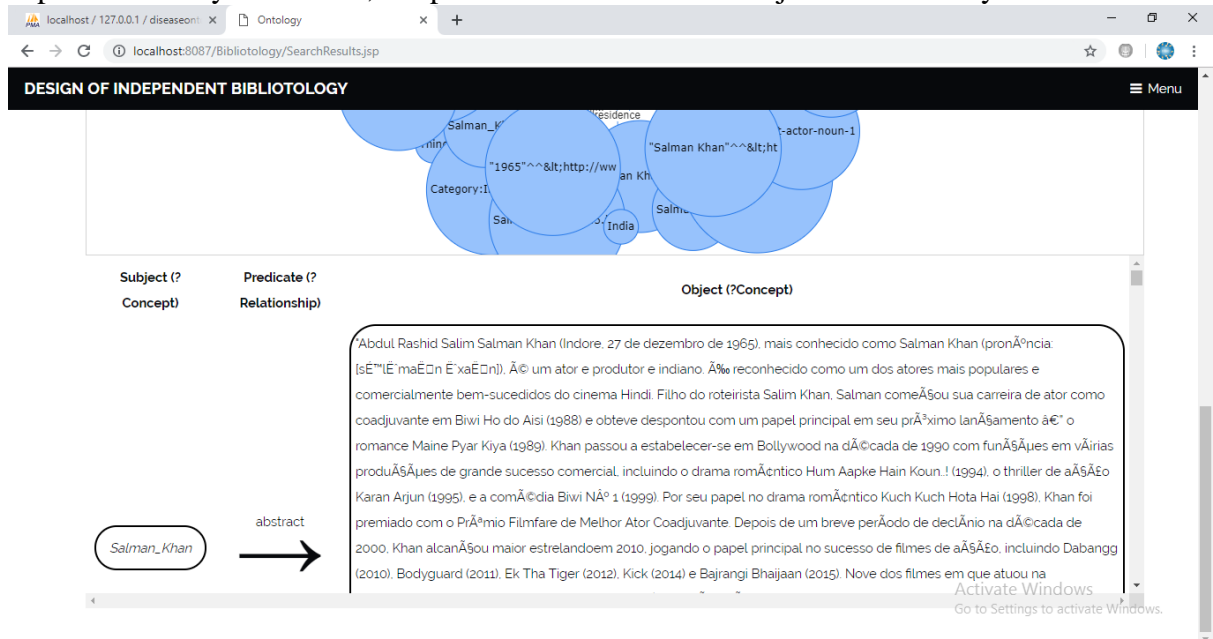
Figure.6 Objects of a particular actor

4.1 Visualization

The constructed bibliotology contains related information about entire actor and promotions which has been considered in this work. The ontology shows only the entities, but the relationship of every data is visualized by protégé tool.   The bibliotologyhas been exported and stored in some memory of the system. The required ontology file will be opened in the protégé tool.
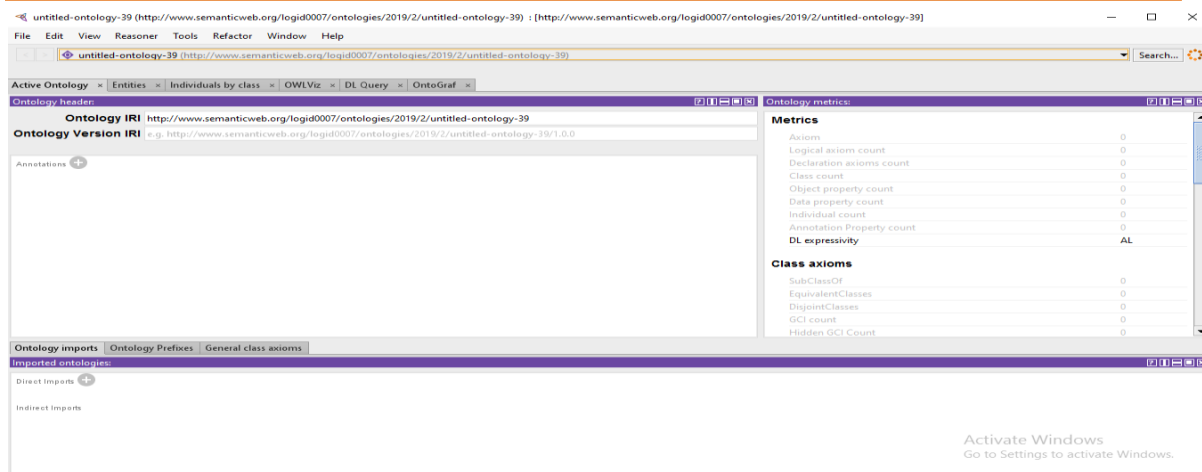
Figure.7 Ontology header

Figure.7 shows the Ontology header to visualize using Protégé Tool. The ontology header has the only entities.
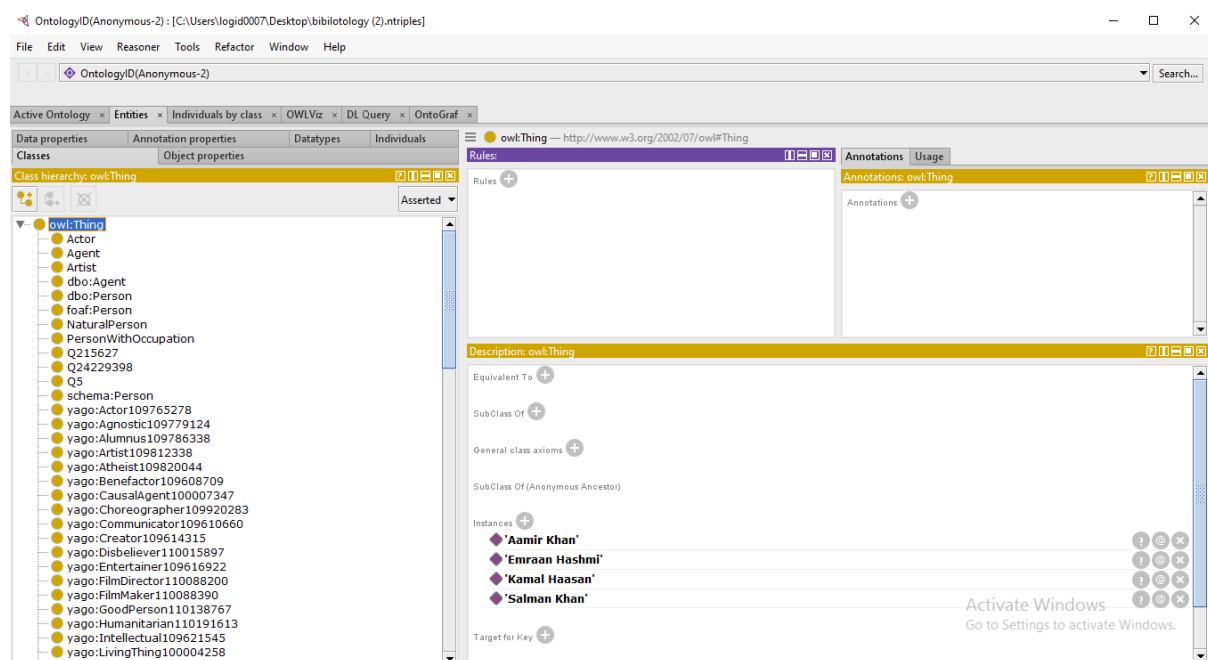

Figure.8 Ontology Description

Figure.8 shows a description of the selected movie actor. The displaying parameters include its equivalency, subclass, general class axiom, instances. All these parameters for every set are displayed.
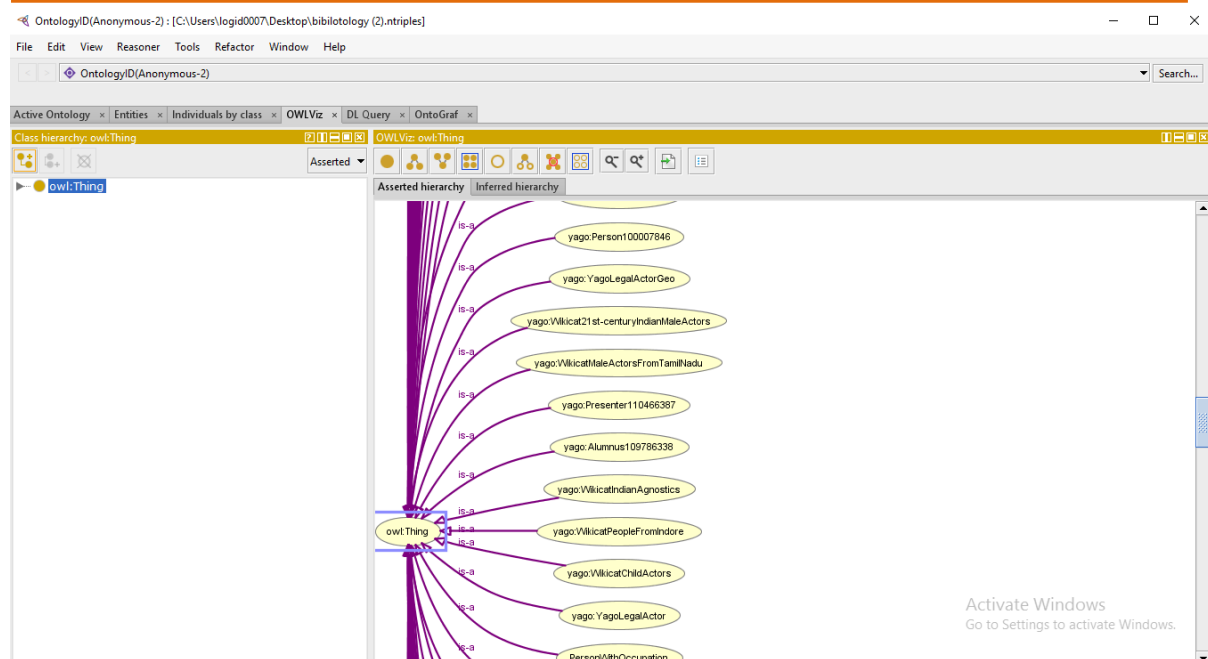
Figure.9 Ontology OWL of asserted hierarchy

Figure.9 shows that the ontology of asserted hierarchy and it gives the information of movie actor with that it will predict the actor promotions based on the various criteria's.
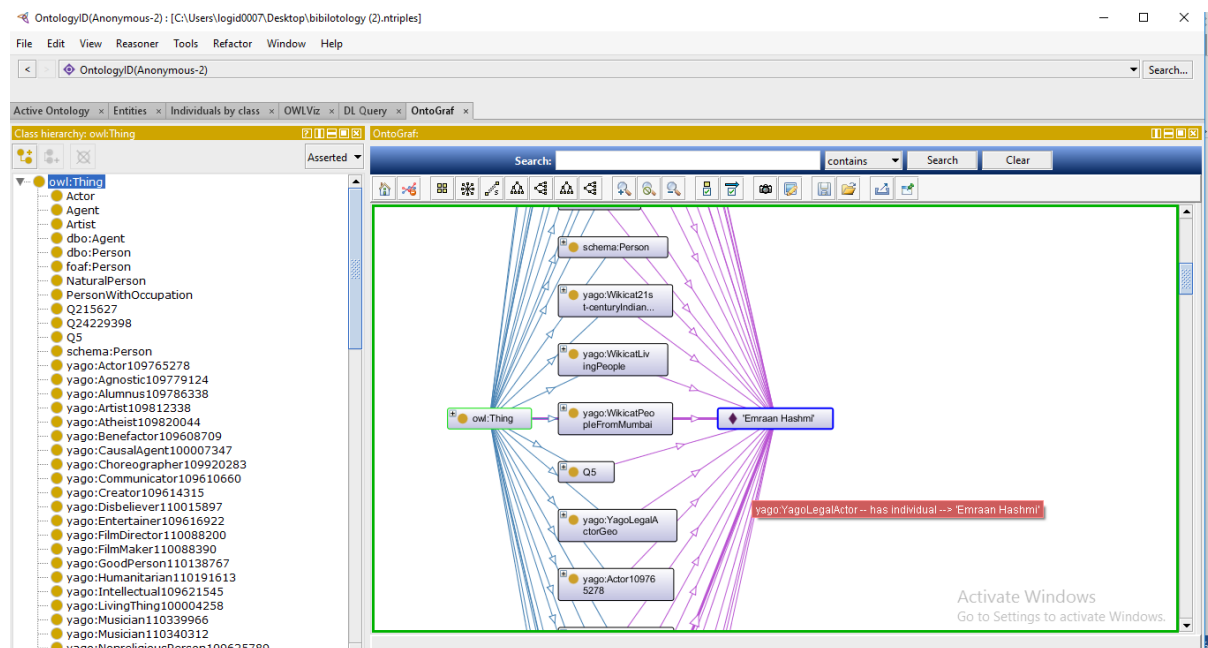
Figure.10 Structure of Bibliotology

Figure.10 shows the structure of the proposed bibliotology, and it gives information about the actors based on the details stored in the search queries.

Figure 11. Ontology network

Figure.11 shows the ontology network of various actors such as Kamal Haasan, Salman Khan, Aamir, etc
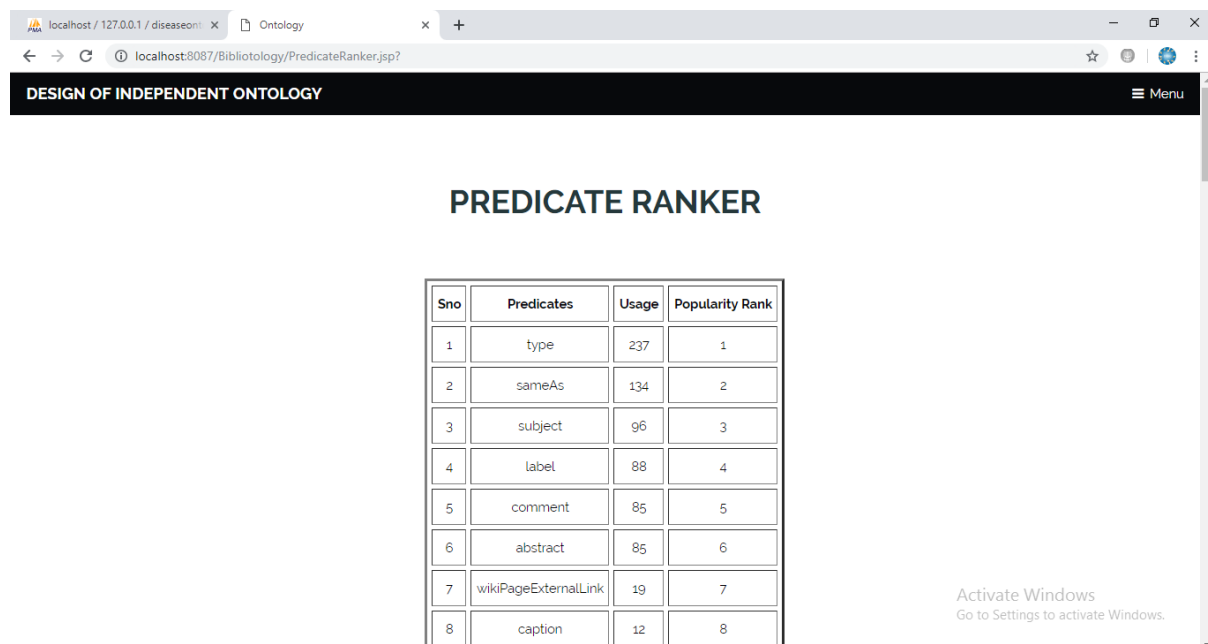
Figure.12 Predicate Ranker

Figure.12 shows the actor bibliotology based on the predicate rank analysis. It constructed the actor bibliotology based on the predicates, usa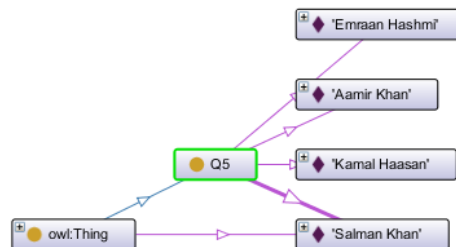ge and popularity rank. It shows that higher usage has the priority. It ranks the popularity based on the type, same as, subject, label, comment, caption, etc.

5. Conclusion:

A novel construction of Bibliographical ontology (Bibliotology) based on the bibliography of movie actors by using predictive rank method is proposed in this paper. Popular predictive rank is utilized to assign the rank for the actor's ontology.The predicate-

oriented neighborhood pattern model has been presented in the perspective of topic detection and query generation for ontologies. The bibliotologyframework enhanced knowledge discovery by capturing underlying structures from domain-specific data and ontologies. The results showed that the proposed bibliotology provided better performance in the movie actor's ontology construction. In the future, the performance of the proposed bibliotology construction will be analyzed with real-time data.

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वित्तीय विवरण के विशिष्ट लक्षण (टाटा आयरन एण्ड स्टील कम्पनी लि0 के विशेष सन्दर्भ में)

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सारांश :–

भारत में कम्पनियों के वित्तीय विवरण कम्पनी अधिनियम 1956 में दिये गये प्रावधानों के अनुसार बनाये जाते हैं। कम्पनी अधिनियम 1956 की धारा 211के अनुसार कम्पनी का चिट्ठा प्रत्येक वित्तीय वर्ष के अन्त में कम्पनी की आर्थिक स्थिति का सच्चा एवं उचित चित्र प्रस्तुत करेगा, तथा अधिनियम की अनुसूची 6 के भाग 1 (एक) में दिये गये प्रारूप में तैयार किया जायेगा अथवा ऐसे अन्य किसी प्रारूप में तैयार किया जा सकता है जो केन्द्रीय सरकार द्वारा मान्य है।

लाभ–हानि खाता कम्पनी अधिनियम की सूची 6 के भाग 2 में वर्णित प्रारूप में वित्तीय वर्ष की समाप्ति पर तैयार किया जाता है तथा लाभ–हानि खाता वित्तीय वर्ष के अन्त में कम्पनी की लाभ–हानि की स्थिति का सच्चा एवं उचित चित्र प्रस्तुत करेगा। इस खाते में सभी निष्कर्ष प्रमाणित एवं विश्वसनीय तथ्यों को स्पष्ट करते हैं।

अन्य निर्माणी कम्पनियों की भॉति टाटा आयरन एण्ड स्टील कम्पनी लिमिटेड ने अपने वित्तीय विवरणों को कम्पनी अधिनियम 1956 की अनुसूची 6 के भाग 1 तथा 2 के अनुसार तैयार किया है तथा कम्पनी अधिनियम के सभी प्रावधानों तथा सेवी के दिशा निर्देशों का यथा स्थान अनुसरण किया है। टाटा आयरन एण्ड स्टील कम्पनी लिमिटेड के वार्षिक प्रतिवेदनों का गहन अध्ययन करने से निम्नलिखित विशेषतायें दिग्दर्शित होती है :–

1. टाटा आयरन एण्ड स्टील कम्पनी लिमिटेड का मुख्य पृष्ठ अत्यन्त आकर्षक रंगीन तथा चमकीला है तथा बहुरंगों से सुसज्जित है जो कि प्रत्येक वर्ष के प्रतिवेदन में बदल दिये जाते हैं। मुख्य पृष्ठ पर कम्पनी का मोनोग्राम वार्षिक प्रतिवेदन की संख्या,संयंत्र का चित्र, संयन्त्र के अन्दर की जाने वाली विभिन्न प्रक्रियाओं के चित्र तथा अच्छे कर्मचारियों के फोटोग्राफ दिये जाते हैं।

2. प्रतिवेदन के प्रारम्भ में विषय सूची, अध्यक्ष, संचालक मण्डल बकर, अंकेक्षक पंजीकृत कार्यालय, आदि की सूचनाओं के साथ–साथ कम्पनी की प्रगति से सम्बन्धित अनेक चित्र एवं रेखा चित्रों को मुद्रित किया जाता है।

3. अध्यक्ष के विवरण में वर्ष में कम्पनी की उपलब्धियॉ, भावी योजनायें, विस्तार कार्यक्रम, वर्तमान समस्याएॅ तथा उनक समाधान हेतु अनेक सुझावों को प्रकाशित किया जाता है।

4. अध्यक्ष के भाषण के बाद संचालक मण्डल का विवरण उनके नाम एवं विभाग सहित दिये जाते हैं। इसके बाद संचालक मण्डल का प्रतिवेदन, लाभ–हानि खाता श्रम तथा कच्चेमाल की वर्तमान स्थिति, वित्तीय योजनायें, विस्तार कार्यक्रम, लाभांश एवं अधिलाभांश निर्गमन की सूचना, आदि तथ्यों को प्रकाशमय किया गया है।

5. नवीन परिवर्तन करते हुए 2003–04 के प्रतिवेदन में प्रबन्ध परिचर्चा तथा विश्लेषण नामक शीर्षक के अन्तर्गत व्यवसाय सिंहावलोकन जैसे–उद्योग का विश्वीयकरण, घरेलू उद्योग, कम्पनी के परिचालन तथा अन्य व्यावसायिक इकाइयों का अनेक बिन्दुओं से सन्दर्भित विवरण प्रस्तुत किया गया है।

6. कम्पनी के वित्तीय क्रियाकलाप का तुलनात्मक विशिष्टीकरण देने के साथ–साथ सेवी के दिशा निर्देशों के अनुरूप फण्डस का स्रोत एवं उपयोगों का विवरण तथा रोक बहाव विवरण को भी दर्शाया गया है।

7. कम्पनी अधिनियम 1956 की धारा 227 तथा धारा 227 (4A) के अनुसार निर्धारित प्रारूप पर उस अंकेक्षक का प्रतिवेदन भी दिया जाता है। जिसने कम्पनी के वित्तीय विवरणों का अंकेक्षण किया है।

8. कम्पनी का चिट्ठा अधिनियम, 1956 की अनुसूची (IV) भाग I तथा फार्म संख्या 23-AB धारा 219 (I) (b) (IV) के अनुसार लम्बवत प्रारूप में दिया गया है तथा चिट्ठे को निम्न दो भागों में बॉटा गया है–(i) कोषों का स्रोत तथा (ii) कोषों का उपयोग।

9. कम्पनी का लाभ–हानि खाता सूची 6 के भाग 2 में दिये गये प्रारूप के अनुसार बनाया गया है। जिसमें सकल आय कर से पूर्व लाभ, कर के बाद लाभ, लाभांश, रोकी गयी आय, आदि को दर्शाया गया है।

10. विनियोजित पूॅजी, शुद्ध मूल्य, प्रति समता अंश, शुद्ध मूल्य, समता अंशो पर लाभांश तथा अनेक प्रकार के अनुपातों को भी दर्शाया गया है।

11. चिट्ठा तथा लाभ–हानि खाते में दी गयी विभिन्न मदों को विस्तृत रूप में स्पष्ट करने हेतु अनेक अनुसूची तथा तालिकायें भी दी जाती है।

12. प्रतिवेदन के अन्तिम पृष्टों में सहायक कम्पनियों से सम्बन्धित वित्तीय सूचनाओं को संक्षेप में दर्शाया जाता है।

उपर्युक्त लक्षणों के आधार पर कहा जा सकता है कि लाभ हानि खाता वित्तीय वर्ष के कार्य–कलापों का परिणाम स्पष्ट करता हो, आवर्तक तथा अनावर्तक प्रकृति के प्रत्येक व्यवहार से सम्बन्धित प्राप्ति एवं खर्चों की पूर्ण जानकारी प्रदान करता है तथा लेखाकर्म की पद्धति से परिवर्तन करने से व्यापार पर पड़ने वाले प्रभावों को प्रकट करता है और चिट्ठा पकृति ''स्थैतिक विवरण है''1 क्योंकि यह एक निश्चित तिथि पर व्यापार की स्थिति को प्रदर्शित करता है। यह ऋणात्मक मूल्यों का दोहरा संकलन है। संक्षिप्त प्रारूप में प्रस्तुत आर्थिक चिट्ठा धनात्मक और दायित्वों तथा सम्पत्तियों का सार है।''2 यह प्रतिष्ठान के प्रारम्भ से लेखांकन के सभी अभिलिखित लेन–देन के परिणामो को प्रदर्शित करता है। अतः यह एक संचयी अभिलेख है।''3 चिट्ठा दोहरी लेखा प्रणाली की रीड की हड्डी है एवं सामान्य खातों का प्रमुख लेखा है।''4 यह प्रबन्धकों तथा लेनदारों को संस्था की वित्तीय स्थिति के बारे में अनुमान लगाने का एक अवसर प्रदान करता है।''5

निष्कर्ष :– इस अध्ययन में वित्तीय विवरण के विशेष लक्षणों पर प्रकाश डाला गया है।

सन्दर्भ सूची :–

1. वूडींगटन,ए लैसरः फाइनैनशल स्टेटमैन्टस (पिटमैन 1938 पृ0सं0–146)।

2. डीविंग, ए0एस0 दी फाइनैनशल पॉलिसी ऑफ कॉरपोरेशन (रोनाल्ड प्रेस कम्पनी, एन0वाई0 रोल 1, संस्करण 5) पृ0सं0–519

3. मुरी कार्ल एल और जैडिक रोबर्ट केः मैनेजिरियल एकाउन्टिंग (ई0 आर्थन पब्लिशर्स लि0 इण्टरनेशरल बिजनेस एण्ड मैनेजमेन्ट संस्करण , 1967, पृ0सं0–36)

4. पैटर्न एण्ड पैटर्नः कारपोरेशन एकाउण्ट्स एण्ड स्टेटमेन्ट्स (मैकमिलन कम्पनी एन0वाई0 1964) पृ0सं0–362

5. फिलिप टोवे – वैलेन्स सीट – हाउ टू रीड एण्ड अण्डरस्टेण्ड ट्रैम (पिटमेन लन्दन, 1934 पृ0सं0–5)

Determinants of Capital Structure in DPSUs(BEL&GSL)in India

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Introduction

The capacity of a firm to operate its activities is based on the availability of funds. Normally, these funds in finance literature are termed as long term funds, which are contributed by owners (shareholders) and outsiders. The owners'funds are represented by equity contributions and internally generated financial resources. A unique characteristic of procuring funds is that a firm may tap any of these sources and hence the blend of these different sources of long term funds is termed as capital structure in finance literature. Capital structure ordinarily implies the proportion of debt and equity in the total capital of a firm. In the term, capital structure,' capital refers to long term funds and structure refers to the proportion of debt and equity in capital. Further, capital is easily comprehended through accounting as the difference between total assets and current liabilities, and this residual difference is always represented by debt and equity.

This capital is supplied by long and short term borrowings, the sole of preferred and common stock and the reinvestment of earnings. He further states that, in analyzing the capital structure of an enterprise, short term debt is often excluded from considerations'. Many others include only long term sources of funds under the capital structure.

In this article, an attempt has been made to bring out the various determinants of Capital Structure of DPSUs in India. In the post liberalization and disinvestment era, the PSUs in India have become more market oriented on raising funds. The slow reduction in the budgetary support for the PSUs has become is notable factor for the PSUs. The PSUs depend more on extra-budgetary resources (EBR) for their requirements.   The variables are considered keeping in view the established Capital Structure models like (i) Trade off Theory and (ii) Pecking Order Theory.

(i) Trade off Theory: The Companies have the options to trade off costs against the cost and benefit to arrive at decisions for availing borrowed funds. As per this theory, companies with stable and tangible assets will go for higher debts and vice versa.

(ii) Pecking Order Theory: As per this theory, there is a pecking order of financing under which internal financing, debt financing and equity financing are preferred in that order. The internal equity is kept at the top and the external equity at the bottom. It explains why highly profitable companies borrow less and less profitable companies borrow more.
        The factors those determine the Capital structure decisions of a company generally are financial risk, operating risk, debt servicing capacity, profitability, sizes etc which are explained below.

 (i) Financial Leverage (FL): This ratio is used to calculate the financial leverage of a company to get an idea to measure its ability to meet financial obligations. There are several ratios, but the main factors looked at include debt, equity, assets and interest expenses. Generally money is borrowed for enhancement production and sales which ultimately yield in

rising earnings. It is measured through the ratio of total debt to total assets. The higher the amount of debt, the higher the financial leverage. Since interest is a fixed cost (which can be written off against revenue), a loan allows an organization to generate more earnings without a corresponding increase in the equity capital requiring increased dividend payments (which cannot be written off against the earnings). However, while high leverage may be beneficial in boom periods, it may cause serious cash flow problems in recessionary period

(ii) Operating Leverage (OL): The ratio indicates the proportion between the contributions to operating profit of a business. The comparison is made between the gross margins with the EBIT of the business. A business which has a higher proportion of fixed costs and a lower proportion of variable costs is said to have used more operating leverage. Those Companies which have lower fixed costs and higher variable costs are said to employ less operating leverage and vice versa.

(iii) Gross Interest Coverage Ratio (GICR):
        A measure of a company's ability to meet its financial obligations. In broad terms, the higher the coverage ratio, the better the ability of the enterprise to fulfill its obligations to its lenders. The trend of coverage ratios over time is also studied by analysts and investors to ascertain the change in a company's financial position. Common coverage ratios include the interest coverage ratio, debt service coverage ratio and the asset coverage ratio. This ratio is used to assess a company's financial affordability by examining whether it is at least profitable enough to pay off its interest expenses. A ratio greater than 1 indicates that the company has more than enough interest coverage to pay off its interest expenses. The ratio is calculated as EBITDA/Interest payments

(iv) Net worth: The book value of a company is its net worth which represents the total assets minus the total liabilities. This shows how much the company gets, if it is sold out.

(v) Sales: It is the Revenue earned by the companies both from sale of goods and services. The sales reflect the growth in size of a company. The more the sales, there will be inflow of more funds which will affect the financial structure of the company.
        An attempt has been made to study the impact of certain variables like financial leverage, operating leverage, debt servicing Capacity, profitability and size on the Capital structure decisions represented by the debt equity ratio DPSU wise as given below.

4.3.3 Determinants of Capital Structure of BEML
        The impact of variables like financial leverage, operating leverage, debt servicing Capacity, profitability and size on the Capital structure decisions of the Company is given below.

Table 4.10
Determinants of capital structure of BEML

Year	DE	FL	OL	GICR	NW	Sales
2002-03	2.17	0.70	9.98	13.79	58514	156906
2003-04	2.01	0.68	11.37	34.45	60125	167219
2004-05	1.91	0.67	2.38	152.89	73468	173279
2005-06	1.42	0.59	2.50	62.89	87971	205954
2006-07	1.19	0.55	2.73	57.36	103349	242387
2007-08	0.98	0.50	2.34	15.72	170570	253959
2008-09	1.17	0.54	2.20	10.89	191538	287974
2009-10	1.16	0.54	2.51	7.53	203784	342126
2010-11	0.99	0.50	3.21	4.63	213904	345128
2011-12	1.27	0.56	6.34	1.43	217208	272649

Source: Annual Reports of the Company.

The correlation among the above variables is shown in the table no 4.12 as given below. Each of the variables has been correlated with the other variable to ascertain the relationship among them.

Table 4.11
Correlation ship matrix of select financial parameters of BEML

	DE	FL	OL	GICR	NW	Sales
DE	1	1.00	0.72	0.41	-0.82	-0.86
FL	1.00	1	0.69	0.45	-0.83	-0.86
OL	0.72	0.69	1	-0.23	-0.45	-0.55
GICR	0.41	0.45	-0.23	1	-0.60	-0.54
NW	-0.82	-0.83	-0.45	-0.60	1	0.93
Sales	-0.86	-0.86	-0.55	-0.54	0.93	1

Source: Correlation based on calculated ratios.

To ascertain the impact, the debt equity ratio has been considered as dependent variable and the others like financial leverage (FL), operating leverage (OR), Gross interest coverage ratio (GICR), Net worth and Sales as independent variable. The regression analysis of the above determinants has been shown in the table no 4.12.

Table 4.12
Regression analysis of capital structure determinants of BEML

Multiple R	1.00					
R Square	0.99					
Adjusted R Square	0.99					
Standard Error	0.05					
Observations	10.00					
ANOVA						
	df	*SS*	*MS*	*F*	*Significance F*	
Regression	5.00	1.72	0.34	157.49	0.00	

Residual	4.00	0.01	0.00			
Total	9.00	1.73				
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	-1.82	0.38	-4.82	0.01	-2.86	-0.77
FL	5.55	0.62	8.91	0.00	3.82	7.29
OL	0.01	0.01	0.58	0.59	-0.03	0.04
GICR	0.00	0.00	-0.02	0.98	0.00	0.00
NW	0.00	0.00	0.22	0.84	0.00	0.00
sales	0.00	0.00	-0.30	0.78	0.00	0.00

Source: Regression based on SPSS Statistics

Based on the above ratios, Correlation and regression analysis, the determinants of Capital structure in BEML are given below. The regression equation shows Cap structure = (-)1.82+5.55(FL) +0.01(OL) +0.00(GICR) + 0.00 (NW) + 0.00(Sales).The overall result indicates the model is significant. However a detailed analysis is given as follows.

 (i) Financial Leverage (FL): An analysis of the data reveals that financial leverage lies in the range between 0.50 to 0.70 in BEML. The correlation analysis shows that there is positive relationship (1.00) of the financial leverage with D/E ratio. The P value of FL as per the regression analysis is 0.00 which is below 0.05(5 percent level of significance) The regression result indicates that the impact of financial leverage on Capital structure is significant.

 (ii) Operating Leverage (OL): An analysis of the data reveals that operating leverage lies in the range between 2.20 to 11.37 in BEML. The correlation analysis shows that there is positive association (0.72) of the Operating leverage with D/E ratio. The P value as per the regression analysis is 0.59 which is above 0.05(5 percent level of significance) The regression result indicates that the impact of operating leverage on Capital structure is not significant.

(iii) Gross Interest Coverage Ratio (GICR): An analysis of the data reveals that GICR lies in the range between 1.43 to 152.89 percent in BEML. The correlation analysis shows that there is positive relationship (0.41) of the GICR with D/E ratio. The P value as per the regression analysis is 0.98 which is above 0.05(5 percent level of significance) The regression result indicates that the impact of GICR on Capital structure is not significant.

(iv) Net Worth: An analysis of the data reveals that the net worth lays in the range between Rs58514 lakhs to Rs 217208lakhs in BEML. The correlation analysis shows that there is negative relationship (-0.82) of the net worth with D/E ratio. The P value as per the regression analysis is 0.84 which is above 0.05(5 percent level of significance) The regression result indicates that the impact of net worth on Capital structure is not significant

(v) Sales: An analysis of the data reveals that Sales lies in the range between Rs 156906 lakhs to Rs 345128lakhs in BEML. The correlation analysis shows that there is negative relationship (-0.86) of the sales with D/E ratio. The P value as per the regression analysis is 0.78 which is above 0.05(5 percent level of significance) The regression result indicates that the impact of sales on Capital structure is not significant.

Thus from the above analysis it is noted that except FL, all other determinants are insignificant. However based on significance F (0.00), the overall model is significant at 5percent level of significance.

4.3.4 Determinants of Capital Structure of GSL

The impact of variables like financial leverage, operating leverage, debt servicing Capacity, profitability and size on the Capital structure decisions of the Company is given below.

Table 4.13

Determinants of capital structure of GSL						
Year	DE	FL	OL	GICR	NW	Sales
2002-03	1.39	0.59	8.20	9.05	18082	38650
2003-04	1.19	0.54	3.32	40.45	17261	29692
2004-05	1.22	0.55	0.30	299.20	17529	8349
2005-06	1.96	0.66	-2.64	136.62	18471	10696
2006-07	3.29	0.77	-0.06	220.55	21586	15279
2007-08	3.66	0.79	-1.59	17.73	27166	2694
2008-09	3.64	0.78	0.85	12.82	33421	47685
2009-10	3.04	0.75	-0.52	18.87	43438	47289
2010-11	1.70	0.63	-0.38	50.87	56911	51443
2011-12	1.49	0.59	2.22	8.39	63183	68162

Source: Annual Reports of the Company**.**

The correlation among the above variables is shown in the table no 6.14 as given below. Each of the variables has been correlated with the other variable to ascertain the relationship among them.

Table -4.14						
Correlation ship matrix of select financial parameters of GSL						
		DE	FL	OL	GICR	NW	Sales
DE	1		0.99	-0.47	-0.16	0.02	-0.18
FL	0.99		1	-0.49	-0.17	0.05	-0.15
OL	-0.47		-0.49	1	-0.31	-0.14	0.36
GICR	-0.16		-0.17	-0.31	1	-0.46	-0.61
NW	0.02		0.05	-0.14	-0.46	1	0.79
Sales	-0.18		-0.15	0.36	-0.61	0.79	1

Source: Correlation based on calculated ratios**.**

To ascertain the impact, the debt equity ratio has been considered as dependent variable and the others like financial leverage (FL), operating leverage (OR) , Gross interest coverage ratio(GICR), Net worth and Sales as independent variable. The regression analysis of the above determinants is shown in the following table no 4.15.

Table 4.15

Regression analysis of capital structure determinants of GSL

Multiple R	0.99					
R Square	0.98					
Adjusted R Square	0.95					
Standard Error	0.24					
Observations	10.00					
ANOVA						
	df	*SS*	*MS*	*F*	*Significance F*	
Regression	5.00	9.28	1.86	32.33	0.00	
Residual	4.00	0.23	0.06			
Total	9.00	9.51				
Intercept	-4.62	0.86	-5.37	0.01	-7.01	-2.23
FL	10.42	1.06	9.86	0.00	7.48	13.35
OL	0.01	0.05	0.26	0.80	-0.12	0.15
GICR	0.00	0.00	-0.05	0.96	0.00	0.00
NW	0.00	0.00	0.06	0.96	0.00	0.00
sales	0.00	0.00	-0.28	0.80	0.00	0.00

Source: Calculation based on SPSS Statistics

Based on the above ratios, Correlation and regression analysis, the determinants of Capital structure in GSL are given below. The regression equation shows Cap structure =(-) 4.62+10.42(FL)0.01(OL)0.00(GICR) +0.00(NW) +0.00(Sales).The overall result indicates the model is significant. However a detailed analysis is given as follows.

(i) Financial Leverage (FL): An analysis of the data reveals that financial leverage lies in the range between 0.79 to 0.54 in GSL. The correlation analysis shows that   there is positive relationship (0.99) of the financial leverage with D/E ratio. The P value of FL as per the regression analysis is 0.00 which is below 0.05(5 percent level of significance)The regression result indicates that the impact of financial leverage on Capital structure is significant.

(ii) Operating Leverage (OL): An analysis of the data reveals that operating leverage lies in the range between -2.64 to 8.20 percent in GSL. The correlation analysis shows that   there is negative association (-0.47) of the Operating leverage with D/E ratio. The P value as per the regression analysis is 0.80 which is above 0.05(5 percent level of significance) The regression result indicates that the impact of operating leverage on Capital structure is not significant.

(iii) Gross Interest Coverage Ratio (GICR) : An analysis of the data reveals that GICR lies in the range between 8.39 to 299.20 percent in GSL. The correlation analysis shows that there is negative relationship (-0.16) of the GICR with D/E ratio. The P value as per the regression analysis is 0.96 which is above 0.05(5 percent level of significance) The regression result indicates that the impact of GICR on Capital structure is not significant.

(iv) Net Worth: An analysis of the data reveals that the net worth lies in the range between Rs17261 lakhs to Rs 63183 lakhs inGSL. The correlation analysis shows that   there is positive relationship (0.02) of the net worth with D/E ratio. The P value as per the regression analysis is 0.0.96 which is above 0.05(5 percent level of significance) The regression result indicates that the impact of net worth on Capital structure is not significant

(v) Sales: An analysis of the data reveals that Sales lies in the range between Rs 2694 lakhs to Rs 68162 lakhs in GSL. The correlation analysis shows that   there is negative

relationship(-0.18) of the sales with D/E ratio. The P value as per the regression analysis is 0.80 which is above 0.05(5 percent level of significance)The regression result indicates that the impact of sales on Capital structure is not significant.

Thus from the above analysis it is noted that except FL, all other determinants are insignificant. However based on significance F (0.03), the overall model is significant at 5percent level of significance.

A COMPERATIVE STUDY OF FINANCIAL PERFORMANCE BETWEEN PUBLIC SECTOR AND PRIVATE SECTOR STEEL COMPANIES

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Abstract

The present study was an attempt to compare the financial performance of the public sector steel company and private sector steel company in India under liberalized era. To determine the financial soundness of these selected companies namely Steel Authority of India Limited and Tata Iron and Steel Company Limited ratio analysis and descriptive statistics are applied over financial data for a period of five years since 2009-10 to 2018-19. The study was based on secondary data collected from moneycontrol.com and published annual reports of the concerned companies.

The available data were analyzed to test the financial health of the companies by taking ratios which was broadly selected from four categories such as liquidity, solvency, efficiency and profitability. Various descriptive statistical tests like Mean, standard deviation (S.D) and coefficient of variation (CV) were also applied in the present study.

Keywords: Financial performance, steel industry, liquidity, solvency, efficiency, profitability, mean,standard deviation, coefficient of variation.

1. INTRODUCTION

The steel industry is considered as a back bone of economic development for all the nations of the world. Steel consumption is considered as an index of economic development of a country. Increase in the consumption of steel leads to rapid industrial and infrastructural development of an economy. A strong linkage has been found between economic development and the increase use of steel in any developed as well as developing countries. Steel and iron are basic needs for any types of manufacturing and construction activities. It is used as basic materials for manufacturing of all types of machinery, metal product, capital goods, transportation and agricultural equipment, electrical product and building etc.

The history of Indian steel industry is more than a century old. Before independence the steel and iron industry consisted of four units, out of which one unit runs as state- owned unit and other were in private sector. After independence, especially during the second plan periods, number of initiative taken to establish to more steel plants under public sectors. As a result many units were established. At the same time major expansion work was undertaken by private units. The government identified steel industries as a core sector for economic and industrial development. As result, steel industry was reserved for public sector only in Industrial Resolution Policy, 1956.But production of Indian steel industry fall short before the increasing demand of steel in many industries. As result government removed the bars on private sectors partially on 1986 and fully liberalized steel industry in

1991. With liberalization, steel industry changed to private sector dominated industry from public sector dominated industry. More and more private sector player participated in this industry. However, the performance of public sector steel companies also remarkable in the post-liberalized era and Indian steel industry emerged as a net exporter of steel within few years of globalization. During 2014-16 India was the second largest producer of raw steel and largest producer of sponge iron in the world. India was the second largest producer of steel in 2018. Domestically available raw materials such as iron ore and low cost of labor help Indian steel industry to become one of the largest producers of steel. TISCO is one of the largest producers of steel in the world. It is the first steel company founded under private ownership in India. SAIL is the largest public sector steel unit in India. It was established in 1973 as a public sector holding company to take over five states- owned steel unit. In 1978 SAIL was restructured as an operating company.

Financial health of any company decides its sustainability in long run. Financial ratio is useful measure to provide a snapshot of a company's financial position at any certain point of time or to provide a comprehensive idea about the financial performance of the company. It is not only useful to analysis the performance of a company over the years but also facilities the comparison between the companies under the same industry.

2. REVIEW OF LITERATURE:

Das (2018) studied the financial performance of Indian steel industry in term of liquidity, solvency, efficiency and profitability using ANOVA analysis for a time period from April 2012 to December 2018 and found significant difference in financial performance between the selected companies.

Kolluru (2005) investigated on performance of Indian steel companies to measure an overall index of performance across the Indian steel companies based on eleven financial ratios including the profit ratio for each company for a time period of 1999-2003. And concluded that overall composite index would serve as a better performance indicator than the conventional stand-alone operating profit margin.

Arab, Masoumi and Barati (2015) studied the performance of selected 5 iron and steel companies in respect of liquidity, solvency, profitability and activity for a period from 2003-04 to 2012-13 using One way ANOVA test of 16 ratios and found substantial difference in the financial performance between the selected companies.

Bhunia and Khan (2011) investigated the association between the liquidity management and profitability of 230 Indian private sector steel companies for a time period from 2002 to 2010 using descriptive statistics, multiple correlation and regression analysis and concluded that liquidity and solvency position was satisfactory and association between selected variables found low.

Balakrishnan (2016) evaluated the financial performance of selected 10 steel companies in term of profitability, asset utilization, growth of performance, financial strength and financial health for a time period from 2003-04 to 2012-13 using multiple Regression model and One –way ANOVA tests and found that liquidity ratio and the inventory turnover ratio had a positive impact on return on equity and the assets were increased during the study period but the asset turnover ratio declined.

Venkatesan&Nagarajan (2012) studied An Empirical Study of Profitability Analysis of Selected Steel Companies in India. It is observed that the overall earning power of Sail, Tata, Bhushan and JSW Company is positive and Visa's financial position has a negative result of the study period.

Muthusamy&Muthumeena (2015) studied Financial Performance of Selected Private Airlines in India during the periods from 2009-10 to 2013-14 using various financial ratios and statistical tools like mean, standard deviation, co-variance, ANOVA, simple correlation co-efficient and t-test and concluded that Jet Airways and Spice Jet have higher profitability performance as compare to other selected private Airline companies in India.

Krishnamoorthi (2016) studied the profitability level of selected steel companies to know their financial strength and weakness using ANOVA analysis for a period of 10 years and concluded that the profitability of selected steel companies are good enough but few mid cap companies struggling to stabilized their profitability.

Bhatia (2017) studied the challenges faced by Indian iron and steel industry specially focused on production, capacity utilization, import and export, price movements and impact of international demand and supply conditions and concluded that Government of India need to formulate turnaround plan so that future targets will be achieved set by Government of India for the industry.

3. RESEARCH OBJECTIVES

1. To compare the liquidity position of the two steel companies under study.

2. To study solvency position of the two steel companies under study.

3. To compare the efficiency position of the two steel companies under study

4. To compare the profitability position of the two steel companies under study.

4. RESEARCH METHODOLOGY

i) DATA: The study tries to compare the financial performance between public sector steel company and private sector steel company. For this purpose, SAIL has been selected as a representative of Indian steel industry under public sector and TISCO as a representative of Indian steel industry under private sector. Financial performance has been analyzed of the

selected companies in term ofliquidity, solvency, efficiency and profitability. Ratios are taken into consideration of the selected companies to compare the financial performance. Current ratio, quick ratio are used to ascertain the liquidity of the two companies. Debt equity ratio and interest coverage ratios are used to in the study to determine the long term liquidity or solvency of the companies. Efficiency ratios like inventory turnover ratio, debtor turnover ratio, and fixed assets turnover ratio are considered in the study to know the assets utilization capacity of the companies for sales generation. Profitability ratios (operating profit margin, net profit margin and return on investment) are used in the study to examine the profit earning capacity of the companies.

ii) DATA SOURCE: Secondary data source has been used for the study.

iii) PERIOD OF THE STUDY: data from 2009-10 to 2017-18 are taken for the study.

iv) TOOLS USED: Descriptive statistics like mean, standard deviation and coefficient of variation are used to make the accurate analysis of short-term and long-term liquidity, efficiency and profitability of the selected companies.

5. **ANALYSIS AND INTERPRETATIONS**

In this section financial ratios are analyzed to evaluate the financial performance of the selected companies

A) **FINANCIAL PERFORMANCE OF THE COMPANIES IN TERMS OF LIQUIDITY RATIOS**

RATIO	CURRENT RATIO		QUICK RATIO	
YEAR	SAIL	TISCO	SAIL	TISCO
2009-10	1.6	1.12	1.53	0.76
2010-11	1.21	1.53	1.35	1.31
2011-12	1.22	0.93	0.82	0.69
2012-13	1.01	0.86	0.68	0.61
2013-14	0.79	0.57	0.62	0.32
2014-15	0.68	0.62	0.55	0.27
2015-16	0.62	0.52	0.44	0.32
2016-17	0.6	0.55	0.38	0.28
2017-18	0.7	0.64	0.4	0.34
MEAN	0.936667	0.815556	0.752222	0.544444
SD	0.345941	0.336419	0.416917	0.343843
CV (%)	36.93318	41.25029	55.42466	63.15478

COMPARISON IN TERM OF LIQUIDITY RATIOS-

Liquidity ratios are the measure of the company's ability to meet its short-term obligation and its margin of safety for current liabilities. Liquidity ratios analyzed its current

liabilities in relation to liquid assets to evaluate the coverage for short-term debts in an emergency. Current ratio is generally used to measure the short-time liquidity of the company and it is also acts as safety margin for the creditors. Quick ratio is a more penetrating test of liquidity than the current ratio. Although a high quick ratio is desirable but a high QR may suffer from fund crunch if debtors are making delay in payment.

Table-1 shows the descriptive statistics of current ratio and quick ratio of SAIL and TISCO for periods of 9 years from 2009-10 to 2017-18. The average current ratio of SAIL was .937 and standard deviation is 0.3459 and it varies 36.93% during the last 9 years. The average current ratio of TISCO was .815 and standard deviation is 0.336 and it varies 41.25% during the last 9 years.

The average current ratio of SAIL was slightly better than TISCO but the standard deviation of current ratio for SAIL greater than TISCO indicating a large change during the study period. The coefficient of variation for TISCO shows higher value then SAIL indicating less consistency for the company during the study period in terms of liquidity.

The average quick ratio of SAIL was .752 and standard deviation is 0.417 and it varies 55.42% during the last 9 years. The average quick ratio of TISCO was .544 and standard deviation is 0.344 and it varies 63.15 % during the last 9 years.

The mean of quick ratio of SAIL is better than TISCO but the standard deviation of quick ratio for SAIL greater than TISCO indicating a large change during the study period. The coefficient of variation for TISCO shows higher value then SAIL indicating less consistency for the companies during the study period in terms of liquidity.

B) FINANCIAL PERFORMANCE OF THE COMPANIES IN TERMS OF SOLVENCY RATIOS

RATIO	DEBT-EQUITY RATIO		INTEREST COVERAGE RATIO	
YEAR	SAIL	TISCO	SAIL	TISCO
2009-10	0.5	0.68	26.26	4.41
2010-11	0.54	0.56	15.86	6.26
2011-12	0.4	0.45	9	5.85
2012-13	0.52	0.47	5.59	5.53
2013-14	0.57	0.43	3.19	6.41
2014-15	0.65	0.39	2.68	4.35
2015-16	0.8	0.44	-2.51	6.28
2016-17	1.08	0.61	-0.83	3.25
2017-18	1.18	0.45	0.72	4.56
MEAN	0.6933	0.4978	6.66222	5.21111
SD	0.272	0.0965	9.21123	1.10923
CV (%)	39.228	19.394	138.261	21.2858

COMPARISON OF PERFORMANCE IN TERM OF SOLVENCY RATIO-

Solvency ratios are used to determine the solvency of a firm. It takes actual cash flows instead of net profit to assess the company's ability to stay solvent. These ratios consider all liabilities rather than only current liability. It evaluates company's repayment ability for its all debt and interest on that debt. Debt-equity ratio measure the degree of financial leverage of the firm. The more debt the firm uses, the higher it's financial leverage, the higher its financial risk and the higher the potential returns. It measures how much of equity and how much of debt a company uses to finance its assets. Interest coverage ratio indicates that how many times the company can pay its interest expenses out of its actual cash flows. The ratio is one of the important financial indices of creditworthiness of the concerned company.

Table-2 shows that average debt-equity ratio of SAIL is .693, and for TISCO average of .498, indicating that both the company is positively geared and has less financial risk. Mean of SAIL is higher than TISCO indicating SAIL has more financial risk than TISCO. The standard deviation of SAIL is .272 which is more than TISCO (.096) indicating high degree of uniformity of observation for TISCO. SAIL has the coefficient of variation of 39.228% compared to TISCO's coefficient of variation of 19.394% signifying that TISCO is more consistent in using debt content to finance its assets and projects then SAIL.

SAIL and TISCO has the average interest coverage ratio of 6.662 and 5.211 indicating that both the companies have sound income to cover the financial charges (Table-2).The standard deviation of SAIL is high(9.211) then TISCO(1.109)indicating greater changes for SAIL in study period. The coefficient of variation for SAIL is very high (138.26%) as compared to TISCO (21.29%) signifying less consistency in case of generation of cash flows and interest payment during the study period.

C) FINANCIAL PERFORMANCE OF THE COMPANIES IN TERMS OF EFFICIENCY RATIOS

RATIO	INVENTORY TURNOVER RATIO		DEBTOR TURNOVER RATIO		FIXED ASSETS TURNOVER RATIO	
YEAR	SAIL	TISCO	SAIL	TISCO	SAIL	TISCO
2009-10	6.02	10.9	12.46	46.58	1.2	1.12
2010-11	5.13	8.07	11.11	68.46	1.16	1.32
2011-12	3.37	5.31	10.39	8.95	1.16	1.22
2012-13	2.79	5.76	9.71	9.33	1.09	1.04
2013-14	3.45	5.7	9.43	9.91	0.89	0.99
2014-15	2.88	5.74	10.54	9.52	0.72	0.97
2015-16	2.9	5.97	12.97	9.37	0.53	0.81
2016-17	3.17	5.2	14.66	36.37	0.54	0.6
2017-18	3.47	5.49	16.95	30.71	0.61	0.72
MEAN	3.68667	6.46	12.02444	25.467	0.8777778	0.976667
SD	1.12202	1.870254	2.50225	21.59	0.2828329	0.233827
CV (%)	30.4345	28.9513	20.80969	84.779	32.221469	23.94132

COMPARISON OF PERFORMANCE IN TERM OF EFFICIENCY RATIO-

An efficiency ratio is a measure of company's ability to use its assets to generate income. This ratio analyzes how well a company uses its assets and liabilities internally. It helps to assess the management accountability. Inventory turnover ratio measures the efficiency of manufacturing and marketing regarding production scheduling and disposal of the output to the market. Generally a higher ratio is considered as positive indicator of operating efficiency and good inventory management system. High turnover ratio implies that the products of the company have the high demand in the market. But a very high ratio calls for a careful analysis. It may be indicative of underinvestment in, or very low level of inventory. Debtor turnover ratio indicates the velocity of debt collection of a company. In simple words, this ratio indicates the efficiency of the companies in debt collection. Generally, higher the value of debtors" turnover, the more efficient is the receivable management. Fixed assets turnover ratio is an indicator of utilization of fixed assets in sales generation. A higher ratio indicates that that the company is generating more revenue per rupee of fixed assets.

Table-3 shows that SAIL (3.69) and TISCO (6.46) have the average inventory turnover ratio which is satisfactory for both the companies but TISCO has better inventory management during the study period (Table-3).The standard deviation of SAIL and TISCO are 1.12 and 1.87 respectively indicates less changes for SAIL. The coefficient of variation of SAIL and TISCO are 30.43% and 28.95% respectively which shows that consistency of TISCO is slight better then SAIL.

It is observed from the table-3 the average debtor turnover for SAIL is 12.02 and TISCO is 25.47 respectively indicating better collection policies for TISCO. But in term of changes and consistency of collection policy SAIL performed better than TISCO as the standard deviation and coefficient of variation of TISCO are higher than SAIL.

In the present study it indicates that TISCO has a better fixed assets management system and used fixed assets more efficiently in revenue generation than SAIL because Mean value is high for TISCO then SAIL and S.D. and CV (%) is low for TISCO.

D) FINANCIAL PERFORMANCE OF THE COMPANIES IN TERMS OF PROFITABILITY RATIOS

RATIO	OPERATING PROFIT MARGIN		NET PROFIT MARGIN		RETURN ON INVESTMENT	
YEAR	SAIL	TISCO	SAIL	TISCO	SAIL	TISCO
2009-10	22.69	35.7	16.63	20.23	20.46	13.06
2010-11	16.37	39.06	11.53	23.35	8.64	14.86
2011-12	13.04	33.99	7.94	19.73	10.91	14.77
2012-13	10.34	29.12	4.86	13.25	6.67	12.8
2013-14	8.39	30.72	5.6	15.37	4.6	13.37
2014-15	10.18	23.95	4.57	15.41	5.43	9.25
2015-16	9.25	18.87	-10.58	12.82	-7.25	9.03
2016-17	0.08	24.74	-6.37	7.17	-2.81	10.95
2017-18	8.02	26.46	-0.83	6.99	2.62	14.39
MEAN	10.9289	29.1789	3.7056	14.9244	5.47444	12.5
SD	6.21207	6.38746	8.5002	5.62345	7.94528	2.249
CV (%)	56.8408	21.8907	229.39	37.6795	145.134	17.99

COMPARISON OF PERFORMANCE IN TERM OF PROFITABILITY RATIO-

Operating profit margin is test of the efficiency of the company's management in their business operation. Operating profit margin measures the proportion of revenues earned by the company after deduction of direct expenses, fixed and overhead costs. It is the income generated from main operations of the company. Net profit margin finds the proportion of revenue that finds its way into profits. A high net profit margin will ensure positive return of the business. It is the portion of revenue after deducting all the direct and indirect expenses of the business. Return on investment is the % of return on fund invested in the business by its owner. The ratio provides a standard for evaluating the competency of the management to employ the money in business assets. An increase in ROI can translate directly into a higher return on stockholder's equity.

Table-4 shows the operating profit margin for SAIL (10.93) and TISCO (29.18) which indicates that TISCO's management is more efficient in their business operation. But standard deviation of SAIL is slightly better than TISCO indicating less change for SAIL and coefficient of variance of SAIL is higher than TISCO indicating less consistency which means company is following inefficient cost control method and pricing strategy. Table-4 shows that TISCO has better figure of Mean S.D. then SAIL which indicates better pricing policies, cost structure and production management of TISCO and TISCO is more consistent then sail according to CV (%).From table -4 it shows that TISCO perform better and more efficient investment management strategy then SAIL as Mean S.D and CV (%) of TISCO shows better figure then sail. The management of TISCO is more accountable to their investor.

6. <u>FINDINGS AND CONCLUTIONS</u>

In term of liquidity ratio

▸ SAIL has better liquidity management as compared to TISCO. Both current ratio and quick ratio shows better result for SAIL.

In term of solvency ratio

▸ According to debt-equity ratio, both companies are positively geared but SAIL has more debt content in capital structure then TISCO.

▸ TISCO is more consistent in using debt content in its capital structure.

▸ As per interest coverage ratio, both companies have sound income to cover its financial charges. But SAIL is less consistent in generating cash flows.

In term of efficiency ratio

▸ TISCO has better and consistent inventory management system then SAIL.

▸ TISCO's debtor's collection policy is better than SAIL but SAIL has more consistent collection policy.

▸ TISCO is better and consistent in utilizing fixed assets for generation of revenue.

In term of profitability

▸ In case of profitability TISCO perform much better then SAIL.

▸ TISCO was more consistent then SAIL in profitability.

▸ The net profit margin and return on investment of SAIL for few years showing negative figures which is dangerous sign for future of the company.

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"AN EMPIRICAL ANALYSIS OF ROLE AND IMPORTANCE OF AMALGAMATIVE RESEARCH"

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ABSTRACT

Research is simply the process of finding solutions to a problem after a thorough study and analysis of the situational factors. A new epoch in the field of research which is harnessing in academic and research institutions at large is Amalgamative research also commonly known as Collaborative (or participatory) research. It can be defined as researchers working together to achieve the common goal of producing new scientific knowledge. Collaborative research may be viewed more as an attitude or approach rather than well-defined techniques to be followed. The focus is on empowering local people to take charge of the research process, and this empowerment may be achieved via numerous methods that should be determined by the details of the population and project at hand. The current research endeavor is formulated to garnish an important objective i.e to pragmatically elucidate the importance and role of amalgamative research in various facets of research. Current research endeavor is qualitative in nature and based on secondary data, collected from various books, journals, reports and websites of scientific evidences. Current paper ascertains the objective by stating the utilization of amalgamative research. Truly collaborative research involves respecting and understanding the participants and recognizing the knowledge and capabilities of the local people who can work with researchers to obtain analyses and solutions. Research also highlights various technical and non technical advantages of amalgamative research in the field of academia, industry and research, such as Social Sciences, Commerce, Management, Sciences etc. To justify the findings of research, two case studies of latest trend in amalgamative research are also postulated in current research. Finally paper concludes that collaborative research should be viewed not only for something that should be done for ethical reasons, but also as a way to improve the quality of research.

Key words: Amalgamative, Scientific, research, Commerce, Facets, Life.

1. INTRODUCTION

Research plays an important role in the economic development of any country. In fact, research and development form the basis of future competitiveness of an economy.

1.1 CONCEPT OF RESEARCH

Research refers to creative work which is undertaken systematically, in order to increase the stock of knowledge of individuals, culture and society and further utilize this stock to devise new applications. In the broad sense, it covers gathering of any data, information and facts for the advancement of knowledge. Innovation can be considered as the key player of economic growth and subsequent improvement in the quality of living. In this century, there is no doubt about the fact that India has the capability of spearheading global innovation, but the big question that emerges is will Indian higher education support this potential? The entire issue warrants a careful discussion. Research in education refers to solving educational problems in a systematic and scientific manner and also to understand, explain and predict human behavior in a more organized way.

1.2 RESEARCH IN INDIA

Education is a prime mover of the society. In order to favorably utilize our demographic potential, the quality of education together with access and equity gathers significance. India has the third largest system of higher education. The overall scenario is that, quality does not match the global standards and there is increased scope and urgency for improving the quality of our country's educational institutions. The research scenario in India portrays a shequered picture. While some leading world class institutions like the IITs and the IIMs are achieving what was well planned in their objectives others portray a dismal picture in terms of quality and quantity of research. The first Prime Minister of independent India, *Shri Jawaharlal Nehru*, believed in the importance of science and education which would facilitate a path of innovations, which in turn would help in the process of development. Generally India has evolved a large number of high quality research institutions which would provide valuable advice to the policy makers. The institutional framework for research and development can be divided into 2 broad categories: defense and civilian.

The five apex bodies which are responsible for research and development are:

 a) **Indian Council of Medical Research**; It is the apex body for the formulation, coordination and promotion of bio medical research.

b) **Indian Council of Agricultural Research**; an autonomous body which coordinates guides and manages research and education in agriculture including horticulture, fisheries and animal sciences.

c) **Indian Council for Social Science Research**; It was established in 1969 by the Government of India to promote research in social sciences.

d) **Council of Scientific and Industrial Research**; It was established in 1942 as an autonomous body and India's largest Research and Development organization. Its activities include various fields like aero - space engineering, structural engineering, life sciences, environment etc.

e) **Tata Institute of Fundamental Research**. It is a Research institution in Mumbai dedicated to basic research in Mathematics and sciences.

It is necessary to design a framework that will take into account the entire life-cycle of ideas, beginning from discovery and creation to commercial application and value addition. This calls for a holistic approach to public funding in Research and Development.

India attracts more Research and Development facilities from the US multinationals in the "Fortune 500" than any other nation. This could be primarily attributed to the large number of science and engineering PhDs available in the country. The government wants to increase the spending on Research and Development under the twelfth five year plan (2012-2017) from 0.9% to 2%.

However, when a comparison is made with other countries India presents a poor picture. In our country there are 119 researchers per million population as against 5287 in Japan and 4484 in United States. She has a little over 6000 Doctorates in Science as compared to 9000 in China and 25,000 in United States. Most of the Indian colleges and universities lack high end research facilities. The number of PhDs produced every year is very low. The Government of India has taken several steps to promote the Research and Development sector in India, as mentioned in the Union Budget of 2014-15. Two additional Research Institutes of excellence were set up in Assam and Jharkhand with an initial sum of Rupees 100 crores.

In addition the government plans to establish a national level research and referral institute for higher dental studies.

The following are a few examples of recent investments:

1. French tire manufacturer Michelin is planning to set up an R&D sector in India. This facility was set up in Gurgaon, which will be first of its kind in developing country;

2. Sandwik announced the proposal for the setting up of a world class facility at Chakan which is part of the Maharashtra Industrial Development Corporation Park near Pune;

3. Valvoline Cummins Ltd (VCL), a joint venture between Ashland Inc. and Cummins India Ltd has announced the opening of new labs for Research & Development and Product Development along with a training facility at Lexington, Kentucky, USA

2. OBJECTIVES OF RESEARCH

The study is based on the following objectives:

1. To understand the meaning of research particularly collaborative research in education.
2. To get preliminary information on the collaborative research scene in India.
3. To discuss the challenges facing research and throw light on what augurs for the future

3. IMPORTANCE OF RESEARCH

Let us discuss the significance of Research One, our knowledge is limited and a number of problems need to be solved in different fields of study. Very often we identify a vacuum in our knowledge and try to address it by asking related questions. Research through systematic study makes available a variety of methods which help in finding solutions. Two, research is regarded as an objective, methodical, well-determined scientific method of investigation. Through research a stock of the current scenario can be taken and this will guide the organizations in their decision taking of the future. Three, we carry out our mundane daily tasks on the basis of our common sense. However, this may not be the correct approach. We will have to find out what is the best under the current situations and research serves this task the best. Four, another angle of research is that it helps to gather information. The findings can be recorded and then analyzed to judge the validity of the information. Five, Research is a systematic investigator into and study of materials and sources. It helps to pursue your interests, learn something new, hone your problem solving skills and come out with results that can contribute to enhancement of knowledge. Six, Practice of research adds depth to research papers as students are kept abreast of the latest information. Through learning from real world case studies and by seeking the guidance of faculty members help students‟ secure up to date information.

In this world of Information and Communication Technology lack of infrastructure and poor quality of digital content are grounds for concern. For making a healthy ICT environment, digitized PhD thesis, e-journals, research journals, e-books etc have to be developed. Seven, it is vital that educational institutions establish a Research Consultancy culture involving faculty, students, professionals and industry to work on a few technologies and facilitate discovery. Research should be the core area instrumental for inter-face between the academic and corporate world. It must provide a theoretical framework that enables reassessment and refinement of current practices and thinking. It empowers the faculty with in depth knowledge and instills a sense of curiosity among them. In addition it improves the consultancy capabilities of the faculty.

The importance of international collaboration International research collaboration, which, it is argued, is characteristic of rapidly changing research systems, is regarded by many as an indicator of high-quality research (Kim, 2006). Kim notes that research collaboration is often regarded as an effective way to get access to the developed scientific

knowledge and technologies for the Developing or Newly Developed countries. From this perspective, the research collaboration is not an indicator of research quality as such but a means to reach that quality. (2005: 231) International research collaboration presents health researchers with opportunities to share experiences, data and methods that can provide the basis for new and important perspectives on existing practices. Rolfe et al. (2004) refer to the power that international collaboration can bring to the research enterprise; this, they argue, is directly related to the comparison of experiences and analysis. In their informative paper on addressing common problems in healthcare, Rolfe et al. (2004) outline a number of significant stages that comprise the practical process of forming a sustainable collaboration: the formation of collaborative structures; the sharing of information; the sharing of resources and skills, and multidisciplinary involvement.

They conclude that collaborative research can help to address common healthcare problems through the pooling of resources. In our own experiences we have found great benefit in sharing methods and protocols, previously unique to one region. This has forced us to challenge our taken-for-granted assumptions, move towards fresh perspectives and, in practical terms, aims to reduce disparities. Moreover, international partnerships can facilitate the acquisition of new research skills and push the boundaries of research methods and techniques. Clearly, many opportunities emanate from international collaboration, including those that see researchers travelling to new places, meeting diverse groups of people from differing cultures and immersing themselves in those cultures. Grathwol (2005) refers to this as looking at the world through a different window, and asserts that international collaboration will inevitably broaden a person's horizons, enrich their lives and provide them with both professional and personal networks for a lifetime.

4. CHALLENGES FOR REESEARCH IN INDIA

The Indian system of higher education has been facing a number of challenges. It requires major investments so as to make human resources productive, by coupling the older general disciplines of humanities, social sciences, natural sciences and commerce, with their applications in the new economy and having adequate field base experience to enhance knowledge with skills and develop appropriate attitudes. There are several basic problems facing Indian higher education at present. They include inadequate infrastructural facilities; faculty crunch; low enrolment ratio; over-crowded classrooms; widespread geographical income, gender and ethnic imbalances etc. India has a low base of researchers and the academic sector contributes less than 14% of the total number of researchers.

The immediate need in this context would be, to encourage industry-academia collaborations, promote collaborations between the universities and the public authorities as also between the government and Research and Development laboratories and also increase the number and quality of doctoral students. The Indian education system promotes rote learning and students only use prescribed materials. This trend continues even when pursuing higher education. The examinations are more a test of memory power rather than creativity. When the stage comes to pursue further studies and present research papers, they portray a dismal picture hampering the research process associated with higher education. As the students are deprived of intellectual stimulation fostered by research, they fall short of invaluable knowledge and skills which are not only important in their careers but also in other areas of life.

Even the number of students pursuing research is limited by want of time, and support. The result being them ending up intimidated, confused and frustrated. One of the

main impediments is lack of scientific theory. Many of the researchers are incapable of carrying out sound empirical work; data is often inadequate and even when available not availed of; in addition the problem of bureaucratic inertia is always plaguing the system. Often there is lack of scientific knowledge and training in Research Methodology. Many of our researchers and guides are not competent enough to carry out sound empirical work.

The following factors can be said to be encouraging good research:

1. A conducive academic environment of the institutions/universities;

2. A well-stocked library and Reference section covering books, e-books, journals, online library etc;

3. Provision of adequate infrastructural facility.

4. Existence of Research laboratories having the latest equipments.

5. Availability of adequate finance for purchase of funds.

6. Combining teaching and research related activity in the work profile of the Professors.

7. Instilling a feeling of pride and purposefulness among teachers that their major task is to transformation of the economy.

5. FUTURE OF RESEARCH IN INDIA

One of the great economists and Nobel Prize laureate, Milton Friedman (Consultant to Ministry of Finance –Government of India -1955), said, "The great untapped resource of technical and scientific knowledge available to India for the taking is the economic equivalent of the untapped commitment available to the US 150 years back". In the increasingly competitive global economy, it is necessary to have knowledge driven growth powered by innovations. The key to continued success for India is building up of a higher education system which is superior in quality and which encourages research.

Very often, it is the industry which is the beneficiary of several research efforts and therefore interactions between industry and research establishments is important. In the current age where issues of research are often of global nature active interaction with international institutions of repute must be encouraged. Vocational skills should be emphasized. Vocational training will play a crucial role preparing the workforce to be productively used to propel the growth process of the economy. There are emerging interest in linking skills and higher education sector. While creating an enabling environment, note should be made of reducing the teaching hours, greater financial support and providing access to better infrastructure. Awarding of fellowships and encouraging industry collaborations will promote research.

Research can be promoted by following certain guidelines such as inclusion of research as a criterion for faculty for the purpose of promotion, (a system laid down by UGC and is currently been followed by affiliated colleges and universities); institution of awards for distinguished researchers with substantial financial incentives; generation of greater funding; improvement of infrastructure; and possible reduction of teaching hours so that more time can be devoted to research. India has all the potential of being a research hub given her long tradition of teaching and renowned Brain Power. The impediments have to tackled so as to easy the path to economic prosperity.

6. CONCLUSION

Research as we have seen plays an important role in the economic development of a country, more so in case of a developing country like India. We face a number of constraints, in the form of ill-stocked libraries, absence of well-equipped laboratories, lack of adequate

finance, government intervention etc. In view of the fact that we possess a universally acknowledged Brain Power, the need of the hour is for innovations and inventions. India prides itself in producing Nobel Laureates of Indian origin. The innate talents of our researchers have to be nurtured and fostered to make a mark in the international arena. All this calls for greater financial support, right policy mix together with working on finding solutions to the impairing problems plaguing the Indian society, if we have to be seen as a major player in the global world.

Current research endeavor is qualitative in nature and based on secondary data, collected from various books, journals, reports and websites of scientific evidences. Current paper ascertains the objective by stating the utilization of amalgamative research. Truly collaborative research involves respecting and understanding the participants and recognizing the knowledge and capabilities of the local people who can work with researchers to obtain analyses and solutions. Research also highlights various technical and non technical advantages of amalgamative research in the field of academia, industry and research, such as Social Sciences, Commerce, Management, Sciences etc. To justify the findings of research, two case studies of latest trend in amalgamative research are also postulated in current research. Finally paper concludes that collaborative research should be viewed not only for something that should be done for ethical reasons, but also as a way to improve the quality of research.

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Examination of Put Call Parity of Individual Stock Options at NSE

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Index options and stock options commenced trading on National Stock Exchange of India on June 4, 2001 and July 2, 2001 respectively. Since then, the trading volume in the options market has been continuously rising. Till 2008-09 futures market dominated options market both for Index and Stock products. However, since 2009-10, trading in options market has surpassed the futures market for both Index and Stock products. The reason for this change in popularity of options is that in 2007-08 the global financial crisis hit the financial markets. As a result of the crisis the investors' sentiments were badly hurt and the global financial markets plummeted. In order to mitigate the increased risk during the financial crisis the options products gained popularity. It is because options give its holder the right to buy or sell in case of unfavourable price moves. Therefore, options are sometimes referred as the products with upside without the downside.

The prices/premiums of European put and call options on the same underlying asset with the same strike price and expiry share an important relationship called put-call parity. This relationship was discovered by Stoll (1969). According to this relationship, we can determine the value of a European call option from the value of a European put option which has the same strike price and expiry. Mathematically, the put-call parity is expressed as follows:

$c + D + Ke^{-rT} = p + S_0$

where

c = price of European call option

p = price of European put option

S_0 = current spot price of the stock

K = strike price

r = risk-free rate of interest

T = time to maturity

D = present value of dividends

If put call parity does not exist, then arbitrage would be possible.

Literature Review

Nisbet (1992) finds that for London Traded Options Market significant deviations from put-call relationship exists. However, after considering the transactions costs, these deviations are not exploitable.

Using intraday data for S&P500 and MM indexes, Evnine and Rudd (1985) provide evidence of frequent violation of put-call parity. In addition, they also find that the options on these indices are mispriced relative to theoretically predicted prices.

Kamara and Miller (1995) argue that early exercise option makes it difficult to interpret deviations from put-call parityfor American options. Analysing European options, they report that deviations from put-call parity are less frequent and reflect liquidity risk.

Cremers and Weinbaum (2010) find that deviation from put-call parity provides useful information for future price movements. They use difference in implied volatilities of puts and calls and report that stocks with expensive calls outperform the stocks with expensive puts. They further add that the predictability is related to liquidity with higher predictability associated with high (low) option (stock) liquidity.

Muravyev, Pearson and Paul (2013) investigate intraday disagreements of spot price and its options implied price based on put-call parity for 39 US stocks. They find that this disequilibrium is mitigated by movement in the option price quotes and conclude that option prices do not contain information for future stock returns.

Ackertand Tian (2001) examine the effect of SPDRs on the relationship between S&P500 and associated options. They conclude that after considering transaction costs and short sales restrictions there are very few instances of violations of put-call parity.

Mittnik and Rieken (2000) use transactions data for 44 months for examining the efficiency of German DAX options market. Using regression analysis, they find that at the money puts are relatively overpriced than at the money calls. They conclude that on statistical grounds put-call parity can be rejected but on economic grounds (considering transaction cost) and short sale constraints, the efficiency of the options market cannot be rejected.

Cavallo and Mammola (2000) examinethe efficiency of Italian index option contract (MIBO30). They also report that deviations from put-call parity are not profitable after accounting for transactions costs. Simulation on volatility hedging strategy also provides no evidence of abnormal profits.

Data and Methodology

The present study has used data for the period Jan 1, 2015 to Dec 31, 2015. The reason for choosing this period is that European options on individual stocks started trading on NSE only in October 2010. As a result of this most of the stocks had very low trading volume in initial years. Examination of put call parity requires at least some trading activity in the options market.

For examining the put call parity first the put options prices are deduced from the call options using the above stated equation. Then, the discrepancy which is the difference between this price and actual put price is obtained. This discrepancy is then expressed as a percentage of the actual put price. And finally, the price discrepancies are classified into the following categories:

0-1%, 1-5%, 5-10%, 10-25%; and 25% and above

On the basis of this frequency table the deviation from put call parity has been studied for all the fifty stocks of CNX Nifty.

Empirical Results

Table I presents the percentage of deviation from put call parity for all the Nifty 50 stocks. The pricing error has been categorized into 5 categories viz. 0-1%, 1-5%, 5-10%, 10-25% and 25% and above.

Table I: Deviation from Put Call Parity for Nifty 50 Stocks

S.No.	Company	0-1%	1-5%	5-10%	10-25%	25% and above
1	ACC	8.70%	25.32%	20.97%	27.88%	17.14%
2	ADANIPORTS	11.89%	42.04%	29.30%	13.59%	3.18%
3	AMBUJACEM	7.51%	24.92%	26.43%	29.73%	11.41%
4	ASIANPAINT	5.32%	28.86%	26.08%	28.86%	10.89%
5	AUROPHARMA	13.47%	42.25%	22.51%	17.16%	4.61%
6	AXISBANK	11.60%	42.24%	23.83%	17.40%	4.92%
7	BAJAJ-AUTO	10.53%	28.62%	25.00%	24.67%	11.18%
8	BANKBARODA	11.03%	37.25%	23.87%	19.89%	7.96%
9	BHARTIARTL	10.78%	37.13%	26.95%	18.36%	6.79%
10	BHEL	7.82%	27.27%	22.18%	34.00%	8.73%
11	BOSCHLTD	0.00%	0.00%	0.00%	100.00%	0.00%
12	BPCL	9.80%	38.82%	29.41%	17.84%	4.12%
13	CIPLA	10.17%	43.26%	26.95%	15.13%	4.49%
14	COALINDIA	9.00%	30.92%	26.22%	23.48%	10.37%
15	DRREDDY	14.25%	36.50%	19.75%	24.25%	5.25%
16	EICHERMOT	8.00%	36.44%	18.67%	25.78%	11.11%
17	GAIL	2.65%	8.73%	57.59%	15.75%	15.28%
18	GRASIM	4.65%	12.79%	18.02%	37.79%	26.74%
19	HCLTECH	7.07%	31.31%	24.85%	29.09%	7.68%
20	HDFC	7.60%	30.24%	27.36%	25.23%	9.57%
21	HDFCBANK	5.81%	22.58%	21.94%	32.26%	17.42%
22	HEROMOTOCO	9.63%	28.40%	30.37%	25.93%	5.68%
23	HINDALCO	13.73%	47.50%	25.69%	11.15%	1.94%
24	HINDUNILVR	7.60%	23.00%	28.33%	29.47%	11.60%
25	ICICIBANK	14.56%	43.17%	22.22%	15.33%	4.73%
26	IDEA	8.95%	31.22%	24.67%	23.58%	11.57%
27	INDUSINDBK	5.13%	23.47%	21.27%	32.27%	17.85%
28	INFRATEL	22.58%	25.81%	35.48%	6.45%	9.68%
29	INFY	10.80%	31.99%	23.82%	22.71%	10.66%
30	ITC	10.27%	35.10%	27.40%	21.40%	5.82%
31	KOTAKBANK	11.84%	39.05%	23.95%	19.59%	5.58%
32	LT	11.75%	42.56%	24.54%	17.49%	3.66%
33	LUPIN	9.42%	37.47%	24.20%	21.63%	7.28%
34	M&M	4.89%	37.46%	32.57%	14.98%	10.09%
35	MARUTI	6.31%	28.41%	21.26%	30.07%	13.95%
36	NTPC	6.73%	27.43%	23.44%	23.44%	18.95%
37	ONGC	10.50%	37.87%	27.54%	18.07%	6.02%
38	POWERGRID	3.33%	13.33%	18.15%	37.41%	27.78%
39	RELIANCE	11.08%	36.18%	27.41%	19.37%	5.97%
40	SBIN	13.40%	41.49%	24.01%	16.43%	4.66%

41	SUNPHARMA	8.97%	38.91%	27.20%	18.24%	6.69%
42	TATAMOTORS	11.61%	38.09%	24.55%	20.44%	5.32%
43	TATAPOWER	9.31%	32.41%	22.07%	24.14%	12.07%
44	TATASTEEL	14.15%	45.42%	20.21%	11.41%	8.80%
45	TCS	12.23%	32.80%	27.84%	21.45%	5.67%
46	TECHM	7.36%	27.92%	25.54%	22.94%	16.23%
47	ULTRACEMCO	6.12%	25.08%	21.71%	30.58%	16.51%
48	WIPRO	7.07%	27.17%	22.83%	28.26%	14.67%
49	YESBANK	13.19%	40.49%	25.00%	15.95%	5.37%
50	ZEEL	6.02%	25.93%	25.00%	31.02%	12.04%

Source: The authors.

An examination of the table indicates that for all the stocks there are days when the pricing error is more than 25%. A pricing error of this magnitude seems pretty high. But to take the advantage of this pricing error a position in put, call and stock is simultaneously required. However, the options market for individual stocks does not seem to have evolved completely. Though options market has grown substantially, stock options market is still evolving. In most of the stocks volume of trade does not seem to be enough that would allow the arbitrage to happen. Further, the existence of transaction costs also inhibit arbitrage.

Conclusion

If markets are efficient then there should not be any arbitrage opportunities. Options market constitute an important segment of financial markets. In the last decade the options market has substantially grown in size. Put and call options share an important relationship called put call parity. If this relationship is violated, then arbitrage is possible. By considering put-call parity, we can deduce the prices of one type of options on the basis of the other and can spot mispricing.

To take advantage of any mispricing in the market, arbitrage can be taken. If the predicted price of call option were less than the quoted price of call option, selling a call option would yield arbitrage. On the other hand, if the predicted call price were higher than the quoted call price, buying a call option would yield arbitrage. Similarly, for put options, if the predicted price of the put option were lower than the quoted put price, buying a put option would yield arbitrage. On the other hand, if the predicted price of the put option were higher than the quoted put price, selling a put option would yield arbitrage. The results of the study suggest that there exists substantial mispricing for almost all Nifty 50 stocks. But this does not guarantee that arbitrage will be possible. For implementing arbitrage a simultaneous position in put option, call option and stock may be required. Therefore, arbitrage is limited by liquidity. Thus, the pricing deviations in options market could also be associated with thin trading. Though index options are actively traded, market for individual stocks has not properly evolved in India.

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ARREST AND SAFEGUARDS

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Introduction

The interaction between the accused and the police authorities is at the crux of a developed criminal justice system – is the arrest of the accused.

Arrest is total deprivation of liberty as per law or due process of law. If the total deprivation of liberty without due process of law then it will be wrongful confinement, which is an offence u/sec. 340 of IPC.

Meaning of Arrest

It is nowhere defined in Cr. P.C. But provision related to arrest is given in Chapter V (Sec. 41 to 60A) of the code of Criminal Procedure, 1973.

Literal Meaning of Arrest

Total deprivation of liberty as per law or due process of law. Distinction between arrest or custody in Dinesh Kumar Vs. State of Haryana 2010, J. Balakrishnam says that arrest means total deprivation of liberty but custody is wider than arrest.

Object of arrest:

1.   To settle conflicting interest in society.
2.   Right of the freedom of person arrested and interest of society demanding his separation from society.
3.   For the purpose of investigation, inquiry or trial.
4.   To prevent further crime

If deprivation of liberty without well-established procedure of law then it is wrongful confinement.

So, the Police Officer must be able to justify the arrest apart from his part power to do so. Arrest cause incalculable harm to the reputation and self-esteem of a person. That's why safeguards are taken at all stages of arrest. Our constitution is also provides some fundamental rights U/Art 21 and 22 (1) before arrest.

1.   Every arrested person has a right to inform his relative/friend.
2.   He has right to consult a legal practitioner of his choice.

And some of the preventive measures in the all cases of arrest/detention are held by the SC in Joginder's case.

How Arrest can be made

Arrest may be can –

1.   Without warrant; or
2.   With the warrant
-       Here we discuss the circumstances in which arrest made without warrant – 98 U/5, 41, 42, 43, 44, 151 offender of Section 110.

1. of person committing cognizable offence in the presence of Police Office under Sect. 41 (a) of Cr. P.C.
2. When credible information, reasonable suspicion or complaint about the offence – punishable with 7 yrs or less than 7 years or fine or without fine. [Section 41(b)]
3. When credible information of cognizable offence
   - punishable with more than 7 years, with or without fine.
   -death sentence. [Section 41 (b)]
4. Proclaimed offender under this code or by State Govt. [Sect 41(c)]
5. Any possessior of stolen property.[Section 41(d)]
6. Who obstructs a police officer or escaped from lawful custody.[Section 41(e)]
7. deserter of Armed force. [Section 41(f)]
8. By the law relating to extradition. [Section 41(g)]
9. On breach of rule U/Sec 356(5) (Section 41(h))
10. On requisition from another police officer, whether oral or written for an offender of offence arrest without warrant [Section 41(i)]
11. Arrest on refusal or given false name and residence if
    - Committee Non-Cog-Offence or,
    - In the Presence of P.O. (Section 42)
12. Arrest by a private persons of the person who is
    1.   - Committing in the presence of such private person.
         - Non-bailable and cognizable offence
    2.   Proclaimed offender (Section 43)
13. Arrest by Judicial or Executive Magistrate without warrant (Section 45)
    - Committed in his presence
    - any offence
    - within his local jurisdiction
14. habitual offender U/Sec 110
15. Arrest to prevent the commission of Cognizable Offence.
    So, in these condition an accused/offender can be arrested without warrant or order of the court.

And in other case arrest of a person must be with warrant or with order of the competent court.

- SC in Joginder Kumar Vs. State of UP (1994)

- The existence of power to arrest is one thing but the justification to arrest is another.
- And it may be considered justified in the following situation.
a) The offence is very grace; like murder, dacoity, robbery rape etc. and it is necessary to arrest the accused to infuse confidence in the victims.
b) The accused is likely to abscond and evade the process of law.

c) The accused is likely to commit further offence.
d) The offender/accused is habitual offender.
   Thus, the justification of the arrest must be reasonable, prudent and must be backed with sufficient coherent reasons.
   It is very necessary to adopt measure regarding the arrest of a person. The arrest of a person is harm the FR of that person Right to liberty.

So, SC settled some guideline and measure which should be followed during arrest to prevent the unnecessary harm of fundamental right of the person arrested. So some safeguards are taken at all the stages of arrest – Pre arrest; during arrest; after arrest

Joginder Vs. State of UP. 1994

D.K. Basu Vs. State of W.B. 1997

In these case SC have been given statutory recognition to Section 41A,41B,41C,41D and issued certain guideline relating to arrest. In all cases -

1.   PO should bear accurate, visible and clear identification and name tags with their designation.
2.   PO prepare a memo of arrest U/Section 41A.
3.   PO will seizes any offensive weapon if found during the search of the arrested person.
4.   He informed the arrested person, about his right to informed any person. [Section 50A]
5.   arrested person shall be medically examined at the time of arrest in relation to any minor or major injury (Medical Examination under Section 53/54)
6.   Copy of all document including Memos sent to the Illaqa Magistrate for his record under Section 58.
7.   He will intimate District Magistrate about the arrest of person [U/s 58]
8.   DM will write the information regarding arrest outside PCR. [Section 41C]
9.   PO will takes this person to nearest Magistrate as soon as possible :-
         - In all case within 24 hours
         - 24 hours to be calculated excluding the time of journey from place of arrest to M./Court. (Sec. 56, 57, 76)

Conclusion

So, these are the some guideline for arrest of a person. These are not exahausive in scene. Some other as required by the justice, should be followed by PO. Arrest is required by the justice in some case. But it is the harm to the fundamental Right granted by our constitution. So, it is necessary to take some measures to prevent the harm of personal liberty and fulfill the need of justice.

So, the Police Officer must be able to justify the arrest apart from his part power to do so. Arrest cause incalculable harm to the reputation and self-esteem of a person. That's why safeguards are taken at all stages of arrest. Our constitution is also provides some fundamental rights U/Art 21 and 22 (1) before arrest.

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DEFLECTING CONSUMER BEHAVIOR TOWARDS SOCIAL MEDIA MARKETING

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INTRODUCTION

The 21st century is often referred to as the "e-generation" era. Internet technology has completely changed the manner in which the world communicates, and has transformed the world into a worldwide village. There were 2.1 billion internet users on the planet till 2011 as indicated by the report of Internet world insights. The internet has generated parcel of excitement due to its pervasiveness in electronic businesses and spreading over the entire spectrum of business, commerce and governance, extending from e-Commerce, e-Entertainment, e-Supply Chain, e-Learning, e-Payment, e-Customer Relationship Management, e-Marketplace, e-Business, e-Ticketing to e-Governance. Internet shopping has become the default method of purchasing different items and services, including travel items, computer items, books, investment items, music, dress, automobiles, flowers and home needs. This is the most lucrative and the best chance to market and promote items and services through the collectively constituted social medium in a personalized manner. The overall purpose and objective is to remain abreast of the latest development processes in the marketing fields, the social media role in the lives of people today is highlighted in a much brighter way, and create a careful effect and control on society. Hence, the power of social media is developing at a very quick pace, and the companies are empowering their businesses to kick-begin and reinvent new social media strategies. Several companies and their managements have already started the Masters Forums, picking up and exchanging knowledge, giving arrangements through the social media, uniting all the modern experts from around the globe of Marketing and Social Media for an elaborate and extensive online dialog, to concentrate on the Social Media future prospects for Business (Hajli, 2014).

Today, most of the people use different platforms of social media like those of the
- Facebook
- Twitter,
- YouTube,
- Instagram,
- LinkedIn, and those available in the search engine of Google to spend their time examining refreshing, and reviewing the different websites of social media.

BACKGROUND OF THE STUDY

Before, acquiring deeper understanding into marketing related to social media platforms and requisite sites along with their effect on various social media marketing (SMM) and those of adolescent consumers' attitude (ACA) towards social media marketing (SMM) it is critical to initially know the foundation of the examination. To describe the foundation of the examination, an attempt has been made to talk about the social networking sites in the formative years, the rise of internet usage around the world, e-commerce and social media, development of social media marketing far and wide and an overview of adolescence. A brief review of Information Technology (IT) industry indicates that more than 70 % of Internet users use Internet for sending and receiving emails (Eysenbach, 2011).

This usage is followed by accessing the internet for data search, texting, talk sessions, etc. India was ranked fourth (51 million) after the United States (198 million), China (120 million) and Japan (86 million) in the absolute number of internet users by Computer Industry Alamanac in 2005.

RATIONALE

Starting at now Adolescents are the most multicultural, different gathering of customers. They have buying power and have expanding effect on family purchasing examples. A large portion of advertisers can achieve Adolescents they will have clients forever. Social media has turned out to be a champion among the most powerful places where items and services can exhibit to the clients. The market elements continue changing from one spot to other in all measurements. Presently, social media has replaced the market after advancement of the internet. The virtual markets pull in an ever increasing number of people towards new items and services. Likewise with most things in life there are sure and negative sides to social networking (Mergel, 2013).

OBJECTIVES AND AIMS

The effect of the influence that social media marketing cast on the attitude of the customers are examined in this form of conducted study. The objectives are as follows:
- It aims toward the understanding of the impact of social media marketing on the buying and purchasing pattern or consumer decision making of the customers.
- To contemplate and examine various different types of customer perception towards social media marketing performances and practices applied by marketers,
- To conceptualize and assess consumer perceptions and effect of marketing endorsements made on social media.
- To identify which specific marketing attributes in the social media that generate special effect on consumer attitude towards buying the items

RESEARCH QUESTIONS
- What is the influence and power that the various social media platforms exercise in the shaping of customer's purchasing consumer decision making?
- What is the customer perception towards the marketing procedures based on the social media in terms of performances and practices applied by marketers?
- Which specific marketing attributes in the social media that generate special effect on consumer attitude towards acquiring the items?

HYPOTHESIS

H0: social media can cast a influence over the attention of the customers by attracting their fascination
H1: social media helps in advertising the items and services entailed by different companies
H2: The effect of social media is considered positive and influential in the shaping of the perception based on buying in terms of the consumers (Crowe, 2011).

SIGNIFICANCE OF THE STUDY

The development of the internet guided social media to make it feasible for each person to grant everywhere all through the world about their or item and services, help advance them wherever they need. The Social Media enables each person to convey and connect, examine

uninhibitedly and furthermore share any information for academic and expert enthusiasm concerning the exploration and study work using sound, video, multimedia blend with pictures and substance. In this manner, a large number of people far and wide effectively take an interest and exploit social media networking to get learning, acquire the essential data and information, store and exchange wherever they need. In any case, there is also mortifying information, and advancing through the social media and that has produced a tremendous composition hole and diminished its business esteem.

LITERATURE REVIEW

According to Tess (2013), the Social media have completely changed the procedure, technology and the specialty of internet publicizing techniques. It is very intriguing to watch this industry is quickly creating, and wrong to express that, publicizing on the web has lost its sheen and the power in social media. In the event that we take a gander at the Facebook, it was at first arranged unite people on one single stage and along these lines, for them to socially remain associated. In all honesty, today, above 7.4% worldwide populace is using the Facebook and has turned this stage perfect for using a superior advertising instrument. The review expresses that the online social media, marketing specialists are spending above $4.5 billion to promote on Facebook, and it began just two years back.

In the year 2006, Facebook proclaimed the essential advertising game arrangement for J.P. Morgan Chase as they chose to advance their Visas. They made Chase an elite system to enable them to acquire compensate focuses. The item development and advancing exercises in the social media are to pull in open regard for their items and the association business, by reporting and broadcasting the item subtleties in the electronic media. Regardless, the way wherein the advancing exercises are formulated, no doubt they are essentially as prominent, yet neglect to get the legitimacy work. The majority of publicizing associations thinks about a huge assignment, and attempt to search for the most and the best of their chances to advance their items through the social media. Yet, the prizes of any sort of such publicizing are not guaranteed. The Internet has given enormous offices to the extraordinary development of advancing on the web.

As per Hajli (2014), the examination and composing review gauge that giving an Information System through the advancing in the conventional media similarly as on the Internet is customarily disregarded effectively by the internet clients and the general gathering of people and consequently, saw to create less esteem. Along these lines, even careful and intensive commercial procedures can cut down the estimation of publicizing because of a titanic measure of notices continue appearing and seeking an individual expansion and support. Likewise, this happens on a standard and regular schedule. Heinonen (2011) stated that as a result of extremely restricted time and tremendous publicizing matters to watch, puts mental strain on the gathering of onlookers because of numerous assets and that makes it confounded for the internet clients and the gathering of people to invest enough energy and regard for essentially all advancements. Consequently, such solid method for advancing in the most aggressive social media condition in the midst of and rising challenge to get the group regard for develop and change their purchasing approach and demeanour make the issue increasingly concentrated.

METHODOLOGY

In this segment the main focus will be on the development and perseverance of a strategy based on the research based system. In this part there will be a revealing of the understanding through a discussion and developing a proper system that will be considered fit for the research work. This part will fuse research procedure, research rationale, research approach, the system for information collection, the strategy for examining, time plan and other fundamental components that are useful. Both primary and secondary forms of accumulating social media based data are to be taken into consideration (Aydin, 2012).

Research Philosophy

There are generally three types of research theory however the researcher will use positivism rationality for research reason.

Research Approach

The researcher will use the deductive technique for organizing this research as the research appears and past research examination is major for the further research process.

Research Strategy

Sensible strategy application assembles information for the research technique. The researcher will use an emotional procedure for social event productive and solid information. The researcher will consider organizing a meeting methodology with chairmen of different relationship for exploring the patterns and difficulties in the generation network and its effect on the advanced unrest and globalization. The researcher will in like manner direct an overview methodology with the agents of the unmistakable connection (Boulianne, 2015). Dissecting past research results will also be consolidated into the research strategy for a social undertaking a wide extent of information.

DATA COLLECTION METHODS

The researcher will use the secondary information collection process and will lead a meeting and overview process for social undertaking information from the current circumstance.
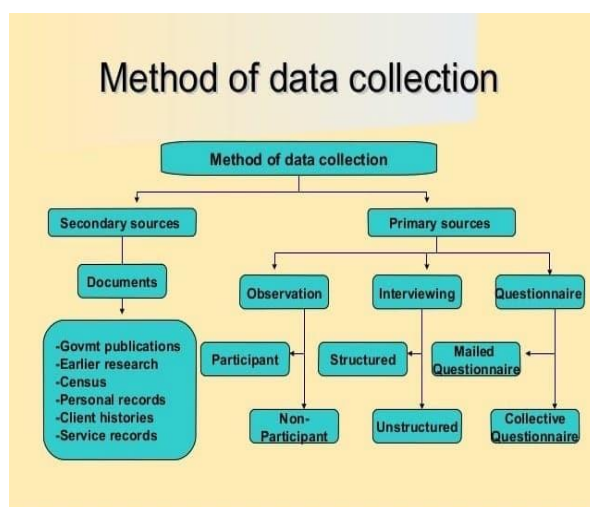

Figure: Data Collection Methods

SOURCES OF DATA

The required information for the research technique will be assembled from the meeting strategy with managers, the researcher will examine the patterns and difficulties in the store network and its effect on the advanced change and globalization and moreover will be accumulated.

SAMPLING METHODS

In order to get an outcome test taking from the accumulated information is essential. So as to dodge any outside or inside effect and for keeping up the legitimacy of the accumulated information the researcher will use unpredictable testing strategy by taking a gander at the subjective case. Likelihood inspecting will be used by the researcher (Dunne et al., 2010).

REREARCH INSTRUMENT DESIGNS

Three essential research structures are exploratory, illustrative and deductive. Among the three structures the researcher will use the exploratory structure for driving whole deal methodology of research. Research arrangement can explain the subject of research and can perceive a creative idea for the research method.

ANALYSIS METHODS

Subjective examination procedure will be used by the researcher for planning this research. Testing hypothesis and inspecting research model will in like manner be consolidated into the research examination.

ETHICS CONSIDERATION

The researcher has great codes for the research work and for social event data for the research. The researcher will keep up the security of the overseers who are invited for the meeting methodology. The researcher will in like manner center around giving a certification for the researchers for social event secondary data from the past researches.

LIMITATIONS OF RESEARCH METHODS

The researcher has used the past research papers for the secondary information collection which confines the information run. The researcher will use essentially review and composed meeting process which just consolidates manager, beyond what many would consider possible the researcher will basically lead a meeting with an overseer which constrains the viewpoint of the other expert people.

DATA ANALYSIS AND FINDINGS

1. What is your Gender?

Respondents	Variables	Percentage
Male	40	40
Female	60	60
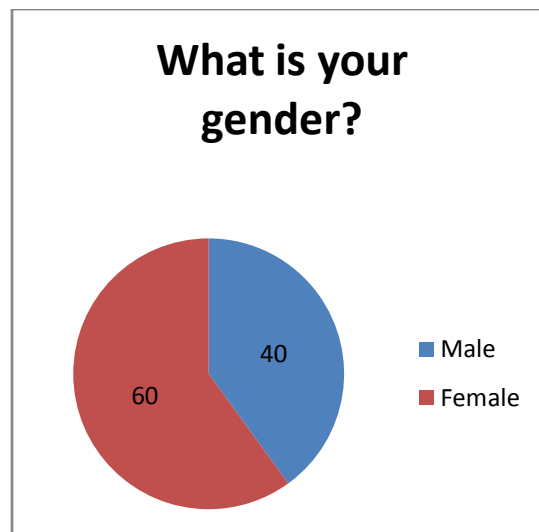
There are a total of 100 respondents. 60 are female respondents and 40 are male respondents. The percentage of female respondents is higher.

2. Do you prefer online shopping?

Respondents	Variables	Percentage
Yes	70	70
No	30	30

There were a total of 100 respondents among which it has been found out that 70 percent of the respondents prefer online shopping.

3. How often do you shop online?

Respondents	Variables	Percentage
Always	40	40
Sometimes	30	30
None	30	39

CONCLUSION AND RECOMMENDATION

There is an all out number of 100 respondents, among which 40 percent of respondents shop dependably from online sites. 30 percent of respondents shop sometimes and 30 percent of respondents don't search in for online shopping by any means.

The creative and innovative universe of innovation, there is a ground-breaking weapons challenge among buyers and advertising specialists. The customers are directing advertisers, driving relationship to change their publicizing methods reliably. Regardless of the manner in 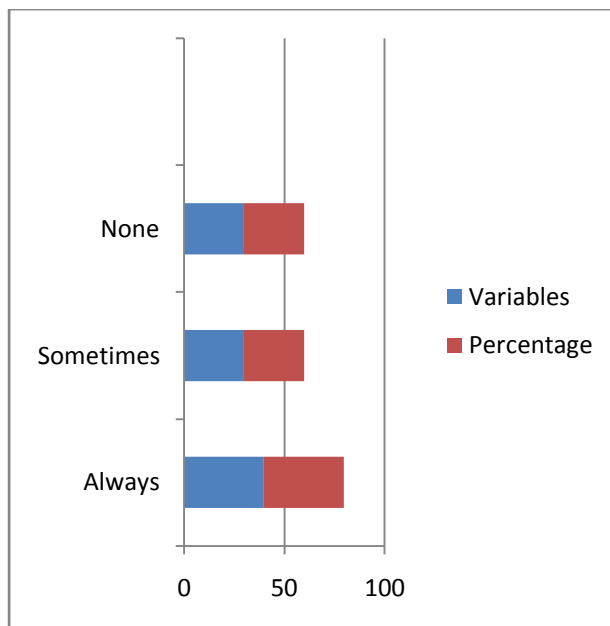which that PDAs and devices have gotten a high ground in the present business world, we can't leave aside progressing on the World Wide Web empowering notification to be seen all around expecting next to zero exertion. Right when the advertisers and distributers are finding hard to review what certainly is the casing of mind and the psychological condition of customers while picking the thing, they have darkened and hostile point of view on the future publicizing prospects in light of the way that the innovation is quick creating and changing, and they are endeavouring to find a scarcely conspicuous distinction among progressing and preoccupation or both. In the interim, what unquestionably the progressing and publicizing techniques ought to be on the distinctive social media arranges to change the edge of cerebrum of the customers in an incredible way is yet to be examined in light of the way that, the way of life, manner and the mind preoccupations change at various territory again and again.

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COMPARING SUBJECTIVE WELL-BEING AMONG GOVERNMENT AND PRIVATE SECTOR DOCTORS IN PUNJAB

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Abstract: The purpose of the study is to compare subjective well-being of private and government sector allopathic doctors in the state of Punjab. A sample of 320 doctors across the state was used as a sample in the study. To find out the comparison, an independent sample t-test was applied to the data collected from respondents. It was found that life satisfaction of private sector doctors is better as compared to government sector doctors. Further it was observed that positive emotions equally effect private and government sector doctors whereas negative emotions have more impact on government doctors as compared to private sector doctors.

Keywords: Subjective well being, Life Satisfaction, Positive Affect, Negative Affect, Private sector, Government sector, Doctors

1.Introduction

Happiness is the essence of life. Everyone wants to be happy and satisfied with their lives. Subjective well being is a vital constituent of a happier and satisfied life, which encompasses a cognitive component and an affective component. Cognitive part of subjective well-being includes (life satisfaction) and affective part includes (positive affect and negative affect). Subjective well-being is generally conceptualized as multifaceted in nature, with both affective and cognitive components (Pavot & Diner, 2008). SWB as described by Diner is the extension of hedonistic theory of well being which describes that human expects happiness and satisfaction in their life while avoiding pain and dissatisfaction (Raju, 2013). According to (Seligman and Csikszentmihalyi, 2000) subjective well being is a scientific term for what ordinary people experience as happiness (Wei et al., 2011).

Today a lot of motivational speakers around the world teach different strategies to stay happy all the time and ignoring negative emotions. This positive psychology helps professionals in different fields to excel professionally and in their personal life. The Health and Family Welfare Department is committed to provide preventive, promotive and curative Health Services to the people of the State through a good net-work of medical institutions such as sub-centers, subsidiary health centers (dispensaries/Clinics etc.), primary health centres, community health centers, Sub-Divisional and District hospitals, Government Medical & Dental Colleges, (Government of Punjab, 2019).

As the health sector has flourished at a rapid pace in Punjab with government sector facilitating new programmes of immunization (updated every year) , post natal care and much more to the general masses, private sector health services are recording new benchmarks with every passing day. These advancements tend to make doctors' job hectic and they have less time to spare for oneself, family and friends. Therefore, through this study it was intended to find out what emotions affect more to a doctor and how satisfied a doctor is in his life.

2. Literature Review

Tatyana et al (2003) conducted a study to measure cognitive and psychological predictors of subjective well-being. There are two dimensions of subjective well-being, Life satisfaction

and Positive affect and Negative affect. Results reveal that cognitive aspects of well being are easier to deal with rather than emotional aspect.

Goetz et al. (2006) tried to find out social comparisons of subjective well-being. The scales used to measure subjective well being through satisfaction with life scale (SWLS) and positive affect and negative affect (PANAS). The study reveals that the differences between judgments of one's own subjective well being and the subjective well being of others were found independent of the language used (i.e., German vs. Italian). **Robinson (2006)** conducted a study to find relations between life satisfaction and affective priming. Individuals were asked to evaluate their emotional images, categorizing and evaluating the word stimuli and using the perceptual identification. The measures used for the study were satisfaction with life scale and valence priming task. The results suggest that there is a very close relationship between life satisfaction and the positive and negative concepts linked to memory.

Froh et al. (2007) studied Interpersonal relationships and irrationality as predictors of life satisfaction. The study was conducted to clarify the relationship among interpersonal relationships, irrationality and life satisfaction. Research instrument used was rational behaviour inventory (RBI) which is a self report measure of irrationality. The study suggests that the quality of social relationships in person's life is strongly associated with his her life satisfaction. **Miles & Rossi (2007)** gave an insight on learning about one's relative position and subjective well-being. The study shows the evidences that an individual's relative position affects his subjective well-being. Results of the study suggested that life satisfaction is related to individual's position in the wage distribution and if one's wage is below his reference group then subjective well-being is negatively correlated to relative position. **Peterson et al. (2007)** studied Strengths of character, orientations to happiness, and life satisfaction. Results concluded that American respondents had higher scores on an orientation to meaning than Swiss respondents whereas orientations to engagement and pleasure were essentially similar.

Siedlecki et al. (2008) carried a study on Life satisfaction across adulthood with different determinants at different ages. The aim of the study was to identify personality, demographics and cognitive variables that have relationships with SWLS. Results suggest that the propensity to view life experiences is either positively or negatively driven by personality characteristics that remain stable across adult lifespan. Fluid ability is positively related to life satisfaction in group of younger and middle aged adults but not in older adults.

Abdel-Khalek (2013) studied the relationship between subjective well-being, health and religiosity among young adults from Qatar. The study was done to find out the association of factors of subjective well-being, health and religiosity among undergraduate students. The results concluded that religiosity is important to lives of most of the undergraduate students of Qatar. Students with high religiosity had higher levels of subjective well-being and were healthier. **Mosquera & Imada (2013)** Studied perceived social image and life satisfaction across cultures. The study was examined to find out that how well-being is connected to perceived social image (which means an individual's perceptions of how others view the self). Results stated that Indian and Pakistani/ Bangladeshi participants are more likely to value social image as compared to white British and Europeon- American counterparts.

3. Objective of the Study

The objective of the research paper is to compare life satisfaction, positive affect and negative affect among doctors in private and government healthcare sector in Punjab.

HYPOTHESIS

3.1 Life satisfaction (LS): Contentment comes with achievement of goals and living the way one has thought of. This further leads to the feeling which could be called as satisfaction with life. Life satisfaction differs from person to person as it is a cognitive aspect of subjective well-being. People living in a similar environment either personally or professionally, behave and represent more or less in a similar way which could make them feel contented equally. So this is hypothesized:

H_1 LS of private and government sector doctors in Punjab differ significantly.

3.2 Positive Affect (PA): Positive affect is the affective part of SWB. Positive emotions always boosts a person's morale and leads to the achievement of goals perfectly and as desired. Positive affect also helps to handle unfavourable situations smoothly in professional life and mange interpersonal relationships perfectly. So this is hypothesized:

H_2 PA among private and government sector doctors in Punjab differ significantly.

3.3 Negative Affect (NA): With positive emotions playing its role in one's life, negative emotions also take over people's mind very often. These negative feelings hinder personal and professional life of a person. Within Similar working conditions and a similar frame of home environment, everyone is prone to experience similar negative feelings. So this is hypothesized that:

H_3 NA of private and government sector doctors in Punjab differ significantly.

Hospital Profile

District	Private Hospital	Government Hospital
Bathinda	Max Hospital (6*) Adesh hospital (5*) Delhi Heart Hospital (6*) Maheshwari Nursing Home (3*)	Civil Hospital Bathinda (10*) CHC Maur Mandi (2*) Civil Hospital Talwandi Sabo (5*) Civil Hospital Rampura Phull (3*)
Amritsar	Fortis Hospital (7*) Amandeep Hospital (5*) Apollo Hospital (4*) Ivy Hospital (4*)	Guru Nanak Dev Hospital (15*) Civil Hospital (5*)
Mohali	Fortis Hospital (6*) Max Hospital (7*) Ivy Hospital (7*)	Civil Hospital Mohali (9*) Kharar (3*) Zirakpur (8*)
Patiala	Prime Multispeciality Hospital (6*) Columbia Asia Hospital (14*)	Rajendra Hospital (13*) Mata kaushalya Hospital (7*)
Gurdaspur	R P Arora Medicity (3*) Deep Multispeciality Hospital (9*) Kaushal Hospital (1*) Arora Diagnostic Centre(1*) Raj Ultrasound Scan Centre (1*) Pannu Nursing Home (1*) Sandhu Multispeciality Hospital (1*) Narang Childern Hospital (1*) Nijjar Hospital (1*) Dasmesh Clinic (1*)	Civil Hospital Gurdaspur (14*) Community Health Center Dhariwal (2*) Sub Divisional Hospital Batala (4*)
Hoshiarpur	Ivy hospital (10*) Shivam Hospital (7*) Gupta Skin and Eye Care Hospital (1*) SPS Memorial Children Hospital (1*) Gulati Maternity Hospital (1*)	Civil Hospital Hoshiarpur (10*) Sub Divisional Hospital Dasuha (6*) ESI Hospital (4*)
Ludhiana	DMC Hospital (12*) CMC Hospital (5*) Fortis Hospital (3*)	Civil Hospital Ludhiana (13*) CHC Sidhwan Bet (5*) ESIH (2*)
Jalandhar	Tagore Hospital (11*) Patel Hospital (3*) Doaba hospital (4*) Oxford hospital (2*)	Civil Hospital Jalandhar (14*) Nakodar(3*) ESI Hospital (3*)

Table 1.1

* in the parenthesis (Table 1.1) denotes number of doctors available in the particular hospital.

4. Research Methodology

4.1 Data collection and sample selection

The data was collected from private and government sector allopathic doctors in Punjab. Data was collected through a structured Questionnaire. A sample of 320 doctors covering 3 regions

of Punjab i.e Majha, Malwa and Doaba were selected for the study. The sample was selected on the basis of purposive sampling method. Questionnaires were given to the doctors who were present at the time of visit to the hospitals.

4.2 Selection of Scales

For measuring life satisfaction of doctors, Satisfaction with Life Scale (SWLS) given by Ed Diner et al. (1985), was used. For measuring Positive & Negative Affect on doctors, Positive Affect Negative Affect Scale (PANAS) by Watson et al, (1988) was used.

4.3 Design of Questionnaire

Satisfaction with life scale (SWLS) was used as it is with 5 point likert scale. Positive and Negative affect scale (PANAS) was used which consisted of 20 positive and negative statements to which respondents had to respond on 5 point likert scale. In PANAS scale changes were made as the scale has 20 different positive and negative emotions in it, statements out of these terms were framed and then given to the respondents. Reliability analysis for scales was done by using cronbach's alpha. The study reported strong reliability with coefficient alpha value of 0.90 which demonstrated that scale shows a good reliability as it is more than the accepted value of 0.80.

5. Results and Discussion

The collected data was subjected to independent sample t-test to find out whether significant difference exists among government and private doctors.

5.1   Life satisfaction

Table 1.2

Life satisfaction	M	S.D	T value	P value
Private	4.32	0.756	5.141	0.001*
Government	3.84	0.924		

*denote significant at 5% level of significance.

The private sector doctors (N=160) were associated with a life satisfaction mean score of 4.32. By comparison, the government sector doctors (N=160) were associated with a numerically lower life satisfaction with mean score of 3.84. To test the hypothesis that life satisfaction among government and private sector doctors does not differ significantly, an independent sample t-test was performed. The private and government doctors distribution was significantly normal for the purposes of conducting a t-test. The independent samples t test revealed a statistically significant effect, t value =5.14, p=0.001.Thus, life satisfaction among private sector doctors is better than life satisfaction among doctors in government healthcare sector.

5.2   Positive Affect

Table 1.3

Positive Affect	M	S.D	T value	P value
Private	3.97	0.35	5.217	0.601*
Government	3.76	0.36		

*denote significant at 5% level of significance.

The private sector doctors (N=160) were associated with a positive affect mean score of 3.97. In comparison, the government sector doctors (N=160) were associated with a numerically smaller positive affect M=3.76. To test the hypothesis that Positive Affectivity of private and government sector doctors in Punjab does not differ significantly, an independent sample t-test was performed. The private and government doctors distribution were significantly normal for the purposes of conducting a t-test with values of t value5.21 and p value 0.601. As the p value exceeds the significance level of 0.05, null hypothesis is accepted. Therefore the private and government sector doctors in Punjab were equally affected by positive affectivity.

5.3   Negative affect

Table 1.4

Negative affect	M	S.D	T value	P value
Private	2.57	0.327	-4.125	0.008*
Government	2.74	0.391		

*denote significant at 5% level of significance.

The private sector doctors (N=160) were associated with a negative affect mean score of 2.57. In comparison, the government sector doctors (N=160) were associated with a higher negative affect mean score of 2.74. In order to test the hypothesis that Negative Affectivity of private and government sector doctors in Punjab does not differ significantly, an independent sample t-test was performed. The private and government doctors distribution were significantly normal for the purposes of conducting a t-test., The independent samples t test was associated with a significant negative affect with t value 4.12 and p value is 0.008.The results reveals that government sector doctors were associated with a higher level of negative affectivity as compared to private sector doctors. Thus, there is significant difference among private and government sector doctors in Punjab.

6. Conclusion

Each one of us is struggling to achieve something in life and the last outcome we all want is satisfaction with one's life. From the results it is clear that the private sector doctors score higher that government sector doctors in two dimensions i.e life satisfaction and negative affectivity whereas both the sectors are equally affected by positive affectivity. Therefore, the present study reveals that private sector doctors are more satisfied with their lives, experience more positive emotions and less affected by negative emotions. The difference may lie due to many factors like personal factors, professional instability, unawareness of patients and changing government health programmes and policies, affects subjective well being of the doctors in private and government healthcare sector.

6.1 Implications of research

The purpose of the study was to compare the subjective well-being among allopathic doctors in private and government healthcare sector. After interpreting the results I propose some useful suggestions which could be beneficial for the doctors to improve their life satisfaction and the effect of positive and negative emotions in their lives. From the study it is inferred that private sector doctors are more satisfied with their life due to more flexible working time, getting more time to relax and leisure as compare to doctors in government sector. Private

sector doctors are also high on negative affectivity of emotions because they do not come under the direct regulation of any government body and the feeling of accomplishment and achievement is more as compare to government sector doctors. Positive emotions affects equally to the doctors in both the sectors as they hold a respectable position in the society and a feeling of contentment is present as they help people to get through their pain and sufferings. Therefore, it is suggested to government sector doctors to pull themselves more in the direction of a satisfied life and avoid unpleasant feelings professionally and personally so that their subjective well being may increase.

6.2 Limitation and future research

The present study has a number of limitations that could become an insight for future researchers. This study focuses particularly on respondents limited to few districts of Punjab only. Therefore, future studies may be expanded for the measurement of subjective well-being in other states of India too. These findings will help researchers in identifying similarities and differences in life satisfaction, positive and negative affect amongst private and government sector doctors across various states. Respondents were made to answer by self-reported questionnaires, which can inflate observed results. Future studies can be done with open suggestions of respondents. Moreover the study concentrated only on life satisfaction and emotional affectivity of the respondents, future research may include personality and stress levels of doctors.

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Critical Analysis of consumer satisfaction toward gold loan scheme by Muthoot Finance in Nagpur

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Abstract
The research is carried out to identify the awareness and satisfaction level of the gold loan regarding by muthoot finance bank. The research is based on primary data and secondary data. The study in the focused on the awareness and satisfaction level of the customers. The study was done taking the Muthoot finance bank. The survey was restricted to the bank customers and general public in Nagpur city.
Keywords: consumer satisfaction, gold loan, Muthoot Finance

1. Introduction
The most prominent mode that monetizes gold is the gold jewellery loan segment. As Indians own huge quantities of gold jewelleries, the loan against gold makes good business sense. The gold loan segment unlocks the hidden economic lying idle. It is a very useful concept of converting the physical savings into money. In India a large number of bank and 0NBFC'S are extending loans against the used gold jewels and ornaments at a specific loan to value ratio. There are several reasons for this sharp upward trend in gold loan in recent years. It is convenient flexibility of loan options, liberal loan to value ratio, easy to conform documentation led to expansion of gold loans and geographical expansion of gold loan companies also facilitated the loan delivery. The size of gold loans shows an upwards trend due price increase of the gold and limited avaibility of retail and personal loans from banks. Business coincided with large imports of gold, large scale financing of NBFC'S by bank make apprehension that overall systemic stability is threatened.

Human being has an inherent aspiration to acquire and possess gold and silver. This esteem for gold profound as any of our most basic drives. All through history this awareness of the valve of gold has basis society and cultures to maintain the gold standard. Unfortunately Kings, Rules and Politicians on numerous occasions, have abandoned the gold standard and either forced or swindle its citizens into an artificial monetary system. Their systems have never lasted because eternal laws are being broken. There has never been in the history of the world, single nation, which left the gold standard that did not end up with an economic collapse. The USE is currently breaking a record for the longest period of time that a nation has endured after breaking the Gold standard. Our system will crash It's just a matter of "When" Gold loans can be availed of at co-operative bank, public sector bank and others private lenders. Some banks, however offer it only in certain regions, the only disadvantages while private lenders process the loan in less than a couple of hours, some co-operative and public sector banks may take up to a personal loan. Loan to in any case, the time is much less than the minimum three days of processing time for a personal loan. Loan to value to the maximum ratio of the loan size to the valve of the assets for a gold loan is on par with that of the personal loan. In late 2007, the RBI had issued a notification which permitted bullet repayment (a lump sum payment of the principal at maturity) of gold loan. Subject to specific guidelines from the apex bank, each bank may fox its rate for gold, reflecting the market price at that point of time. Care should be exercised if you have defaulted or any other. Your gold might not be returned at the end of the loan tenure if you approach the same branch or

bank in this case would be one solution as they would not have any record of your default history.

1.1. Advantages of Gold Loan

Gold loan doesn't demand any certificate to show your salary or income and even no credit card history is required. Thus even unemployed and non-working people can go for gold loan.

•   Unlike any other unsecured loan, gold loan doesn't require many papers, only few documents such as ID proof and address proof is enough to avail for such loan.

•   One of the main advantages of gold loan is its low interest rates. Usually loan over gold is provided at the interest of 12-16% per annum and this is quite low compared to personal loans available at interest rates of 15-26% per annum.

•   In rural areas Agricultural loan against gold is also available for agriculturist at very nominal rate of Interest of 7%-8%, proof of agricultural document needs to be provided

•   Gold loan is the most simple and convenient forms of loan because here all you need to do is pledge your gold with a bank or finance company and get upto 80% of the market value of the gold as a loan.

2. Objective
    a. To identify about awareness level of gold loan.

    b. To measure satisfaction level of existing customer of Muthoot Finance.
        .

3. Research Methodology
Sampling desings: - A sample design is a definite plan for obtaining a sample from a given population. It refers to the technique or the procedure the searcher would adopt in selecting items for the sample. A sample is a part of a target population, which is carefully selected to represent the population. Actually, sampling frame is nothing but the correct list of population.

 Sampling procedure: - The sampling procedure used in this study is simple Random sampling. A simple random sample is a subset of individuals chosen from a larger set. Each individual is chosen randomly and entirely by chance, such that each individual has the same probability of being chosen at any stage during the sampling process.

Sampling area: - Nagpur City

Sample size: - The sample size of the study is limited to 200 customers. 40 in Muthoot Finance bank and 160 others.

4. Results
    □ According to the survey most of the people are aware about the gold loan.
    □ According to the survey most of the people taking gold loan.
    □ Most of the customers of Muthoot Finance Bank are satisfied with the interest rate of gold loan.

- According to the survey most of the people are satisfied with the service provided by bank and the gold loan process.
- According to the survey the information provide about the gold loan scheme by referring news paper and magazine.
- The most of the people are sagest the Muthoot finance bank in aver friends and relatives because of the bank are provided good service and the batter communication.
- In that service it is find that the relationship between the customers and the bankers are good.
- According to the survey the most of the people are taking the gold loan for the reason of non avability of the fund.
- According of the survey the most of the people are taking the gold loan in a future.
- Very few people are not aware the gold loan, those people are don't take gold loan.

5. Conclusion

Gold loan market has be most rapidly in India. It has been found that Indian family is keeping gold with them. However in past this families were not taking gold loans frequently. Now the financial institutions have promoted gold loans aggressively. The result of the same is absorbed in current research were most of the coasters are taking gold loan and there also reeducated gold loan in future also. The scenario has change because now people are thinking that gold loan is one of the most accusable and comfortable loan.

The present research focuses on Muthoot Finance as a gold loan provider it is found that Muthoot Finance maintaining very good relationship with the coasters hence, its business is going on. At a same time Muthoot is making shore that it services can be which to masses.

Overall, this research can be concluded same the gold loan awareness among the customers are increasing and gold loan is becoming popular day by day.

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Status analysis of subsidy on seeds and fertilizer in India and its impact on marketing

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Abstract:

Agriculture sector is without doubt most vital sector of Indian economy because it provides employment to fifty four.6% of individuals and food security of Asian nation revolves around this sector. Its importance are often gauged by the actual fact that whenever there's concern of deficit monsoon, whole of the population starting from farmers, workers, businessmen, policy manufacturers and even foreign investors are caught into nervousness. Owing to dependence of disproportionate population on this sector, Indian economy are often still aforementioned to be associate rural economy. However, sector is basically state controlled that resulted in widespread inefficiencies and distortions.

The marketing strategies of the companies largely affected by the subsidies given by the the authorities. This paper analyses the status of the subsidy and also co-relate this with the marketing of seeds and fertilizers.

Keywords: status analysis, Seed and Fertilizer, Marketing

1. Introduction

Agriculture Sector has been growing appreciably a minimum of four-dimensional from previous few years (with some exceptions) and last year's growth was record four.7%. however this is often no reason for rejoice as our farmers and agricultural sector square measure still quite vulnerable and growth is on back of interventions that has given India a inclined agricultural basket. Primary reason for this growth is claimed to be sensible monsoons and growing crop incentives below schemes like Minimum damage (MSP). Share of agriculture in economy remains stagnant at thirteen.9%. this is often associate indicator that folks dependent upon agriculture square measure still unable to form an honest earning. From terribly starting agriculture has been at center of presidency policy, however sector was recognized as prime moving force solely in 2002. It truly started at the time of warfare two, once food shortages were severe. Later Public distribution System was developed throughout time of nice geographical region Famine that killed concerning two million individuals. Ultimately government management got reinforced by appointment 'Commission for Agriculture' and formation of 'Food Corporation of India' in 1960's. Former's role was to advocate costs for state acquisition of various crops and latter's perform ranged from acquisition, storage and issue of food grains.

During now Asian country was heavily dependent upon foreign food aid that compromised India's sovereignty over crucial matters. it had been at now accomplished that, excluding building structure for storage and distribution, self-direction in production of food grains is imperative. It resulted in large investments in agriculture productivity, through the means that of hybrid seeds, Chemical Fertilizers, Pesticides and irrigation infrastructure. This came to called revolution.

Green revolution, overtime, yielded spectacular results and in coming back decades Asian country was independent in foodstuff production and achieved physical food security. However, it didn't provide Indian individuals economic food security and food security continues to be an enormous challenge. Expensive inputs and MSP regimes often pushed up costs and rendered them unaffordable to the poor. It all culminated into a confusing scenario wherever on one hand there have been bumper productions and excessive food grains with

FCI, on the opposite hand millions were living below starvation. This was primarily as a result of laws, laws, establishments that were brought into existence in face of insufficiency, mostly continuing even at the time of abundance. Outcome is noncompetitive agriculture sector, reeling below debt that can't survive while not serious government support.

As always, this issue is once more a serious one for current government and there square measure some suggestions towards reforms and few steps were conjointly taken recently.

In this research, researcher will discuss issues involved and various steps government have taken to remedy for Agriculture production, procurement and storage.

2. Inputs of agriculture and subsidies thereon

Subsidies on inputs have their root in revolution. that point intensive subsidies got on Hybrid seeds, Fertilizers, pesticides etc. main aim of subsidies square measure 2 – one is to stay price of the food grains at minimum and avoiding food inflation, second is to confirm financial gain security of the farmer. whereas this policy has helped heaps to secure food sufficiency, however it's several uncaused negative impacts. It ends up in overuse of inputs as inputs prices doesn't represent adequate market prices, farmers square measure unable to reply to promote signals. They still use inclined mixture of inputs as prices square measure borne by government.

a. Seeds

Many schemes such Rashtriya Krishi Vikas Yojna, Macro Management Agriculture, Integrated theme for oilseeds, pulses, feather palm and maize (ISOPOM); Technology missions for cotton, National food security Mission etc. offer for sponsored seeds. a number of them additionally offer incentives for investment in Seed producing infrastructure and upgradations.

New Policy on Seed Development (NPSD) includes allowing a hundred per cent foreign direct investment (FDI) beneath the automated route. The thrust is additionally on making a seed bank.

There square measure 3 stages in seed production cycle. Initially stage stock farmer seeds square measure developed by 'Indian Council of Agricultural Research' (ICAR), National Seeds Corporation or state farms firms. In second stage Foundation Seeds square measure developed by NSC, SFCs or State seeds firms and so finally Certified Seeds square measure made and distributed to any or all farmers.

Certification is finished by state agricultural universities or personal organizations licensed by 'Indian Council of Agricultural Research'

b. Hybrid Seeds

Hybrid seeds square measure obtained by cross fertilization of various sorts of connected plants. These seeds were instrumental in revolution. These seeds mix fascinating properties of 2 connected plants. Employing a technique of controlled crossing devised by natural scientist and Mendel within the mid-19th century, plant breeders will currently turn out seed that mixes the specified traits of 2 pure parent lines within the 1st generation itself.

One downside was that these seeds don't regenerate seeds of same quality. Thus each time farmers ought to get new seeds. Just in case of typical seeds, farmers might use reproduced seeds by current crop. Therein sense hybrid seeds pushed up Input prices for the farmers and transnational corporations like Cargill opposition. Established their monopoly over the market.

Now there's growing clamor each for and against genetically changed form of seeds. Its supporters believe that it will get world obviate starvation, whereas opponents concern negative effects on setting, multifariousness and health.

c. Genetically changed Varieties

These sorts of seeds square measure developed in laboratories by recombinant DNA technology technologies. In these technologies genes of various species of organisms (like bacterium genes with plants) square measure integrated to change deoxyribonucleic acid to induce desired characteristic. Bacterium named eubacteria Thuringiensis provides a sequence that's incorporated into plant's deoxyribonucleic acid and that we get genetically changed Organisms like BT- corn, BT- cotton, Bt- herb etc. This plant are protected against pests and can offer raised yields. In India grime crops square measure allowed and contribute regarding eighty fifth of the consumption, whereas in Europe it's mostly prohibited as of currently. In India, it's allowed for industrial production of cotton and for food crops field trials square measure occurring.

In 2013 Supreme Court in response to a PIL appointed a Technical knowledgeable Committee for considering whether or not trials ought to be allowed or not. Policeman counseled that there ought to be moratorium on trials till correct restrictive and safety mechanisms square measure place in situ, and BT crops square measure approved for his or her future safety. Nevertheless this government allowed trials for a few crops, as SC didn't pass any order during this relation.

Main concern of the farmer community is that, corporations like Monsanto can exploit their monopolies as seeds square measure expensive and don't seem to be regenerative. Recently GMO cotton seeds provided by Mahyco, (a gramme seed company that has venture with Monsanto), resulted in an exceedingly failure that brought suffering to farmers.

D. National Seeds Corporation

It is Miniratna Company beneath Ministry of agriculture fashioned in 1963 to supply foundation seeds and undertake certification activities. It's central role in development of seed business in Republic of India. Varied schemes like ISOPOM, NFSM and National gardening Mission square measure enforced (partly or fully) beneath NSC. It's additionally concerned in export of seeds, particularly to SAARC nations and African countries.

It maintains a SAARC seed bank during which massive quantities of varied seeds square measure unbroken as inventory in order that shortage thanks to any natural misfortune or otherwise might be tackled.

3. Fertilizers and Manures

Fertilizers are any organic/inorganic, natural/synthetic material used in soil to supplement it with plant nutrients which are essential for plant's growth.

Fertilizers were another most important part of green revolution. Some points to be noted are –

1) In India per hectare Consumption around (around 146 Kg) is far lower than developed countries.

2) Indian Soils are deficient in Nitrogen and Phosphorus

3) Fertilizer can most effectively be used with ample water. So rainfed areas (deprived of irrigation) constitute 70 % of agricultural land and still they use only 20% of national Fertilizers consumption. On other hand Rabi crops are dominantly produced in Irrigated areas, so they consume about 66% of fertilizers while their share of total agri output is 33%

4) Due to rising prices of fertilizers government is promoting organic farming and organic manure.

5) India meets its 80 % requirement of Urea (N), while it is heavily dependent on Imports for its potassium (K) and phosphorus (P) fertilizer requirements.

Fertilizers Vs Manure

Fertilizers are made through industrial processes in which composition of nutrients is precise and deliberately fixed. In contrast Manure is derived animal waste such as cattle dung and urine. It enriches the soil generally. Further, presence of manure makes fertilizers even more effective.

Macronutrients and Micronutrients

Plants or crops needs about 17 essential elements to survive and grow. If any of these elements is deficient, then growth will be stalled or plant will die. Among these elements, N, P, Calcium, Magnesium and Sulfur are required in comparative large quantities and termed as macro nutrients. Other elements such as Boron, Chlorine, Copper, Iron, Manganese, Molybdenum, Zinc and Nickel are needed in smaller quantities hence termed as micronutrients. Macronutrient based fertilizers are dominant and its use enhances capability of plants to extract more micronutrients from soil.

Nitrogen – is responsible for green leafy growth and overall plant health. Its Necessary for Photosynthesis to take place. Deficiency will result in yellow leaves and weak plant.

Phosphorous – Is necessary for root, flower and fruit development.

Potassium – Plant health and vigour. It helps plant to fight diseases and pests. It also gives strong cell walls

Nutrient Based Subsidy

This was introduced in 2010 with objective to promote balanced use of fertilizers and to limit fertilizer subsidy of the government. Idea was to fix subsidy as per nutrients (in per Kg) in the fertilizer and leave the determination of price to suppliers. Presently Urea is not covered under the scheme due to political compulsions. Consequently subsidized price of Urea remained stagnant even when real costs of production have risen significantly. On the other hand Potassium and Phosphorous are covered under the scheme and a fixed subsidy as per content of nutrients is given to suppliers and they change Maximum Retail Price as per market signals. Secondary and Micronutrients are also covered under the scheme.

(In short urea is still controlled and P, K, are decontrolled)

As a result, actual use of NPK is in ratio of around 8:3:1 while recommended use is 4:2:1

This extra utilization of urea doesn't give any extra advantage to the rancher. Rather this can corrupt soil and mischief crop. Profitability and nature of a yield relies on utilization of broadened blend of full scale and micronutrients, which fluctuate from soil to soil.

Most recent Economic overview takes note of that while urea utilization has expanded from 59 percent to 66 percent of absolute utilization in 2012-13 more than 2010-11, per hectare utilization of manure has declined from 140 kg to 128 kg over a similar period.

Manure appropriation was '67,971 crore in 2013-14, an expansion of 11 percent more than 2009-10. Huge piece of this went to creation and utilization of urea that was not required by any means.

> Additionally, because of over the top utilization of manures groundwater is likewise getting dirtied and compound bio aggregation issue is affecting wellbeing of individuals. In Punjab and Haryana, issue is widespread and ground water is seen as dirtied   with   arsenic,   uranium,   fluoride   and   so   on.

4. Impact on Marketing:

The subsidy has become the essential part of the fertilizer and seed sector in India. The marketing of these products has been largely affected by this. The subsidy is affecting the decisions in following areas of the marketing i.e. product, price, place and promotion. The companies are manufacturing the products, putting the price of the product and promoting based on the subsidy.

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Role of Integrated Talent Management in Organisation

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Abstract

The talent management is critical and many organizations for effectively applying state-of-the-art technology solution. The main trouble lies in sharply diminished business benefits when organizations fail to take benefit of talent solutions that assimilate fully with the core human resources (HR) system of record and with each other.
An integrated approach is ideal for the forward-thinking organization increasing its talent management scope or for an organization exploring talent management for the first time. Real-time integration that enhances all aspects of talent management can best be attained with a solution from the same vendor that provides the core HR system.
In the current era, changing business landscape demands that HR aligns its processes, practices and strategies with business objectives. This demand can only be met by a comprehensive solution that efficiently manages an organization's talent and the entire Human Capital Management (HCM) lifecycle together. An integrated talent management framework brings this success via a holistic view of talent. Single, modular, enterprise-wide system supported by a single data source offers consistent data and business processes and a uniform look and feel that together establish the substance for insightful decision-making and profitability.
Keywords : Strategic management, Talent management, HR

INTRODUCTION

The human resource professional or department that excels not only solves specific business problems today, but also delivers the ability to address broader, more universal strategic challenges as well—thus building a solid foundation for future success. A solution must have the scope to manage extensive business problems and encompass new business partners, corporate unions, new markets, new technologies and more.

An integrated talent management framework can be defined as a protect, single-platform, workflow-driven system that influences a single data model and is inclusive of the core HR system of record and all talent processes. Integrated talent management—because it is by nature integrated—equips organizations with a wide range of functional and decision-making capabilities for strategically handling today's and tomorrow's business issues within a consistent, end-to-end framework. The system empowers the organization with insight, agility, efficiency and consistency in talent management.

This paper describes difficulties and dangers organizations face when trying to choose from among vendors' solutions that are not native to the core system.

PROBLEMS OF HR AND OTHER HR APPLICATIONS

Vendors products might offer shorter applications and dazzling user interfaces (UIs). However, their offerings present functional and technical issues that can retain HR from managing talent efficiently and making informed decisions as a strategic business partner. Challenging symptoms appear such as the failure to find answers to strategic questions, diluted business benefits due to short-term fixes, unexpected costs often connected to technology difficulties and other red flags.

According to Aberdeen Group, "Best-in-Class companies report a variable of planned enhancements to the functionality of their HR systems: it is important that these improvements actually provide value, and aren't just 'whiz-bang' additions. While robust capabilities and enablers can add a   inordinate deal of value, make sure that they are part of the mission of the organization, not just a new offering."

Short-Term Fix Tragedy: Weakening the Benefits of Core HR

When a specific problem, such as a skill gap or employee engagement issue, requires a speedy solution, decision makers must not be myopic. Too frequently HR fails to step back and safeguard that the solution contributes to the comprehensive, end-to-end management of human capital from a talent viewpoint.

In reference to recruitment and succession concerns with top management, *The Wall Street Journal* states, "Companies are racing to find solutions, but most of them are making a crucial error: They're treating these problems as separate issues."

Ongoing and Hidden Expenses

Using products outside the original HR core vendor footprint raises total cost of ownership (TCO). Niche vendors in the talent management space introduce a number of expenses that can be both ongoing and hidden:

- Users must learn and remember a new interface for each product. If one niche vendor has purchased another, one solution could have two interfaces to learn. Time spent learning turns in to costs by hindering productivity.
- Language translations among disparate software vendors are not consistent, and even user preferences would need to be maintained multiple times. If the niche provider does not support the same languages as core HR, the user adoption rate is greatly reduced for multi-language organizations.
- Security logins require users to both remember and input a new user name and password for each product. This increases call volumes to HR and technical support as well as a loss in productive work hours.
- Implementation processes can be more complex for niche vendor products. In addition, the IT department must integrate disparate systems and train or obtain resources with the required skill sets for maintenance. Training or hiring additional IT staff to support separate products beyond the core HCM product line means needlessly duplicated effort and additional costs.
- Complexities involved in interfaces between systems from different vendors can increase the risk of losing data integrity, creating a potential expense in that area.
- An off-the-shelf product purchased quickly by an individual to solve an urgent problem might later be discovered as redundant or outside the main talent management strategy. An added expense, it therefore exists alone as a silo, requiring extra resources to transport data to the core system for reporting. The product might eventually atrophy from non-use, wasting all the time, money and effort invested.
- The products can entail daunting software-imposed challenges, translating into costs. Each application has different infrastructure requirements and different upgrade cycles that require IT to repair point-to-point integrations.
- License and maintenance fees for a number of separate solutions are more costly and involve more time-consuming tracking efforts than dealing with a single vendor.

Holistic View of Talent Management

A holistic view of talent management allows HR to address urgent problems in the context of a roadmap where all features of talent management fit together long term. HR decision makers must be knowing of what the organization's ideal, full-fledged solution should look like down the road—even if there is only budget for a small access point into talent management today.

The many Banks, trusts in the importance of strategy. We need to have an idea of what you want to complete for your business and the ways better management of people can help needs an integrated approach and highly capable, flexible technology tools.

Ideal Solution: An Integrated Framework

According to *The Wall Street Journal*, "To meet the challenge, companies must rethink how they hire, train and reward their employees, placing those responsibilities at the heart of their business plans. In doing so, they have an chance to address all these separate problems with a unified plan, rather than waste time and resources attacking each of the issues individually."

An organization that chooses combined talent management—whether it is E-Business Suite or Enterprise Talent Management—receives the entire talent management framework in a modular form with out-of-the-box integration of HCM processes. Numerous integration points create visibility across lines of business. This enterprise-wide framework delivers reliable processes, line-of-sight visibility and greater usability. Only such a fully integrated approach can supply a holistic view of talent management from a process perspective.

An organization might have all the modules in the framework, or begin with one or more modules and build from there. As HR leverages the framework, effectiveness increases. With respect to HR's success using technology to accomplish objectives, CedarCrestone states, "We have seen levels of success rise the longer solutions are in place."

The modules, which assimilate seamlessly and natively into the framework, are as follows: planning,

BUSINESS VALUE OF AN INTEGRATED TALENT MANAGEMENT FRAMEWORK

The integrated talent management framework is an enterprise-level, sustainable solution with immediate and long-term benefits across the organization. The framework offers many advantages that equip HR to meet current and future challenges:

- A stable foundation for a holistic view of talent that drives business results

- Support for the objectives of C-level management, thus reinforcing HR's role as a strategic partner and advisor
- Improved decision-making capabilities due to better, more accurate information sourced in real time from the HR core
- Configurable framework that supports both globalization and differentiation as an employer of choice
- Improved business opportunities and relationships with customers, suppliers and other business partners

Integration and Business Results

As shown earlier, a holistic view of talent is terrible without an integrated framework. According to a senior financial executive at a large technology firm, the better the integration among dissimilar activities like recruitment, payroll, benefits, training and performance, the better an organization will be at workforce planning and management, as well as worker motivation. The degree of integration is directly related to organizational effectiveness. Integration also releases time for HR to work on its strategic focus.

The most significant benefit of an integrated approach, however, is bottom-line results. A study by Cedar Crestone, Inc., revealed a strong correlation between companies showing operating income growth and those with at least one talent management application from the HR core vendor.

According to Lexy Martin, director of Research and Analytics at CedarCrestone and lead author of the Cedar Crestone HR Systems Survey, "We analyzed each respondent's talent management approach as to whether or not it was integrated. It defined integrated as having two or more talent management applications from the same vendor that provided a respondent's underlying core HR management system—an ERP vendor. Approaches that were not integrated comprised best-of-breed solutions, with two or more talent management applications from recognized best-of-breed vendors (not from the ERP vendor), and mixed approaches, which had two or more talent management applications with at least one from the ERP vendor and at least one from a best-of-breed vendor. We had used Gartner and Forrester reports to identify best-of-breed vendors. We then looked at operating income growth from the last two years. We determined that for organizations with an integrated or diverse talent management approach, operating income growth was significantly higher than for those that had chosen a strictly best-of-breed approach."

CONCLUSION

The speedy decision-making or lack of information, an HR organization might add a niche offering to the core HR system to resolve a talent problem. The product then fails to assimilate or integrates poorly with core HR and other HR applications. HR loses decision-making accuracy, workforce consciousness and the ability to leverage consistent data across business processes. Multiple capability models, loss of functionality, poor user adoption and system disconnects weaken the impact of HR's efforts to manage talent.

The integrated talent management framework solves instantaneous people-problems while establishing a foundation for resolving critical issues on an ongoing basis. Some of the key issues addressed comprise driving productivity and profitability, maintaining alignment with business objectives and improving overall organizational performance. Native integration and a single data source equip HR with consistent employee data and information, enterprise-wide line-of-sight visibility and understanding for decision-making. The framework also solves the plethora of technology problems that epidemic organizations with a heterogeneous mix of vendors.

The framework empowers HR practitioners as planners so they merit an influential seat at the executive table. Integrated talent management is an effective resolution for today and an extensible solution for tomorrow. HR can now establish lasting solutions and build credible, long-term strategies that support anticipated business outcomes now and in the future. Thus in today's competitive environment, effective talent management strategies should be adopted to improve business and achieve organizational goals.

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Leadership and Management Style across Different Cultures: A Study of BRICS Nations

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**Abstract**
Leaders play a pivotal role in an organisation in order to achieve the goals and objectives. Moreover, it is transparent from the various literatures that different leadership styles may affect an organization's effectiveness and performance. The main objective of this paper is to analyse the different types of leadership styles that are followed by the BRICS over the past years. Data has been collected from various research publications, books, research articles. The study recommends that the culture which is followed by the BRICS entirely different from each other.
Keywords: Leadership styles, Effectiveness, Performance, Culture

Introduction
In the primitive times we have observed that there always used to be the people who have ability to get a head of others and take the decisions at their own and these people were known as leaders. Leaders are one that plan, organise, supervise, direct, staff and control a particular task. The following elements are required for leadership:
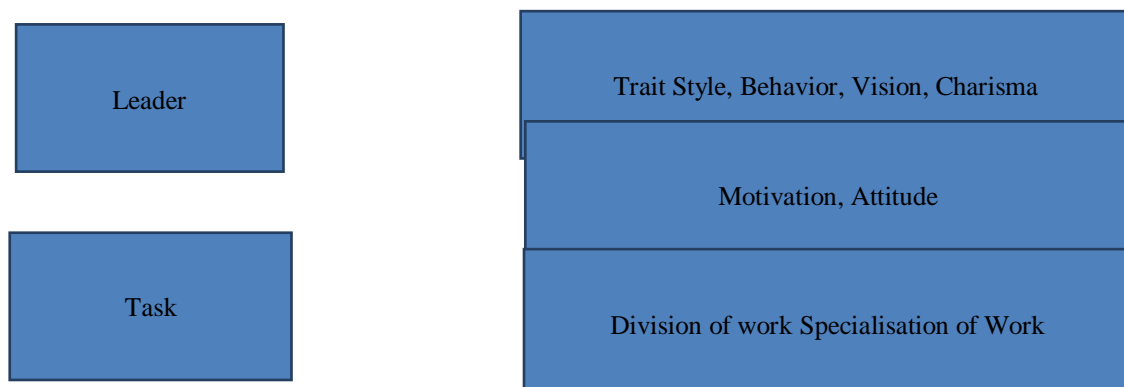
Leadership Emerges because of the need to survive. In the past time, there was a patriarchal system of leadership in the families where in the eldest and the most experienced member of family was expected to take decisions and whole family supposed to be followed that decisions. Leadership traces had also been seen in the Egyptians around 5000 B.C. the way their advisors handled 100,000 workers engaged in construction of pyramids.

Literature Review:

Elance& Aggarwal (1975), revealed that the leadership behaviour considering different parameters affecting theleadership style along with delegation of authority of 123 executives from public and private sector. They observed that 67% executives in private sector and 57% in public sector units have employed democratic decision style or leadership. Reichmann (1991), investigated the features of team leaders in higher education. Team leaders exhibited certain characteristics including conceptual leadership and attributes such as honesty, integrity and a sense of fairness. He carried out a study on team leader effectiveness, high performance teams in higher education and basically analysed the main traits of team leaders.

Northouse (2001), leadership is analysed as the selection of parameters of influence. The transformational approach views leadership as a shared process. The result of this process is the ability to transform oneself, others, and the organization to new, unimagined heights of motivation and performance.

AlpanaPriyabhashini, Venkat R. Krishnan (2005), examined the relationship between transformational leadership, leader"s expectation from follower (pygmalion effect) and follower's readiness for promotion collecting a sample of 101 managers from two companies in India. Respondents responded questions on their readiness for promotions and on their superior's transformational leadership and expectations. The readiness for promotion was captured through two dimensions. The first and foremost one related to motivation of the subordinate to perform and to rise. The second dimension was measured on confidence of the subordinate. The outcome revealed that leader's expectation was positively correlated to follower's readiness for promotion. Each of the five factors of transformational leadership was significantly was significantly positively correlated to leader"s expectation. Readiness for promotion is positively related to only three factors of transformational leadership-idealized influence, inspirational motivation and intellectual stimulation and is not related to the fourth factor-individualized consideration. Results also showed that leader"s expectation mediates.

David.M.Harold, Donald.B.Fedor (2008), revealed the information regarding the effect of transformational and change leadership on employee's commitment to a change. The effects of transformational leadership on the outcomes of specific change initiatives are not well understood.

Leadership Qualities

1. A HIGH STANDARD OF PERSONAL ETHICS leads the list. Honest Abe Lincoln, who walked miles to return a customer's change, is a classic example of how personal ethics are reflected in professional conduct. Decisions made under pressure and/or temptation separate the great ones from the impostors.

2. HIGH ENERGY: Leaders are not panic by dealing with small issues. These have positive attitude from negative know as well as the difference between what's truly important and what's merely interesting.

3. WORK PRIORITIES: Leaders set work priorities for their employees so that objectives and goals can be accomplished within a specific period of time. The difference between setting priorities and working them through is the difference between a dreamer and a doer.

4. COURAGE. Leaders have the ability to take risks and accept responsibility for the outcome is a consistent quality among effective leaders. Either you or your fears will control everything you do. An organization will be no bolder than the leader.

5. COMMITTED AND DEDICATED HARD-WORKING: leaders will eventually develop dedicated and hard working organizations regardless of which they start with or the experience they bring to the job.

6.GOAL ORIENTATION: Leaders have the ability to make tough decisions. Goal orientation produces a drive and energy that shield us from the pain of the task. Keeping an organization focused increases efficiency.

7. INSPIRED ENTHUSIASM is like the pilot light on the oven. Genuine enthusiasm is contagious. People look to their leaders for enthusiasm. The inspiration level of the organization is directly proportionate to the enthusiasm of the leader -- be it high or low.

8. The DESIRE TO HELP OTHERS succeed is the mark of a truly great leader. Synergy is created when a leader truly invests his of her efforts in the success of others. Zig Ziglar says it like this, "People don't care how much you know until they know how much you care about them."

Leadership Styles:

1) Democratic Leadership: Democratic leadership style is that type of style which establishes and maintains unbiased group where group members can make choices resolve the problems. These types of leaders help to increase the morale of employees.

2) Autocratic Leadership: Autocratic leadership is the opposite of democratic leadership. In this leadership style, only leader controls all thedecisions. Autocratic leaders make choices based on their own experiences and do not allow to involve others to make the decisions.

3) Laissez-Faire Leadership:This type of leadership style is also known as delegative leardership. In this style, leader gives full freedom to their followers to take decisions..The French term "laissez faire" literally translates to "let them do," and leaders who embrace it afford nearly all authority to their employees.

4) Strategic Leadership: These are those leaders that are basically **potential to express a strategic vision for the organization** and motivate others to fulfil that vision. Strategic leaders create organizational structure, allocate resources and express strategic vision.

5) Transformational Leadership: Transformational leadership is not for digital tools are about leading change. Transformational Leadership is basically to bring the change in organisation and execution of that change with committed members of a

group. Transformational leadership helps to increase the motivation, morale, and job performance of followers.

6) Transactional Leadership: Transactional leaders are fairly common today. Transactional leadership focuses outcomes, stays within the existing structure of an organization and analyses success according to that organization's system of rewards. These managers reward their followers for the work they do. Bonus is given to the marketing team for helping generate a certain number of leads by the end of the quarter is a common example of transactional leadership.

7) Bureaucratic Leadership: Bureaucratic leaders only exist in the books.In these style only employees have to follow the specific rules which are formulated by the management. In other words, followers follow that regulations which are fixed by the higher authorities within the organisations.

Objective of the Study
To have an overview of existing leadership styles inBRICS Nations

Research Methodology & Database
The present study is secondary data based. Data has been collected from governmental and non-government publications in electronic and print form related to subject under study. BRICS Nations has been selected for the purpose of the study. BRICS is the acronym coined for an association of five major emerging national economies: Brazil, Russia, India, China and South Africa. BRICS Nations are considered as emerging economies of the world.

Leadership across BRICS Nations:

Brazil: In Brazil, the business is hierarchical. Authoritarian leaders or managers have been preferred by people. The leadership style is related with the Hofstede's Theory on power distance level, which is Brazil, is medium to high. This power distance is characterized by the downward communication style. However, Brazilians also want a paternalistic manager, because the subordinates are more likely to be more loyal and commit to the manager than the organization itself. There is a close supervision, and the manager will most likely to directing and controlling the employees. Managers in Brazil tend to keep the line between employee and boss clear, but still maintain the friendly atmosphere.
There is a low satisfaction level in Brazilian working culture at work and less competition among people of the organisation. Moreover, in Brazil family relation is very important that's why it is common in Brazil to hire people from the same family to be their subordinates or partners and they make sure that their professional life would not disturb their personal life

Russia: The leadership style of Russia is centralised and directive. The boss – especially the big boss – is considered to issue direct instructions for subordinates to follow. Middle managers have little power over strategy or input in significant strategic decisions. The most powerful middle managers are the ones who have the most immediate entree to the decision-maker at the top of the organisation. It is also important to take age into consideration – younger managers, who have developed in the post-Soviet era, may be much more heavily influenced by western management theory than their older counterparts.

India: Indian management is generally believed to be autocratic with subordinates closely supervised by their superiors and only a limited degree of participation is allowed to the subordinates.
Autocratic leaders have following behavioural traits:

- Little or no input from group members
- Leaders make almost all of the decisions
- Group leaders dictate all the work methods and processes
- Group members are rarely trusted with decisions or important tasks
- Work tends to be highly structured and very rigid
- Creativity and out-of-the box thinking tend to be discouraged
- Rules are important and tend to be clearly outlined and communicated

China: Chinese are having the core believes and they put a great faith in their workers. They treat their employees as an asset. Abreast they try to develop their employee's skills not only in organisation benefit; they also help them to develop those skills which will be beneficial for them for their whole life.
Paternalistic style of leadership which is composed of the following necessary elements:

1) Compassion
2) Good Organisational Skill
3) Decisiveness
4) Empowerment
5) Influence

Conclusion
This paper deals with revolution in the leadership traits and styles in emerging BRICS economies with changing corporate scenarios. Some specific traits are required depending upon the business requirements in addition to general behavioural traits always required of a leader. It is concluded that leadership styles differ across cultures in BRICS Nations.

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