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MULTI COLONY ANT OPTIMIZATION: A NEW APPROACH TO QUERY OPTIMIZATION IN DISTRIBUTED DBMS

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ABSTRACT
In present situation, after the successful implementation of distributed environment in databases, there is a need to focus on query optimization cost. From past many years, various optimization algorithms have been used in the implementation of query optimizers. Every algorithm has its own effect in query optimization process by means of producing result in specific time. This time relates to cost, which differs in different type of algorithms. Many factors affect the cost of query optimizers in Distributed databases. In every optimization method, the emphasis is being given to implement methods for retrieval of the data in minimal time. This cost somewhat shows dependency on transferring of data on various sites, transfer the minimum amount of intermediate data may help in reducing cost. This cost impacts the overall performance of a system throughout the processing. In this paper, various methods have been discussed to know the significance of Multi colony Ant Optimization Algorithm. In past years, when database was centralized, there was no need to discuss cost related to transfer of data. But in distributed databases, emphasis is given here in this paper to find out a method which incurs minimum cost when there is a requirement to transfer the data within multiple sites.

KEYWORDS
optimization cost, query optimization process, swarm optimization.

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1. INTRODUCTION
Query Processing is a scientific approach of obtaining the desired information from a database system in a predetermined fashion. In large distributed environment, it is difficult to produce efficient database query plans based on information available solely at compile time. Getting the results of a query in time is the technique of Query Optimization (G. R. Bamnote and S.S. Agarwal, 2013, pp 53-56). It is used to find out the best order which results in optimal solution. In distributed databases, it can be considered as an emerging issue in current time scenario due to multiple sites participating in a single query. The retrieval of data is performed through various low -level operations such as project, join, select, cartesian product, etc. The primary goal of query optimization is to get the results faster, which motivates the need for creation techniques that results in faster execution.

A query is submitted in structured form which is converted into relational algebra operations. The optimizer chooses the best option from many alternatives available, for effective evaluation plan. The evaluation plan includes select, project operation but if more than one relation is included in a query then join relation has an important role to calculate the best plan (Michael Steinbrunn, Guido Moerkotte and Alfons Kemper, 1997, pp 191-208). The plan thus chosen always leads to an optimize result which depends on many factors. (Anjali and Sangeeta, 2016, pp 1608-1611). These factors affect the performance of optimizers such as number of sites involved and number of relations involved in join operation. Many researchers are working on query optimization problem to find out the best way to give the best join order. In this paper, some of the query optimization algorithms are reviewed to know the significance of each algorithm.

2. OBJECTIVES OF THE STUDY
In Query Optimization process, whenever a query is submitted, optimizer analyzes the Structured query language (SQL) and generates one or more query plans. These query plans executes the same query and optimizer suggests the execution method that gives the result in minimum time. In order to reduce the cost of query, an efficient algorithm is required in query optimization process. Many algorithms have been used so far in query optimization process so here in this study emphasis is given on to find out the efficient algorithm which helps in reducing the query optimization cost. The objectives of this study includes-

1. To study and analyze the algorithms used in query optimization process in Distributed Database Management System.
2. To find out the limitations of algorithm based on review.
3. To show the significance of Multi Colony Ant Optimization algorithm.

3. PROBLEM IDENTIFICATION
Query optimization problem relates with the cost associated with the query. The optimization of these expressions can be carried out optimization algorithms such as Deterministic algorithms, Randomized algorithms and Genetic Algorithms

Deterministic algorithms start from base relations and build plans by adding one relation at each step. Every algorithm in this class constructs a solution step by step in a deterministic manner such as Dynamic Programming, Iterative Dynamic Programming etc. Randomized Algorithms use random numbers or random walk to decide the series of moves. Randomized algorithms such as Simulated Annealing and iterative Improvement are the most used algorithms for optimization problem (Yannis E. Ioannidis and Younkyung Cha Kang, 1990, pp 312-321). Genetic Algorithms are bio-inspired algorithm which works on the behavior of chromosomes and genes. Data stored on various locations are in huge size and for extraction of information from the databases dispersed on various site, various algorithms has already implemented but challenge is to reduce the total time in the extraction of data. In this research work, the focus is on to reduce the time taken for execution of query.

4. ALGORITHMS ANALYZED FOR QUERY OPTIMIZATION IN DISTRIBUTED DATABASE SYSTEMS
Query processing is the process of translating a high level query (relational calculus) in a sequence of database operators (relational algebra +communication operators). User does not need to specify the procedure of accessing the data. The role of query optimizers is to transform the query by selecting the most efficient one which assures correctness in any DBMS. As the data is growing bigger in distributed environment, the algorithms which have been designed needs modifications. Several algorithms such as Genetic algorithm, Dynamic programming and various swarm intelligence algorithms have been used in the area of optimization from past many years. Swarm Intelligence has been evolving as an active area of optimization over the past years. The major emphasis is on to design adaptive,

decentralized, flexible and robust artificial systems, capable of solving problems through solutions inspired by the behavior of social insects. During this research work, several algorithms were studied for the solution of the optimization problems. Some of these algorithms are as follows:

a) GENETIC ALGORITHM

Based on bio-logical inspiration, Genetic algorithm works on initial population which was chosen randomly. Each member in a population represents a possible solution to the problem at hand and is commonly called a chromosome. Here each solution (chromosome) is evaluated according to an evaluation (fitness) function. During selection operation, members of the population (parents) are selected in pairs to produce new possible solutions. The fitter a member of the population, offspring will be produced by random crossover and mutation. These offspring are then evaluated and replaces the weaker memebers of the previous generations (Wenjiao Ban et.al., 2016; S. Venkata Lakshmi, Valli Kumari Vatsavayi, 2016; Ender Sevinç and Ahmet Coşar, 2011). It gives out the solution by following many steps. In the very first step, the algorithm starts with an initial population which is usually chosen at random and contains a wide variety of members. Here, population's each member represents a possible solution to the problem at hand and is commonly called a chromosome. This phase is commonly called up as initialization phase. After populating the data, a fitness function evaluates each result. This phase is used to find out the feasible solution. During natural selection phase, members of the population (parents) are selected in pairs to produce new possible solutions. The fitter a member of the population, the more likely it is to produce offspring. Verification is used to be done by crossover operator. It is then used to result in offspring inheriting properties from both parents. The offspring is evaluated and placed in the next population, possibly replacing weaker members of the last generation. Mutation operator is used to allow further variation of offspring. The problem is considered to be solved if the solution is close enough to the desired answer. Otherwise the same process will be repeated until a solution is reached. Complexity is one of the limitations of genetic algorithm. It does not assure constant response time. (Jiunn-Chin Wang, 2002) The difference between largest optimization time and smallest optimization time is much bigger.

b) DYNAMIC PROGRAMMING

Dynamic Programming approach works in bottom-up manner to find the solution in minimum cost. This behavior of this approach was compared with other algorithm to show the significance of this algorithm (Ismail H. Toroslu and Ahmet Cosar,2004, pp 149–155). A good framework was design by Jeff Sidell to work on dynamic optimizers (Jeff Sidell, 1997, pp 1-19) A good idea was again brought to run the query in dynamic query optimizer with full replication. Various factors were included that affects the distributed environment (Robert Taylor, 2010). Chung and Irani suggested an approach which minimizes the intersite data traffic incurred by a distributed query by using a sequence of semi joins. A method was developed which accurately and efficiently estimates the size of intermediate result of a query. A heuristic algorithm was developed to determine a low cost sequence of semi joins (Chung and Irani,1986, pp. 137-157; Sunita M. Mahajan and Vaishali P. Jadhav 2013)

Dynamic programming algorithm is used for optimization (for example, finding the shortest path between two points, or the fastest way to multiply many matrices). Dynamic programming algorithm always checks the options to solve the problem and picks the best solution and always guarantees the optimal solution. From past many years, researchers are focusing on swarm intelligence technique which has been proved to be a good technique in query optimization. Swarm intelligence deals with the problem by analyzing the problems as insects or animals to solve complex problems. Some commonly used swarm intelligence algorithms for the solution of the optimization problems include Ant Colony optimization (ACO), Particle Swarm Optimization (PSO) and Artificial Bee Colony (ABC). Optimization phase in these three algorithms can be implemented by the behavior of agents (Ismail H. Toroslu and Ahmet Cosar,2004, pp 149–155). The only problem with this method is that it creates complexity in programming and does not calculate the actual cost associated with join queries.

c) ANT COLONY OPTIMIZATION ALGORITHM

ACO was proposed by Dorigo and Gambardella and it is a population-based swarm intelligence algorithm. This algorithm analyzes the behavior of ants and their searching strategy. It was designed basically for working on TSP (Travelling Salesman Problem). These ants builds their solution step by step by updating their pheromone value on every available path. The value of pheromone deposits decides the route for other ants on path. Result can be achieved by going through many phases. In Initialization phase, parameters and pheromone trails are initialized, ant solution are constructed. Colony of ants concurrently and asynchronously visits adjacent states of the problem by moving through neighbor nodes of the problem's construction. They move by applying a local decision policy that makes use of pheromone trails and heuristic information and builds their solution. After building a solution, or while the solution is being built, the pheromone updation depends on partial solution. Pheromones values get updated in pheromone updation process. In the next phase, a short path, by comparison, gets marched over more frequently, and thus the pheromone density becomes higher on shorter paths than longer ones. Pheromone evaporation is also an important phase due to convergence of solutions. The quantity of pheromone decides the probability of ant trail on that path and thus produces the good solution. Then, in verification stage, current solution will be replaced with a new generated solution if it is not easy to be found. Ant colony will not stop repeating the steps above (except the initial stage) until maximum iteration or a minimum criterion is attained. (Jeff Sidell, 1997, pp 1-19)

d) PARTICLE SWARM OPTIMIZATION ALGORITHM

PSO (Particle Swarm Optimization) was proposed by Kennedy and Eberhart and is a population-based swarm intelligence algorithm. As ACO is inspired by the behavior of ants, PSO is inspired behavior of birds. Birds, which forms the solutions, always take space towards better solutions. These movements are the result of previous solutions in the form of best results (Robert Taylor, 2010). In population Initialization Phase, a problem is given, and some way to evaluate a proposed solution to it exists in the form of a fitness function. In the Initialization phase, problem solutions are defines randomly in the form of candidate solutions. In the next step, an iterative process to improve these candidate solutions is set in motion. Fitness of candidate solutions is then evaluated. The local best solution is evaluated and then shares the information to their neighbors of their success. Population movement is guided by the success of local best solution. In natural selection phase, every particle produces a local solution. Neighboring particles influences by the best solution of particles by gaining their position and own experience. In case of neighborhood of a particle is the entire swarm, the best position in the neighborhood is referred to as the global best particle and thus gives the best optimal solution. Each paricle's solution is evaluated with the fitness function (Chung and Irani, 1986, pp. 137-157). This optimization method does not work with non-coordinate system. It finds out the optimization partially which affects the speed and direction.

e) ARTIFICIAL BEE COLONY ALGORITHM

In the Bees algorithm, every food source represents a possible solution whereas the nectar amount represents the quality of source. The number of employed bees is exactly equivalent to number of food sources. In Initialization phase, employed bees are associating with food sources (solution). In iterative process, every employed bee checks the neighboring food source and evaluates its nectar amount (fitness) (Sunita M. Mahajan and Vaishali P. Jadhav, 2013). All the bees are scout bees who seek randomly food sources near the bee hives in initialization phase. Half of the bees find food source and becomes employed bees, where these bees either spread information or give up the found food source and becomes scout. Here some solutions that don't meet the constraint condition will be replaced randomly. In Natural Selection phase, some bees becomes onlookers who does not get any food source and waits for the employed bees to provide them the information of food source. After getting the food information, the fitness is evaluated to get the better solution. In verification phase, if the number of failure time than maximum limit then onlooker bee gives up the current food source. Here, if the current solution is not easy to be found and then it will be replaced with a new generated solution. The process will repeat all the phases until maximum iteration or minimum criteria are attained. (Yannis E. Ioannidis and Younkyung Cha Kang, 1990, pp 312-321)

In our dynamic approach of query optimization, we consider each preferred path which a bee takes is a complete QEP (Query Execution Plan) which passes contains all relations. Each bee exchanges the result with its neighborhood for finding the better QEP. The area of query optimization is very large within the database field. The limitation to this method is that it does not have information about sources on prior basis. It is slow as compare to ACO. It requires good memory capacity. Query optimization is a crucial part in deciding the total time taken by optimizers. Current optimizers are working efficiently for lesser number of joins but if the number of joins are more, then these algorithms gives output in comparatively big amount of time. Many researchers are working on this same problem from past many years. Many papers are reviewed during the first phase.

f) MULTI COLONY ANT OPTIMIZATION

The quality of ACO is to deal with complex problems where the task is to get the best solution out of many possible solutions to a given problem. This algorithm can get a good solution at the early stages of the algorithm execution. As the data is distributed over multiple sites, an efficient mechanism is essential to search for the relation which is going to be used in implementing the solution of a query. ACO is the good mechanism to extract the data for further processing but a new method of multi colony is being proposed in this paper for more effective output with comparatively lower cost. In this method several ant colonies participate in a single query and the colony with best output is chosen for the processing of query. The criterian for choosing the best output is again the cost for extracting the result of query. The colony which gives the result in minimum time with accuracy may be taken as the first set of result. This method may be proving to be very effective as the multiple colonies are working on single query simultaneously (Ladan Golshanara et. Al, 2014, 1-46).

To improve the performance of ACO algorithms, Multi colony ant algorithm is the method that explores the large area of the search space and optimal solution. In this algorithm, a group of several colonies of ants cooperate in order to find good solutions for the problem being solved [8]. Multi colony ant algorithms is the most commonly used algorithm to solve multi-objective problems specially implemented for parallel computing environment, where p colonies run in p parallel processors. Only the best solution is considered in migrate best solution step. Each colony uses its best so far solution to update the pheromone trail equal to the quality of the solution.

5. SIGNIFICANCE OF MULTI COLONY ANT OPTIMIZATION IN QUERY OPTIMIZATION

Ant colony optimization algorithm deals with combinatorial optimization problems, including travelling salesman problem. It works better than bee colony optimization as it gives higher performance based optimal solution. Therefore, the ant colony optimization is better based on algorithm in detecting spam. Swarm intelligence algorithms such as Ant Colony Optimization (ACO), Particle swarm optimization (PSO), Artificial bee colony optimization (ABC) are some of the optimization algorithms which may help researchers to devise a new solution for the current problem. ACO takes decision on the basis of behavior of natural ant colonies which optimize their path from an origin (ant nest) to a destination (food source) by taking advantage information acquired by ants that previously traces all the paths based on pheromone deposition and these ants leave behind as they traverse the paths to optimal solution. Route of ants are prepared by the pheromone trails to construct complete solution. This effect is called dynamic positive feedback and helps speed convergence of ACO. (Robert Taylor, 2010) As the data is distributed over multiple sites, an efficient mechanism is essential to search for the relations which are going to be used in implementing the solution of a query. ACO is the good mechanism to extract the data for further processing but a new method of multi colony is being proposed for more effective output with comparatively lower cost. In this method several ant colonies participate at each site in a single query and the colony with best output is chosen for the processing of query. The criteria for choosing the best output are again the cost for extracting the result of query. The colony which gives the result in minimum time with accuracy may be taken as the first set of result. This method may be proving to be very effective as the multiple colonies are working on single query simultaneously. (Chung and Irani, 1986, pp. 137-157)

6. CONCLUSION

Swarm Optimization is gaining attention of researchers from the last decade. Every algorithm has its own qualities. But the well-known ACO algorithm is one of the most effective swarm-based algorithms to find out the result of query in minimum time. In today's scenario when data is not kept at single place, the dispersed data needs to get processed in order to get a simple query result. To find out the result of query on multiple sites, MCAO, an advanced form of ACO can be utilized. So, the method of MCAO may prove to be a good implementation to work in parallel manner. It implements parallelism in ACO thus giving the results in shorter amount of time as comparable to ACO.

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A STUDY ON WORK-LIFE BALANCE IN BANKS WITH SPECIAL REFERENCE TO JODHPUR

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ABSTRACT

This article aims to throw some light on the concept of work-life balance and to explain its significance with special reference to Banking sector in Jodhpur city. Work-life balance is a key area for quality concern gurus, who believes that balance between work and life is of vital importance when it comes to performance of the workforce. This study was conducted in banking sector in Jodhpur to find out whether the employees were able to practice a sense of control and a balance between Professional and family life. For the said purpose primary research methodology has been used. Findings revealed that banking sector of Jodhpur is suffering through intense work life imbalance. Departments where the working force mainly comprises of line staff suffer tremendously as compared to other support staff in the workforce.

KEYWORDS

work life balance, effectiveness of workforce, personal life, professional life.

JEL CODE

I10, I20, I30.

INTRODUCTION

A nation may be endowed with abundant natural and physical resources and the necessary capital and technology but unless there are competent people who can mobilize, organize and harness the resources for production of goods and services, it cannot make rapid strides towards economic and social advancement. The strengths and weakness of an organization are determined by the quality of its human resources, which play a vital role in using other organizational resources and the development process of modern economies. Human resource is the most strategic resource as no other resource can be fully utilized to generate income and wealth of a nation without the active involvement of this resource. In fact, the differences in the levels of economic development of the countries are largely a reflection of the differences in the quality of their human resources and their involvement in national building.

India has moved to higher growth trajectory since the mid 1990's with the growth momentum exerting great pressure on individuals and businesses. While it is important for businesses and governments to pursue growth / development with a human face, individuals need to strike a healthy balance between their personal and professional lives.

This study throws a glance on work life balance issues for the people in the Indian context; its extensive impact on their professional & personal lives and identifying factors that could help to create a better equilibrium between the two.

OBJECTIVES OF THE STUDY

1. To study the major factors, influence on the Work Life Balance of Bank professionals in the present day context.
2. To analyse the challenges associating with balancing of professional and personnel life of the bank professionals.
3. To study the negative effects on banks employees due to improper management of work life balance.
4. To suggest strategies to sustain a healthy Work life balance to keep the bank professional in the changing environments.

LITERATURE REVIEW

Neelni Giri Goswami & Prof. Shalini Nigam (2015) in their study 'Rewards & Work-Life Balance among Working Women: An Empirical Study in India Specific to Agra Region' revealed that women are entering the workforce to earn livelihood which leads them to arrange better child care and uplift their status in the society. Latest economic scenario bound women to work because husband's income is not sufficient enough. If the income is appropriate still women wants to work as they don't want to sit at home and waste all the hard work that they had put to attain good qualifications.

According to Klopping (2012) contribution, in the modern times, human resource department's one of the major emphasis is to maintain a balance between the professional and the personal life.

Modi, Chima (2011), examined the extent to which Work Life Balance policies and practices are a reality for employees in Banking Sector. The study also examined if there were any barriers and reasons for mutual adoption of Work life balance policies in banking sector. The study suggested an urgent need to communicate clearly the banks Work Life Balance policies and practices to its employees, to raise awareness further and improve the knowledge and understanding of relevant policies.

The research work by Susi.S and Jawaharani.K (2010) explains how work-life balance and employee engagement becomes a visible benchmark among high performing organizations. The study indicated, many family-friendly organizations feel the need for work-life balance which includes recruitment and retention of valuable work force, reduced absenteeism, reduced employee stress, health benefits, job satisfaction, and better life balance. The study suggested that an effectiveness of work-life balance policies and practices must incorporate the effects of workplace culture and supervisor support of employee's efforts to balance work and family responsibilities

Chawla and Sondhi (2010) in their survey conducted among teachers and BPO women professionals revealed that job autonomy and organizational commitment are in positive relation with work-life balance. The study indicated that the more proactive schools/BPO companies which value the contribution of a committed and contributing human resource will need to provide more autonomy to sustain their employee's work-life balance. While work load and work family conflict indicated negative relation with work-life balance.

CONCEPT OF WORK LIFE BALANCE

Work life balance can be defined as a balance between professional and person and a relationship between paid work and people's lives outside of their employment, and the equilibrium between these two can be obtained, based on personal needs, expectations, and aspirations of a person.

The work life balance proves to be a necessity for the personal satisfaction. As, now women are also in the corporate world so work life balance has grabbed even more attention. This is so because for women, it's quite difficult and important that they need to balance both their professional and the personal life... The effects of work life balance can be different, and they may be different for both men and women. With the increase in number of professional working hours or the increase in the social activities, work life balance is affected.

BENEFITS OF WORK LIFE BALANCE

The employees and employers need to manage well both their both personal and job related stresses. If this strategy is managed well then it can surely reap the following benefits:

EMPLOYER'S BENEFIT

- There will be a reduction in Absenteeism rates and lateness.
- Work life balance paves a way for increased employee morale and commitment.
- It helps in reduction in stress and improved productivity.
- It leads to the attraction of Skilled Employee.
- The policies of work life balance assists to decrease in Employee Turnover.
- It provide for Lower Recruitment and Training Cost
- It increases Return on Investment as Employee Stay for a Longer period.

EMPLOYEE'S BENEFIT

- Work life balance policies provide the ability to manage work and Individual commitments.
- It leads to improved personal and family relationships.
- It guides to have increased focus, motivation and job satisfaction knowing that the family and work commitments are being met.
- It leads to less distraction.
- Paving a way for high morale and motivation
- Directs in increased in job security due to organizational support through work life balance policies.

IMPACT ON PROFESSIONAL LIFE DUE TO WORK LIFE IMBALANCE

According to Caparas (2008), the connection of the employees with their families during the working hours breaks or interrupts the connection of employees' with their job duties.

Employee's communication with the family and friends during the office working hours sometimes causes serious tensions and stress in the employee. It reduces the efficiency and concentration level of the employees and they lack the sense of motivation to perform well in the organization

According to (Holt et. al, 2006), the concept of work life balance is even more highlighted where the employees are asked to work for longer hours. For this situation in case of banks, the banks offer lucrative benefits to the employees, and the employees may want to get these benefits for the purpose of their promotions in ranks and reward. Those employees who work longer hours are considered as competent and dedicated regardless of the benefit gained by the organization in connection to their long working hours. For this reason, and the incentives offered to the employees, they seek to work for longer hours such that they can be considered for the promotion and for the increased reward for their services to the banks. Because of the increased working hours, the performance of the individual may diminish, and the individual may not be able to perform effectively for the extra time as compared to the standard time.

IMPACT ON PERSONAL AND SOCIAL LIFE DUE TO WORK LIFE IMBALANCE

According to (Clutter buck, 2003), Balance implies to the concept of equity and reasonableness, the workaholics work for longer hours, which is considered as misbalanced work life because of the lack of realization of the norms about where and how much time and energy is to be spent, in professional life resulting in conflicts between the professional and personal life.

For the work life balance, an individual is required to consider the reasonableness of the time spent for his social life and personal life, and for this purpose, the general perception accepted in the society and professional bodies for working hours are to be considered as the touchstone for contrasting the average and exceptional working hours. The exceptional longer working hours may affect the work life balance if the social needs of a person are quite demanding, however if a person is not so social and doesn't need much time for its personal life might have less problems.

According to Richenda Gambles, Suzan Lewis, Rhona Rapoport (2006), nowadays the employees are providing 24 hours service where ever they are just to fulfil the job requirements and duties and in return they are been rewarded various incentives. On one side, these facilities have helped employees in availing incentives, benefits, and bonuses through which they are meeting different financial needs and wants.

In contradiction to this, Flechl (2010) states that these facilities have disturbed the family life of employees in negative ways. One is that just to get these financial rewards, the personal lives of the employees are disturbed as they don't spend much of the time with their families. Hence, Family life has been found to be seriously affected with the merger and overlapping of work and social life.

According to Human Kinetics research (2010), social life of an individual is very important because many lives are connected with a single individual for their issues and problems resolving ways. When an individual comes back from the work, then individuals back at home expect complete deliverance of time from him, but when after coming back and one's mind is still dedicated to the different issues of work and unable to communicate with the family members causes real problem for him. Family demands time from each other so that they can interact with each other, understand the problems, and hunt out the ways through which they can resolve one another problems.

In order to have a healthy mind of employees, organizations are involved in providing different facilities to their employees such as the holidays, vacations, leaves, tours and other ways through employees get relaxed and have a healthy time with

IMPACT DUE TO MISBALANCE OF WORK-LIFE IN SOME ORGANIZATIONS

Organizations have various goals and objectives which are attained through employees' efficiency and effectiveness in the given time period. However, when organizations are not able to generate the outcomes in the available time, employees are needed to work in their off timings too. On the other side, employees remain in touch with their families during the office time and they have communication with them during the office work, which keeps their attention diverted to different things (Lockett, 2012). This ultimately causes serious problems for the management of the organization to keep its employees focused toward their work and meet the targets.

According to H.L. Kaila (2005), when the personal life is connected with the professional life, sometimes it brings good news, which has a positive impact over the performance of the employee while some get bad news from the social life, then it creates aggressiveness, stress, tension, and suffering in the employees which becomes a problem for the organization in various ways. For an individual, both the social and the professional life must be equally important to get satisfied.

RESEARCH METHODOLOGY

Quantitative data collection technique was used where both the Primary data and secondary data was used. Primary data was accumulated with the help of questionnaires. Questionnaire was first tested to check the reliability of the variables measured, on the sample. Likert scale was used; close ended questions were used. Secondary data was used to develop the literature survey of the study. Survey technique was selected to acquire data within the given span of time. The collected data was then analyzed for the purpose of the current study.

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For this study total 100 employees from different 4 Banks had been covered for the study based over the sampling techniques. Quota sampling has been used in which the population is stratified before the selection of sample subjects. Bank targeted for the survey were ICICI bank, HDFC bank, Axis Bank and Yes Bank while the employees selected from different designation from each bank.
The questionnaire was developed which has 2 sections, in the first section, Demographic profile of each respondent has been recorded as his tenure with the current organization. The number of constructs in the instruments was 5 based on **15** items. The constructs were based on five point Likert Scale, 1-to-5 response scale where: =1 strongly disagree,2= disagree,3= undecided,4 = agree,5= strongly agree. All questions were closed ended.

VALIDITY AND RELIABILITY OF THE FACTORS MEASURED
This research is conducted through targeting different employees from different banking institute just to acquire the information that can help in the generation of results and findings from the result (Cohen, Manion, Morrison, 2013).
Reliability test has been conducted and the results revealed that Cronbach's alpha is 0.882nwhich is closer to 1. This value suggests that the data collected through questionnaire is reliable.

TABLE A: RELIABILITY STATISTICS

Cronbach's Alpha	N of Items
.882	30

Normality tests – It was conducted to see whether the data obtained were normal, and they are distributed normally. The significance of this test is to check the importance of data so that we can apply the statistical analysis to it (Table B).

TABLE B

VARIABLES	Mean	Std. Deviation	Skewness	Kurtosis
1. Work life balance	**3.72**	**0.38**	**-1.23**	**-0.42**
2. Productivity	**3.70**	**0.35**	**-1.12**	**-0.57**

The above table2 shows that work-life balance (Mean=3.72, SD= 0.38) has the skewness which is (-1.23) and kurtosis (-0.42), productivity (Mean=3.70, SD= 0.35 has the Skewness of (-1.12) and kurtosis (0.57) However, since all the constructs in terms of skewness and kurtosis are within the range of ±1.5, (Kline 2005) therefore it could be safely assumed that the data has normal tendency.

DATA ANALYSIS AND FINDINGS OF THE STUDY

TABLE 1 DEMOGRAPHIC PROFILE OF EMPLOYEES

Particulars	Category	Frequency	Percentage
Gender	Male	90	53
	Female	80	47
Age	<25 years	34	20
	25-35 years	53	31
	35-45 years	30	18
	>45 years	53	31
Marital Status	Married	112	66
	Unmarried	58	34
Dependents	None	12	07
	One	19	11
	Two	90	53
	>2	49	29
Cadre	Managerial	73	43
	Non-Managerial	97	27

TABLE 2: FEEL ABOUT AMOUNT OF TIME SPENT AT WORK

Opinion	O	E	O-E	(O-E)2	(O-E)2/E
Very unhappy	12	34	-22	484	14
Unhappy	44	34	10	100	3
Indifferent	78	34	44	1936	57
Happy	24	34	-10	100	3
Very Happy	12	34	-22	484	14
Total					91

$_x^2$ = 91, Degrees of freedom =5-1=4, Table value = 9.488
The Chi Square value is showing that opinion of respondents was to-tally different in this regard.

TABLE 3: WORRY ABOUT WHEN ACTUALLY OT AT WORK

Opinion	O	E	O-E	(O-E)2	(O-E)2/E
Never	17	42.5	-25.5	650.25	15
Sometimes	90	42.5	40.5	2256.25	53
Often	51	42.5	8.5	72.25	2
Always	12	42.5	-30.5	930.25	22
Total					92

$_x^2$ = 92, Degrees of freedom =4-1=3, Table value = 7.815
The Chi Square value radically shows that opinion of the respondents was significantly different on asking about worrying about work when actually not at work.

TABLE 4: FEEL ABOUT AMOUNT OF TIME SPENT AT WORK

Opinion	O	E	O-E	(O-E)2	(O-E)2/E
Very unhappy	12	34	-22	484	14
Unhappy	44	34	10	100	3
Indifferent	78	34	44	1936	57
Happy	24	34	-10	100	3
Very Happy	12	34	-22	484	14
Total					91

χ^2 = 91, Degrees of freedom =5-1=4, Table value = 9.488

The Chi Square value is showing that opinion of respondents was to-tally different in this regard.

TABLE 5: MISS QUALITY TIME WITH FAMILY AND FRIENDS

Opinion	O	E	O-E	(O-E)2	(O-E)2/E
Never	12	42.5	-30.5	930.25	22
Sometimes	97	42.5	54.5	2970.25	70
Often	49	42.5	6.5	42.25	1
Always	12	42.5	-30.5	930.25	22
Total					115

χ^2 = 115, Degrees of freedom =4-1=3, Table value = 7.815

The Chi Square value preferably shows that opinions of the respondents are significantly differing.

TABLE 6: FEEL TIRED OR DEPRESSED BECAUSE OF WORK

Opinion	O	E	O-E	(O-E)2	(O-E)2/E
Never	17	42.5	-25.5	650.25	15
Sometimes	95	42.5	52.5	2756.25	65
Often	29	42.5	-13.5	182.25	4
Always	29	42.5	-13.5	182.25	4
Total					88

χ^2 = 88, Degrees of freedom =4-1=3, Table value = 7.815

The Chi Square value entirely shows that opinion of respondents was significantly different and majority of the employees feel tired / de-pressed because of work.

TABLE 7: FACTOR HELP TO BALANCE WORK LIFE

Opinion	O	E	O-E	(O-E)2	(O-E)2/E
Holiday/ paid time off	48	34	14	196	6
Job sharing	32	34	-2	4	0
Careers breaks or Sabbaticals	15	34	-19	361	11
Time off for family engagements	22	34	-12	144	4
Flexible timings	53	34	19	361	11
Total					32

χ^2 =32, Degrees of freedom =5-1=4, Table value = 13.35

The Chi Square value completely shows that opinion of respondents was significantly different.

TABLE 8: SUFFER FROM STRESS RELATED DISEASE

Opinion	O	E	O-E	(O-E)2	(O-E)2/E
Yes	104	85	19	361	4
No	66	85	-19	361	4
Total					8

χ^2 = 8, Degrees of freedom =2-1=1, Table value = 3.841

The Chi Square value shows that the opinion of the respondents was significantly different.

TABLE 9: FACTORS THAT HINDER BALANCING WORK AND FAMILY COMMITMENTS

Opinion	O	E	O-E	(O-E)2	(O-E)2/E
Long working hours	100	113	-13	169	1
Meetings after office hours	53	113	-60	3600	32
Others	17	113	-96	9216	82
Total					115

χ^2 = 115, Degrees of freedom =3-1=2, Table value = 5.991

The Chi Square value shows that the opinion of the respondents was significantly different on this fact

TABLE 10: FACTORS HELP WORK AND FAMILY COMMITMENTS

Opinion	O	E	O-E	(O-E)2	(O-E)2/E
Work from home	37	34	3	9	0
Technology	19	34	-15	225	7
Able to bring children to work	24	34	-10	100	3
Support from colleagues	78	34	44	1936	57
Others	12	34	-22	484	14
					81

χ^2 =81, Degrees of freedom =5-1=4, Table value = 9.488

The Chi Square value shows that the opinion of the respondents was significantly different on this fact.

TABLE 11: ABLE TO BALANCE WORK LIFE

Opinion	O	E	O-E	(O-E)2	(O-E)2/E
Strongly agree	36	42.5	-6.5	42.25	1
Agree	49	42.5	6.5	42.25	1
Disagree	34	42.5	-8.5	72.25	2
Strongly disagree	51	42.5	8.5	72.25	2
Total					6

$_x2$ =6, Degrees of freedom =4-1=3, Table value =7.815

The Chi Square value shows that the opinion of the respondents was significantly similar on this fact.

TABLE 12: INFLUENTIAL FACTORS ON WORK LIFE BALANCE

OPINION	$_x^2$	Table Value
Worry about when actually not at work	92	7.815
Feel about amount of time spent at work	91	9.488
Miss quality time with family and friends	115	7.815
Feel tired or depressed because of work	88	7.815
Factor help to balance work life	32	13.35
Suffer from Stress related disease	8	3.841
Factors that hinder balancing work and family commitments	115	5.991
Factors help work and family commitments	81	9.488
Able to balance Work life	6	7.815

The table 12 presents the influential factors affecting with Work Life Balance revealing that there exists difference in Work Life Balance among employees working in Public Sector banks. According to the above table the factor of 'Missing Quality time with family and friends' ($_x^2$ =115 with table value of 7.815) is an emphasizing factor. Accordingly, employees have opined that the 'Long working hours' ($_x^2$ = 115, Table value 5.991) and 'Meetings after working hours' are the factors which are hindrance to manage the commitments embossed by Work & Family.

In this backdrop it can be interpreted that though it is a internet arena Banking is still a stressful job with tedious long working hours. Supporting to this most of the employees opined ($_x^2$ = 92, table vale = 7.815), that they actually worry about work even when not at desk. It reflects that the employees work under pressure. Accordingly, most of the employees feel 'Indifferent' ($_x^2$ = 91, Table Value 9.488) about the amount of time spent @ work. Even the employees of the bank consider that they feel tired and depressed ($_x^2$ = 88, table value 7.818) due to work pressure. Simultaneously employees sense that the 'Support from Colleagues' and 'Work from Home' are Supportive factors ($_x^2$=81, Table value 9.488) that helps work & family commitments. As a banker's job is more related to strain, the employees mentioned that ($_x^2$=88, Table Value 3.841), they suffer from stress related diseases like anxiety, Hypertension, Frequent headaches and others.

All the above statistical figures are clearly indicating that there exist differences in Work Life Balance practices among employees working in banks.

CONCLUSION

- About 53% of employees stated on the record they were worried about work when actually not at working inside the bank premises also.
- More than 50 % of employees express that, they feel indifferent about time spent at working inside the banks it all depends on works.
- Nearly 57% of the employees expressed that they miss valuable time with family and friends even after the bank normal working hours due to completion of all the works on the same day itself under CBS.
- 56% of the employees opined that they are tired because of work pressure due to changing and challenging global banking environment scenario.
- Stress related diseases like hyper tension, anxiety; frequent head-aches are quite common among the bank employees have stated by 61% of respondents working in the public sector banks.
- The most hindering factor for fulfilling work and family commitments is long working hours as 59% of the respondents feel that they were working more than the normal working hours on all the days.
- The employees as per the study feel flexible timings is an absolute factor which helps in dealing with work life commitments, 29% of them feel 'holidays/ paid time-off is an important factor, 19% of them expressed towards job sharing.
- 50% of the employees in banking sector disagreed for being able to manage Work – life balance but, they need time and motivation from the bank management.
- Most of the employees also felt that even the travelling time is a factor that creates imbalance.
- Nearly 37% of the employees take refreshments/ drinks / snacks twice a day, where as 26% of them consume more than twice and 27% of them consume at least once, rest 10% do not consume at all.

SUGGESTIONS

An integral part of every one's lives is their profession. The careers are guided by opportunities and guidelines and responsibilities. There is a need to ensure that these two domains do not work at cross purpose. A satisfied and motivated workforce will act more responsibly not only towards its professional requirements but also towards nature in general. To instil a sense of motivation concept of Work Life Balance is a genuine factor.

- Initially, a formal communication strategy is plays a vital role to create awareness about HR policies among the bank employees working at different cadre at different places, that will not only educate but also create awareness and healthy relationship among the employees.
- Organization, especially Banking Industry involves hectic and stressful jobs therefore Organizations can focus on bringing the Flexible working hours Concept like Flexible Starting time especially for women employee by considering the recommendation of the sixth pay commission, too and also consider the working hours from 11a.m to 5p.m
- Building a rapport between employees and the organizations can be increased by concentrating more on policies like Job sharing, time off for family engagements, for Social Programmes with family members, inviting family members for Award functions.
- A supportive environment for employees to bring a congenial relationship can be built by encouraging more tele work or work from home strategies by strengthening less hour work culture.
- As the influx of Married women employees in banking profession with dependents is more in number introduction of crèche facilities is most prominent. It is viable tool as number of dual career couples are increasing.
- Giving Emotional support through counselling services is considered to be the needs factor of today's hectic work force by that, work life balance can be effective manage with affecting the normal work both inside and outside.
- On the managerial level, in the line staff category workforce personal life is being intervened by their supervisors who interact with them anytime during the non-working hours as well. As a result, employee is unable to focus at work thus resulting low performance.
- At the non-managerial level Cashiers are supposed to give extra time after office hours which is unpaid in most banks, causing fatigue and imbalance of the work-life. This results in more errors at work while performing daily tasks.

- Sales department has been found being affected the most since they are not only disrupted by their line managers but also other stakeholder that are clients especially. This affects sales workforce performance especially when they are required to attend daily routine meetings or follow-ups with client complaints however sales target achievements are not affected.

Work Life Balance is thus a dynamic phenomenon. It is not a structure but process leisure and social interaction is as much important as work and career. An effective worker has to continuously juggle around with different priorities and needs of domains of work and life. It is thus summarized as the meaningful daily achievement and enjoyment of four life quadrants; work, family, friends and staff. The work life programmes are an investment for improving productivity, reducing absenteeism and overheads and achieving improved customer service as well as motivated, satisfied and equitable workforce especially for Banking Industry. Indian Banking system has made rapid stripes in network expansion and has undergone a complete and never dreamt transformation it its objectives, approaches and scale of operations. Banks are technology drivers and are catalysts for bringing socio-economic Transformation of our country a goal considered hither to be outside the Banking arena. Achieving work life balance in the fast phase of Banking system and striking a balance between professional and personnel life is a natural challenge for an individual. Organizations through the implementation or by investing on work life Balance initiatives need to give a radical support for its employees for the benefit of Individual, Organisation and Society at large. This study has contributed studying work life conflict and its impact on performance of employees in banking industry of Jodhpur. The current study also endorses the work by many theorists like Sparks, Cooper, Fried and Shirom (1997).

The banking sector needs to focus on the following practices like Flexitime, Telecommuting/Working from home, provide special working arrangements for employees who are caring for young children or relatives, Paternity Leave and No-overtime day and lights out policy (Joshi, Sunil, Leichne, John, Melanson, Keith, et al 2005)

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POST MERGER PERFORMANCE ANALYSIS WITH SPECIAL REFERENCE TO WIPRO - INFOSERVER S. A

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ABSTRACT
This paper focused on post-merger performance analysis with special reference to Wipro Ltd. - Info Server S. A. Its specific objectives are to compare financial performance of bidder firm in post-merger. It also analyzes the profitability, liquidity level and solvency level of the firm. It is a survey covering time period of five years (Post-merger and acquisition: 2013-2017). An extensive review of various literatures has been carried out in order to get a better considerate in the topic of mergers and acquisitions (M&As) announcement effect on stock price and profit. Literature review has been prepared from journal, books, articles, student's paper published, websites etc. Historical data were obtained from the financial statement and accounts of Wipro Ltd. which merged with Info Server S.A. Data collected are evaluated and analyzed the statistical tools (descriptive analysis, T-test, mean, standard deviation, kurtosis, skewness etc.) and financial tools (current ratio, quick ratio, DER, ROC, etc.) This study reveals that merger and acquisition has influence on profitability, liquidity and solvency of the firm. The study found that there is a significance impact of M&A on firm's performance in post- acquisition. It concluded that merger and acquisition can stimulate economic growth and development of any nation. Hence, recommended that the company needed to concentrate on the debt pay back capacity. The liquidity level of the company is showing slight increase so the company requires concentrating on increasing the liquidity of the firm by taking actions to boost the CR and QR etc… The profitability of the company is showing decreasing, so that the company should concentrating on hiking the operational efficiency of the firm.

KEYWORDS
Wipro Ltd., Info Server S. A., post merger performance analysis.

JEL CODE
G34

1. INTRODUCTION
In the dynamic business scenario, mergers and acquisition is one of the best process of corporate restructuring, that has gained substantial prominence in both developed and developing nations. Reviewing published literature in the area of M&A gives a deeper insight on whether empirically it can be supported that M&A's are useful tools of corporate restructuring. Studies of post-merger performance usually follow one of the two general approaches of share-price movement analysis or analysis of operating performance to see the merger related gains.

Mergers and acquisition are increasingly becoming strategic choice for organizational growth and achievement of business goals including profit, empire building, market dominance and long term survival. The ultimate goal of this strategic choice of inorganic growth is, however, maximization of shareholder value. The phenomenon of M&A activity is observed world over across various continents, although, it has commenced much earlier in developed countries, and is relatively recent in developing countries. In India, the real impetus for growth in M&A activity had been the ushering of economic reforms introduced in the year 1991, following the financial crisis and subsequent implementation of structural adjustment program under the aegis of international monetary fund. In recent times, though the pace of M&A's has increased significantly in India too and varied across various economic sectors.

The term mergers and acquisition encompasses varied activities of stake acquisition and control of assets of different firms. Besides there are several motives for different types of mergers and acquisition seen in corporate world.

2. BACKGROUND OF THE CASE
WIPRO LTD & INFOSERVER S.A. ACQUISITION

Wipro Ltd. Is leading information technology, consulting and business process services company that delivers solutions to enable its clients do business better. Wipro delivers winning business outcomes through its deep industry experience and 360 degree view of business through technology.

Info SERVER started its operation in 1995 with a clear objective- to have through knowledge about technologies in order to innovate, develop and offer outstanding services to the market. As its main clients have always been from the financial and banking sectors, the company has invested heavily in technologies involving information security and identify protection, and has become a member of OATH- an organization that brings together the biggest and best players of encryption and strong authentication in the world.

It has sought strategic and innovative partnerships.

ABOUT THE ACQUISITION OF WIPRO LTD AND INFOSERVER

Wipro ltd a leading global information technology, consulting and business process services company designed an agreement to acquire info server S.A. for BRL. 27.6 million (USD8.7million).

Infoserver an IT service provider, which is focused on the Brazilian market, provides custom application development and software development services.

Two decade old infoserver, which counts some of the largest Brazilian banks as its clients, will help wipro in expanding its presence in the countries highly traditional and competitive banking, financial services and insurance market besides adding invaluable domain and process knowledge on the sector. This acquisition has been completed on April-10-2017.

The acquisition closely aligns with Wipro vision to localize, expand its presence and become a significant partner of choice in the LATAM market and an end to end IT service provider that brings global expertise while operating as a local company. Wipro has significant presence in Latin America with offices across 5 countries in the region- Argentina, Brazil, Chile, Colombia and Mexico.

This acquisition will provide wipro with scale and key client relationships, especially in the banking, financial services and insurance domains, which are the largest and fastest growing sectors in the regions.

Wipro and info server will combine strong local domain knowledge with technological breadth and global experience to help clients achieve their desired outcomes.
Wipros global client base, delivery expertise and scale will help us expand our reach and offerings.
The acquisition is subject to customary closing conditions and approvals by regulatory bodies in Brazil.
The impact of Info Server acquisition is expected to reflect in the financials of the company for the quarter ending June 30, 2017.
This merger will help in expanding presence in that countries highly traditional and competitive banking, financial services and insurance market, besides adding domain and process knowledge on the sector.

3. LITERATURE REVIEW

Literature Survey There have been numerous studies on merger and acquisitions (M&As) in India and abroad in the last few decades, and several theories have been proposed and tested for empirical validation by researchers. Researchers have studied the economic impact of M&As on industry consolidation, returns to shareholders following M&As, and the post-merger performance of firms. Whether or not a merged firm achieves the expected performance is the critical question that has been examined by most of the researchers, resulting in the proposal of several measures for analyzing the impact and success of mergers. Such measures have included both short-run, as well as long-run impacts of merger announcements, effects on shareholders' wealth (SW) and more.
Harari (1997) analyzed on cost efficiency, economies of scale, and the scope of the Taiwanese banking industry, specifically focusing on how bank mergers affect cost efficiency, and concluded that bank merger activity is positively related to cost efficiency.
Simkowitz and Monroe (1971), in a study titled "A Discriminant Analysis Function for Conglomerate Targets" used multiple discriminant analysis (MDA) to study conglomerate target firms merged in 1968. **Omoye, A. S. (2016)** its specific objectives are to determine implication of merger and acquisition on profitability, leverage buy- out and shareholders' wealth. It concluded that merger and acquisition can stimulate economic growth and development of any nation. **Dušan Barana, Darius Saikeviˇcius (2015)** Mergers and acquisitions in the new member states of European Union (EU-10) are investigated in the study. **Marina Martynova (2006)** The type of takeover bid has a large impact on the short-term wealth effects for the target firm shareholders with hostile takeovers triggering substantially larger price reactions than friendly transactions. **Pradeep Kumar Gupta (2012)** M&A have become a common phenomenon in recent times. Companies have been actively involved in mergers and acquisitions domestically as well as internationally**. R Chatterjee and A Kuenzi (2001)** Possible explanations for the change in shareholders' perception of methods of payment and their increased sensitivity for risk issues might stand in relation to the observed rise in M&A-activity over the past few years. In the eyes of many investors, firms seem to undertake larger and more audacious transactions than compared to previous years. **Ayesha Alam (2014)** Mergers and acquisitions are being used as an important strategic tool for survival by many organizations in today's competitive business environment. The essence of mergers and acquisitions is that the value of two companies together is greater than one. **Norbert Schulz (2007**) Innovation and M&A are two important forms of investment which follow partly their own logic respectively. But as different forms of investment are sometimes substitutes and sometimes complements it is not surprising that both are related to each other and should be studied together, especially if the impact of merger on innovation is the focus of analysis. As some firms merge, to boost their innovative performance.
Ghosh S., Dutta S. (2016) In the dynamic business scenario, Mergers and Acquisitions (M&A) is one of the best processes of corporate restructuring that has gained substantial prominence in both developed and developing nations. **Dr. Kapil Chaudhary (2016)** The results exhibit that the cross-border affect was not significantly reliant on where the cross-border bidder was based, and was not special to cross-border acquisitions by companies based exterior of the EU.
E Akben-Selcuk (2011) This paper aims to extend this literature. Specifically, we investigate the changes in the performance of Turkish companies subsequent to the completion of M&A transactions. **Mark Zerdin (2014)** Mergers that do not meet the above prescribed thresholds for an intermediate merger constitute small mergers. The Competition Act does not require the parties to a small merger to notify that merger. However, if the Commission is of the opinion that the small merger may substantially prevent or lessen competition or cannot be justified on public interest grounds, it is entitled (at its discretion) to call upon the parties to notify the small merger.

4. OBJECTIVE OF THE STUDY

To compare financial performance of bidder firm in post-merger.

5. RESEARCH METHODOLOGY

TYPE OF RESEARCH
This study is considered by Descriptive Research design because of the mergers and acquisition is existing nature problems faced by companies and it's descriptive in nature.
SOURCES OF DATA
The data used is secondary data. It is collected through articles, journals and company profile.
SAMPLING DESIGN
SAMPLE

Acquiring	Acquired	Type of activity	Year of occurrence	Strategic motives
WIPRO Ltd	Info SERVER S.A	Acquisition	April -10-2017	Expanding presence in that countries highly traditional and competitive banking.

TOOLS FOR THE STUDY
- **STATISTICAL TOOLS**
  - **Descriptive statistics:** In this study using of the statistical tools for to identifying the companies mean, standard Deviation and the covariance of the study.
  - **T Test:** it is the statistical hypothesis test in which the test statistic follows a student's t-distribution under the null hypothesis.
  - **Mean:** simple or arithmetic average of a range of values or quantities, computed by dividing to the total of all values, also called arithmetic mean.
  - **Standard deviation:** it is a measure of dispersion of a set of data from its mean. It is calculated as the square root of variance by determining the variation between each data point relative to the mean.
  - **Kurtosis & skewness:** Skewness is a measure of symmetry, or more precisely, lack of symmetry. A distribution, or data set, is symmetric if it looks the same to the left and right centre point.
- **FINANCIAL TOOLS**
  - **Ratios:** In this study to analysing the ratio analysis using the companies consolidation balance sheet and income statement for both the companies.

a) **Current ratio:**
b) **Quick ratio**
c) **Return on capital employed**
d) **Return on equity**
e) **Net profit margin**

HYPOTHESIS
There is no significant change in the financial position of bidder firm in post acquisition period.

6. DATA ANALYSIS AND INTERPRETATION

In this study considers five years of ratios as a secondary data analysis. Ratios use as financial tools and mean, standard deviation, kurtosis, skewness, and T-test as a statistical tool.

TABLE 6.1: CALCULATION OF RATIOS

RATIOS	2013	2014	2015	2016	2017
Operating profit margin	20.86	23.50	22.32	20.38	20.75
Gross profit margin	18.75	21.60	20.43	18.43	18.47
Net profit margin	17.00	19.06	19.88	18.12	17.72
Return on capital employed	26.72	29.47	26.85	23.12	20.95
Return on net worth	23.31	25.16	23.66	19.79	17.47
Return on assets excluding revaluations	93.38	119.03	140.22	165.56	192.15
Return on long term funds	31.11	32.87	30.60	26.18	23.15
Current ratio	1.55	1.98	2.16	2.11	1.50
Quick ratio	2.02	2.53	2.95	3.06	2.17
Debt equity ratio	0.17	0.15	0.17	0.16	0.13

Interpretation: In the above table the ratios of five years (from 2013 to 2017) is showing. The operating profit of 2013 and 2017 is showing a mere difference that is in 2013 OP is 20.28 where in 2017 it is being slightly reduced to 20.75. Gross profit is also decreased in 2017 compared to 2013. The net profit of the company has been increased from 2013(17.00) to 2017(17.72). Return on capital employed is showing severe variation from 2013 to 2017, that is, it has been reduced from 26.72 to 20.95. The net worth of the company is also showing a decreasing trend from 2013 to 2017. Return on assets from the year 2013 to 2017 is showing an increasing trend that is, 93.38 to 192.15. return on long term fund in 2013 is 31.11, when it reaches 2017 it has been reduced to 23.15. The current ratio in 2013 is 1.55 and in 2017 it is slightly reduced to 1.50. Quick ratio has been increased from 2.02 to 2.17. Debt equity ratio for the year 2013 was 0.17 and when it reaches 2017 it is 0.13.

The ratios shown in the above table can be divided into three major heads, that is profitability ratio (OP,GP, NP,ROC, Return on Net worth, return assets excluding revaluations, return on long term funds), liquidity ratio(CR and QR), and solvency ratio(Debt Equity Ratio). While interpreting comparing two years the profitability of the company is being decreased from 2013 to 2017. The liquidity of the company also has been increased slightly compared to 2013. Finally, the solvency of the firm is showing reduced from 2013 to 2017.

DESCRIPTIVE STATISTICS ANALYSIS

TABLE 6.2

Descriptive	Mean	Standard Deviation	Kurtosis	Skewness	Minimum	Maximum
OPR	21.562	1.311457205	-0.78849	0.957174	20.38	23.5
GP margin	19.536	1.417455467	-1.20116	0.944769	18.43	21.6
NP margin	18.356	1.131052607	-0.98248	0.323901	17	19.88
ROC	25.422	3.369283307	-1.17584	-0.32902	20.95	29.47
Return on net worth	21.878	3.153881735	-1.34378	-0.67478	17.47	25.16
RAER	143.064	37.06724875	-1.13203	0.215861	98.38	192.13
RLF	28.782	3.997695586	-1.28758	-0.71293	23.15	32.87
CR	1.86	0.313289004	-3.03746	-0.43489	1.5	2.16
QR	2.546	0.45981518	-2.6039	0.013042	2.02	3.06
DER	0.156	0.016733201	0.535714	-1.08851	0.13	0.17

Interpretation: The table above shown depicts the descriptive of mean, standard deviation, kurtosis, skewness, minimum and maximum of each ratios. Operating profit ratio is having 21.562 mean, it holds standard deviation of 1.3114, a negative kurtosis (-0.78849) is showing**,** skewness is positive (0.9571), minimum is 20.38 and maximum of 23.5. The GP margin is having a mean of 19.536, standard deviation of 1.4174, a negative impact of kurtosis (-1.20116), skewness is showing 0.944, minimum is 18.43 and maximum 21.6. ROC and Return on Net worth is showing mean of 25.422 and 21.878, standard deviation of both is 3.3692 and 3.15388, kurtosis and skewness is showing negative, minimum is 20.95 for ROC and 17.47 for net worth and maximum is 29.47 and 25.16. The RAER and RLF is having mean of 143.064 and 28.782, standard deviation of both is 37.067 and 3.997, and the kurtosis is showing negative for both, skewness is showing negative for RLF and RAER is showing 0.2158. CR and QR is having a mean of 1.86 and 2.546, standard deviation of 0.31328 and 0.4598, kurtosis and skewness is showing negative for both and the minimum is 1.5 for CR and 2.02 for QR and maximum is 2.16 for CR and 3.06 for QR. The debt equity ratio is having mean of 0.156, standard deviation of 0.0167, kurtosis is positive and skewness is negative, whereas minimum is 0.13 and maximum is 0.17.

TABLE 6.3: ONE-SAMPLE TEST

			Test value=0			
	T	Df	Sig.(2-tailed)	Mean Difference	95%confidence interval of the difference	
					Lower	Upper
OPR	36.76	4	0.000	21.56	19.93	23.19
GP	30.82	4	0.000	19.53	17.77	21.29
NP	36.29	4	0.000	18.35	16.95	19.76
ROCE	16.87	4	0.000	25.42	21.23	29.60
RONW	15.51	4	0.000	21.87	17.96	25.79
RAER	8.23	4	0.001	14.06	94.12	190.01
RLTF	16.10	4	0.000	26.78	23.81	33.74
CR	13.28	4	0.000	1.86	1.47	2.24
QR	12.38	4	0.000	2.54	1.97	3.11
DER	20.85	4	0.000	0.15	0.135	0.17

The above table represents the calculation of one sample t-test considering the study period of 5 years using the profitability variable of the firms. The study found that, all the profitability variables t-test resulting positive as well as negative with the degree of freedom at 4. The study found that NP & RONW resulted more than 0.05 significance level. Therefore, it is proven that there are no significance changes in the profitability ratio with respect to NP & RONW. Further, it observed that the remaining ratios resulted P- value less than 0.05 significance level. Therefore, H0 is rejected. Henceforth, its proven that there is a significance impact of M&A on firm's performance in post- acquisition.

7. FINDINGS AND RECOMMENDATIONS

Comparing the results occurred in the above three tables the following findings has been derived,

- Considering the table 6.1(calculation of ratios) it is found that, the profitability ratio implies that the profitability of the company is being decreased from 2013 to 2017.
- It has been found that the liquidity of the company is slightly increased in 2017 compared to 2013.
- The study has been founded that the solvency of the firm is shown reduced from 2013 to 2017.

- The descriptive statistics analysis interprets in the table 6.2 that the Operating profit ratio is having 21.562 mean, it holds standard deviation of 1.3114, a negative kurtosis (-0.78849) is showing**,** skewness is positive (0.9571).
- The study reveals that the ROC and Return on Net worth is showing mean of 25.422 and 21.878, standard deviation of both is 3.3692 and 3.15388, kurtosis and skewness is showing negative.
- The debt equity ratio is having mean of 0.156, standard deviation of 0.0167, kurtosis is positive and skewness is negative.
- The T-test interprets the result that all the profitability variables t-test resulting positive as well as negative with the degree of freedom at 4.
- The study found that NP & RONW resulted more than 0.05 significance level. Therefore, it is proven that there is no significance changes in the profitability ratio with respect to NP & RONW.
- The study found that there is a significance impact of M&A on firm's performance in post- acquisition.
- The solvency of the firm is showing decreasing trend from 2013 to 2017, so the company needed to concentrate on the debt pay back capacity.
- The liquidity level of the company is showing slight increase so the company requires concentrating on increasing the liquidity of the firm by taking actions to boost the CR and QR etc.
- The profitability of the company is showing decreasing from 2013 to 2017, so that the company should concentrating on hiking the operational efficiency of the firm

8. CONCLUSION

Issue of merger and acquisition has been a major strategy employed by firms. Many firms resolve to merger or acquisition with the expectation of achieving increase in shareholder's wealth or market capitalization, leverage buyout, increase in performance etc… Merger and acquisition, as trend in business environment would enhance profitability, shareholder's wealth, leverage buyout and as well could increase companies overall performance. Although there is enough literature on merger and acquisition announcement effect on stock prices and profitability of companies, most of the studies have been done for the developed countries especially UK and US. In, India very few researches have been done on this topic. Some studies conducted in India context have explored the impact of merger and acquisitions on financial position of firms. The current study make an attempt to explore the merger and acquisition announcement impact on shareholders wealth and firms' profitability and aim to investigate the performance of pre -post mergers and acquisition by taking two companies as sample. Mergers and acquisitions are being used as an important strategic tool for survival by many organizations in today's competitive business environment. The essence of mergers and acquisitions is that the value of two companies together is greater than one. Companies merge with or acquire other companies to make use of one another's strengths and these results in increased market shares and profitability that are vital for survival. Mergers and acquisitions enable companies to work as one and thus increase their total market value.

Through this paper I tried to study the post merger performance of two companies and to compare financial performance of bidder firm in post-merger. The study can be concluded that there is a significant change in the financial position of bidder firm in post-acquisition period. It is proven that there is a significant impact of M&A on firm's performance in post- acquisition.

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STRATEGIC ANALYSIS ON BIG DATA IN INDIAN TECHNOLOGICAL SCENARIO

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ABSTRACT
The present time is the data time in global technological scenario where extensive volume of information in zettabytes is rising each day. Big Data is a system to deal with the voluminous unstructured, semi organized and organized information in more productive and orderly way. Big Data is an advanced pattern in Indian technological sector which manages titanic information. As Big Data is excessively colossal for a single individual, making it impossible to analyse, fitting headways are being used. Big Data Analytics has been expanding much point of convergence of thought as of late as experts from industry and the academic world are attempting to effectively think and use all possible data from the amazing measure of data made and got. Ordinary techniques for taking care of enormous information isn't suitable in on going time as this information incorporates content, sound, video, illustrations and numerous more structures. Dealing with the wide variety of data that comes in enormous volume in a short time period, asking for an adjustment in part of time, planning and examination of immense information shortly of time is the most difficult undertaking identified with tremendous information put away in ordinary databases. Big Data is the best decision of Indian industrialists and Indian IT enterprises as it can deal with the enormous information wisely and capable way. This paper shows a brief outline of research progress in Indian technological scenario identified with Big Data Processing and Analytics and complete up with a discussion on inspect headings in a comparative locale.

KEYWORDS
big data, analytics, big data analytics, big data processing.

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1. INTRODUCTION
In today scenario, Big Data and Information is growing globally. Indeed, the measure of advanced information that exists is developing at a quick rate, multiplying like clockwork, and changing the way we live. As indicated by IBM, 13.6 billion gigabytes (GB) of information was produced each day in 2017. An article by Forbes states that Data is becoming speedier than any time in recent memory and continuously 2020; around 4.3 megabytes of new data will be made each second for each individual on the planet. This makes it critical to at any rate know the nuts and bolts of the field. All things considered, here is the place our future falsehoods. In this article, we will separate between the Data Science, Big Data, and Data Analytics, in view of what it is, the place it is utilized, the abilities you have to end up an expert in the field, and the pay prospects in each field.

2. OBJECTIVES OF THE STUDY
The objective to conduct Research study is to find solution of Big Data handling problems and to develop new solutions and tools. The destinations to direct Research think about are to discover technical arrangements of Big Data.
(i). Implementations of Big Data new technologies in Indian Technological Scenario.
(ii). Promote Data-driven basic leadership and promoting arrangements, join Big Data into Business Intelligence (BI), prescient investigation devices and showcasing procedures.
(iii). Promote to discover latest tools in maintaining of Big Data volume, variety, and speed.

3. RESEARCH METHODOLOGY OF BIG DATA ANALYTICS
This paper is based on the research based on rapidly developing Big Data Analytics in Indian Technological Scenario. Research factors included Big Market Exploitation Analysis to discover future prospects Analytics. This Research paper is based on Micro Level study conduct on Indian 32 Big Data Analytics Report which turns to accurate Analysis. In this review a question is posed.
Question: What is the role of Big Data in Various Level of business in rapidly growing Indian Technological Scenario?
The required data is extracted from the papers to answer the question posed above.

4. EXPLOITING FUTURE POSITION OF BIG DATA MARKET IN INDIA
In present technological scenario Big Data is growing rapidly all over world. Colossal data is uncovered by its usage in various Indian corporate organizations with interpretations as indicated by accommodation understanding. Widely it can be portrayed as a system fit for dealing with huge size of data in various plans – volume, grouping and speed. Enormous data facilitates propelled capacities to stay business improvement and gives portrayal abilities to measure complex data plans for business. Completing tremendous data transversely finished undertakings has rendered redesigns when all is said in done prosperity, progression in back, telecom, and FMCG. It has also lightened pressure and feeling examination on correspondence channels.
As demonstrated by a joint report by NASSCOM and market information firm Blueocean, examination promote in India has been regarded right now at $1.2 Bn and is depended upon to reach $2.3 Bn by 2017-18. Regardless, since the market is creating at 26% CAGR, it is required to reach $16 Bn by 2025 which is around

an eight-cover bounce. India's bit of the general business is depended upon to be 32% looking multipronged approach of mastery change, thought organization, things, and stage to comprehend the vision.

This industry uses 90,000 people starting at now in divisions, for instance, BFSI, retail, telecom and human administrations and the improvement is incited by enthusiasm for cloud-based game plans and perceptive examination capacities. There are around 600 associations in this space out of which 400 are new organizations and approx. 100 of these were incorporated 2015 itself.

Watching out for the three sections of volume, variety, and speed – advanced gigantic data stages can improve the best line through extraordinary personalisation at scale, upgrade all that truly matters through amazing capability at scale and besides upgrade organization through exceptional seeing at scale. Use of gigantic data advancement is defying new troubles like storing, tangibility, security, and expansion. Meanwhile, it is making another perspective as data is being made by various sorts of sensors, PDAs, social goals and even satellites. The accompanying time of advancement is discernible because of snappy progress in the related field of automated thinking and significant learning counts that require complex human-like thinking and fundamental initiative aptitudes. Immense data examination, which by then joins into fields like artificial intelligence and machine learning has huge possible results.

5. GLANCE OF BIG DATA ANALYSIS

The idea of huge information has been around for quite a long time; most of the associations now understand that they grasp every bit of the information that streams into their organizations, and can get huge incentive by applying analytics on it. Even in the early decade's people expressed the enormous information expression, organizations were utilizing fundamental examination basically numbers in a spread sheet that were physically analysed to find bits of knowledge and patterns. The speed and effectiveness are the advantages that are conveyed by enormous data analytics. While a couple of years back a business would have accumulated data, analysis it and uncovered data that could be utilized for future uses, today businesses required it for future as well as for prompt decisions. The ability to work speedier and remain smart gives organisations a competitive edge they didn't have previously.

- YARN: a bunch administration innovation and one of the key highlights in second-age Hadoop.
- MapReduce: a product structure that enables designers to compose programs that procedure monstrous measures of unstructured information in parallel over an appropriated group of processors or remain solitary PCs.
- Spark: an open-source parallel handling structure that empowers clients to run vast scale information investigation applications crosswise over bunched frameworks.
- HBase: a section situated key/esteem information store worked to keep running over the Hadoop Distributed File System (HDFS).
- Hive: an open-source information distribution center framework for questioning and breaking down extensive datasets put away in Hadoop records.
- Kafka: a disseminated distribute buy in informing framework intended to supplant conventional message agents.
- Pig: an open-source innovation that offers an abnormal state system for the parallel programming of MapReduce employments to be executed on Hadoop groups.

6. NECESSITY OF BIG DATA ANALYSIS IN INDIAN BUSINESS SCENARIO

Enormous information examination enables associations to bridle their information and utilize it to distinguish new openings. That, thusly, prompts more astute business moves, more productive tasks, higher benefits and more joyful clients. In the report Big Data in Big Companies, IIA Director of Research Thomas H. Davenport talked about his study related to big data activities of more than 20 well established firms and how they utilized their enormous information. He discovered they got an incentive in the accompanying ways:

(i) **Cost decrease-** Due to the need of storing large amount of data, enormous information technologies, for example, Hadoop and cloud-based analysis brings significant cost focal points; and provide efficient methods for running businesses.

(ii) **Know your customer better**- Businesses provide their clients what they need by checking client needs and fulfilment through analysis. Davenport calls attention to that with huge information examination, more organizations are making new items to address clients' issues.

(iii) **Better and faster predictions**- Organizations can make fast and better predictions based on what they have understood by break down data quickly. This is possible with Hadoop and in-memory analytics, joined with the capacity to dissect new sources of information.

(iv) **Availability of data in real time-** With the power of real time streaming platforms like Apache Storm, Apache Kafka, IBM Infosphere streams and other big data tools; relevant data can be available in real time in accurate and structured form. Fraud Detection, E-commerce, Social Networks, Healthcare etc. are some areas that are using real time big data processing. Big data is capable to handle diversified data at faster rate which is not possible with conformist methods.

7. CURRENT PATTERNS OF BIG DATA ANALYTICS

The present worldwide populace surpasses 11.7 billion, and more than 10 billion of these individuals are associated with the Internet. Moreover, 12 billion people are utilizing different cell phones, as per McKinsey (2017). Because of this innovative transformation, large numbers of individuals are producing gigantic measures of information through the expanded utilization of such gadgets. Specifically, remote sensors ceaselessly create much heterogeneous information that is either organized or unstructured. This Big Data is portrayed by three angles:

(a) The information is numerous.

(b) The information can't be arranged into normal databases.

(c) Data are produced, caught, and handled rapidly.

Big Data is promising for business application and is quickly expanding as a fragment of the IT business. It has produced huge enthusiasm for different fields, including the make of medicinal services machines, managing an account exchanges, online networking, and satellite imaging. Current information volumes are driven by both unstructured and semi structured information. Consequently, end-to-end preparing can be hindered by the interpretation between organized information in social frameworks of database administration and unstructured information for examination. Stunning development rate of the measure of gathered information creates various basic issues and difficulties portrayed by, for example, fast information development, exchange speed, assorted information, and security issues. In any case, the developments in information storing and mining advances empower the protection of these expanded measures of information. In this conservation procedure, the nature of the information produced by associations is changed. In any case, Big Data is still in its early stages organized and has not been audited as a rule. Big Data is a basic issue that requires genuine consideration. So far, the fundamental scenes of Big Data have not been bound together. Besides, Big Data can't be prepared utilizing existing advances and techniques. Hence, the age of boundless information by the fields of science, business, and society is a worldwide issue. As for information examination, for example, techniques and standard apparatuses have not been intended to seek and break down huge datasets. Subsequently, associations experience early difficulties in making, overseeing, and controlling extensive datasets. Frameworks of information replication have likewise shown some security shortcomings as for the age of numerous duplicates, information administration, and arrangement. These approaches characterize the information that are put away, broke down, and got to. They additionally decide the pertinence of this information. To process unstructured information sources in Big Data ventures, concerns with respect to the versatility, low inactivity, and execution of information foundations and their server farms must be tended to. In the IT business all in all, the fast ascent of Big Data has produced new issues and difficulties as for information administration and examination. Five normal issues are volume, assortment, speed, esteem, and intricacy. Each issue requires specialized research to deal with.

8. STRATEGIC ANALYSIS OF BIG DATA AT INTERNATIONAL MARKET

Data increments quickly at a rate at regular intervals. From 1986 to 2017, the worldwide capacities with regards to innovative information stockpiling, calculation, handling, and correspondence are increasing so rapidly that computer is an integrated and essential tool for every field. Increased use of PC also boosts the bytes of data produced at a fiery rate.

In 2017, 18.5 quintillion bytes of information were produced day by day, and 94% of current information overall began in the previous four years (Big Data, 2013). 7.4 million TB of new information is created every day. In 2017, the market for Big Data was $32.6 billion, and this esteem is required to increment to $38.7 billion out of 2017. Starting at July 17, 2017, the measure of computerized information on the planet was 17.7ZB; Facebook alone stores, gets to, and examines 48+PB of client created data. In 2018, Google was handling 38,234TB of information day by day. To improve promoting, Akamai forms and investigates 75 million occasions for each day. Walmart forms more than 8 million client exchanges, along these lines producing information more than 5.3 PB as a gauge. In excess of 8 billion individuals overall call, content, tweet, and peruse on cell phones. The measure of email accounts made worldwide is relied upon to increment from 6.6 billion of every 2017 to more than 8.6 billion by late 2017 at a normal yearly rate of 11% throughout the following four years. In 2017, a sum of 112 billion messages were sent and got day by day, and this esteem is relied upon to increment at a normal yearly rate of 27% throughout the following four years to surpass 154 billion before the finish of 2016. In 2017, 1120 million clients (51% of all email clients) were messaging through cell phones. Boston.com announced that in 2017, roughly 765 billion messages were sent day by day. Right now, an email is sent each 6.2×10^{-9} seconds. Consequently, the volume of information increments every second because of fast information age.

From 2010 to 2017 the growth of big data was increased at steady rate but from 2015 onwards the growth of big data shoots very rapidly and expected to cross 80-81 zettabytes in year 2021. In real time data, information is distributed immediately after assortment, so this data is to be stored and kept without delay as timeliness is the prime need of real time data. It is expected that real time data will grow approx. 3.25 times the rate of overall data formation this is again a part of big data which must be handled very efficiently.

9. MANAGEMENT OF BIG DATA ANALYST IN INDIAN BUSINESS MARKET PROSPECTS

The engineering of Big Data must be synchronized with the help framework of the association. To date, the greater part of the information utilized by associations are stale. Information is progressively sourced from different fields that are confused and untidy, for example, data from machines or sensors and vast wellsprings of open and private information. Beforehand, most organizations were not able either catch or store these information, and accessible devices couldn't deal with the information in a sensible measure of time. In any case, the new Big Data innovation enhances execution, encourages development in the items and administrations of plans of action, and gives basic leadership bolster. Huge Data innovation expects to limit equipment and handling costs and to confirm the estimation of Big Data previously submitting huge organization assets. Legitimately oversaw Big Data are open, solid, secure, and reasonable. Thus, Big Data applications can be connected in different complex logical orders (either single or interdisciplinary), including air science, stargazing, medication, science, genomics, and biogeochemistry. In the accompanying segment, we quickly examine information administration devices and propose another information life cycle that uses the innovations and phrasings of Big Data. Administration Tools with the advancement of registering innovation, massive volumes can be overseen without requiring supercomputers and high cost. Numerous devices and strategies are accessible for information administration, including Google Big Table, Simple DB, Not Only SQL (NoSQL), Data Stream Management System (DSMS), MemcacheDB, and Voldemort. Not with standing, organizations must create exceptional instruments and innovations that can store, get to, and break down a lot of information in close continuous in light of the fact that Big Data contrasts from the customary information and can't be put away in a solitary machine. Moreover, Big Data does not have the structure of customary information. For Big Data, probably the most regularly utilized devices and strategies are Hadoop, MapReduce, and Big Table. These advancements have re-imagined information administration since they successfully process a lot of information productively, cost-viably, and in an auspicious way. The accompanying segment portrays Hadoop and MapReduce in additionally detail, and the different activities/systems that are identified with and appropriate for the administration and investigation of Big Data.

10. ANALYSIS OF EMERGING TECHNOLOGICAL TRENDS IN BIG DATA ANALYTICS

Over the last few years Big Data technologies have been receiving lot of attention. Several trends and innovations are rapidly happening in this area.

a) **Hadoop and Big Data**

According to Forrester forecast report on big data tech market Hadoop usage is increasing 32.9% per year. Hadoop, Spark and other open source applications are dominating the big data market, and this inclination is likely to continue in coming years. Hadoop for the Enterprise a TDWI Best Practices Report by Philip Russom states that nearly 60 percent of enterprises expect to have Hadoop clusters running in production by the end of 2018.

b) **Big Data Streaming Analytics**

Organization adopting big data approach to attain true streaming analytics. This is the ability to process and analyse data sets during its creation time. Big data streaming is ideally a speed-focused approach in which data is quickly processed in order to extract real-time insights from it. For real-time analytics, many open source frameworks and tools are now available. The Spark Streaming, Kafka, and Cassandra have emerged as a great combination for construction event-driven, scalable, asynchronous, and fault tolerant applications.

c) **Visualization Models in Big Data Analytics**

Big Data visualization represents data of nearly any type in a graphical layout like heat maps and fever charts, which allows decision makers to discover data groups to find correlations or unexpected patterns. Visualization models becomes the foremost selection for handling big data sets as human's brains have better capability to process visual patterns efficiently. With these big data analytics reveals deeper business understandings. Jupyter, Tableau, Google chart and D3.js are some popular Big Data Visualization tools.

d) **Machine Learning Automation**

According to Gartner, Inc. machine learning is one of the top 10 strategic technology trends for 2017. As Big Data Analytics competencies have advanced, some enterprises have started capitalizing in machine learning. Machine learning technology assists businesses in fraud detection, real-time ads, voice recognition, pattern recognition, etc. Advanced Machine learning algorithms helps enterprises to generate systems that learn, understand, adapt, and possibly operate autonomously; and make more appropriate forecasts.

e) **Predictive Analytics**

Earlier in big data analytics, organizations were beholding back at their data to understand what happened and after that they used their analytics tools to examine causes of those things. Predictive analytics thinks a step ahead; it is used to make predictions about what might happen in the future. Several vendors have come out with predictive analytics tools and that number could rise in the coming years as businesses become more aware of this powerful tool. EverString, SAS Predictive Analytics, IBM SPSS, BOARD are some of the Predictive Analytics tools.

f) **Security Intelligence with Big Data**

Due to the tremendous usage of big data analytics many organisations incorporate it into their security strategy. Big Data analytics engaged in investigating log files, financial transactions and network traffic in order to find abnormalities and suspicious activities, and also compare numerous sources of information to provide a logical view. Organizations security log statistics offers lots of information related to previous cyber-attacks attempts which can be used to predict, prevent and alleviate forthcoming attempts.

g) **Meeting Dark Data Challenge**

In the framework of business data, the term dark designates that data which is hidden and not yet put to work. It can be stored in the traditional form of paper files, historical records, or any other non-digital data recording formats; also in the form of audio, video, image files; the torrent of machine and sensor information generated by the Internet of Things. Organizations are developing big data models that will let them to transfer data easily into Hadoop from environments which are usually very dark.

CONCLUSION

We have technocrat with of Big Data. Through technological advancement better big data analysis can be develop and new dimensions can be measured. Numerous specialized techniques depicted in this paper must be tended to before this potential can be acknowledged completely. From this review, it is comprehended that each enormous information stage has its individual core interest. Some of them are intended for group preparing while some are great at on going expository.

Each enormous information stage additionally has particular usefulness. Diverse systems utilized for the investigation incorporate factual examination, machine learning, information mining, insightful examination, distributed computing, quantum figuring, and information stream handling. We believe that in future specialists will give careful consideration to these systems to tackle issues of enormous information successfully and productively

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THE LOST BOND: A CASE ON CHILD ABUSE AND IT's SOCIO-ECONOMIC IMPACT

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ABSTRACT

Cases of child abuse have increased, in 2014 the number was 8904 that has increased to 14913 in 2015 (POSCO, 2016). World Health Organization (WHO) defines child abuse as "all forms of physical and/or emotional ill-treatment, sexual abuse, neglect or negligent treatment or commercial or other exploitation, resulting in actual or potential harm to the child's health, survival, development or dignity in the context of a relationship of responsibility, trust or power. "There are four types of child abuse: physical abuse; sexual abuse; emotional and psychological abuse; and neglect. The study will help the society to know the impact of child abuse on the victim's life and how the personality changes and life becomes a miserable journey, where family's love and support is playing a very important role. Acceptance and love nurture broken personality of the child and the absence of which can have an adverse impact on the psyche of the child. It also has long-term impacts on their intellectual health and in obtaining occupation; this leads them to destructive behavioural patterns and criminality. However, if accepted gracefully by the society they will lead a happy and fulfilling life like any normal individual in many directions like family, job, and service to the society.

KEYWORDS
child abuse, emotional abuse and physical abuse.

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INTRODUCTION AND REVIEW OF LITERATURE

Blakemore, Herbert, Arney, & Parkinson (2017) reported that the impact of child abuse could be seen in the child's mental health, physical health, schooling outcome, social and relational functioning.

According to a report by NSPCC (2017) on 'How safe are our children? In 2016-17, chid-line had made 4,358 referrals to outside agencies for 3, 8550, which indicate that there is, the number of referrals has increased by 8 per cent as compared with 2015-16 data. The report says, the purpose of Children and Social Work Act 2017 is to mend mental health set up for taking care of children and to have sex education compulsory for the secondary schools in England. Digital Economy Act 2017 allowed blocking the sites in the UK that shows pornography to children to prolong safety from online pornography.

When Family atmosphere instead of being cosiness and protective it becomes the home of 'deprivation', 'pain' and 'violence and in result child suffer from clashes and many syndromes. He also said that if the child is misinterpreted, forbidden, it may cause unpleasantness, clash, or revolt at the psychological level. Frequently this occurs when the child's parents try to impose their ideas of educating the child. Doing some hurtful traditions like child marriage, discriminating a girl a child, child labour has a harmful influence on the children that leads to the growth in the vulnerability to exploitation and inattention. Ministry of Women and Child Development (MoWCD), Government of India (2007). According to 2001 census, people below aged eighteen years are around 440 million, which is 42 per cent of India's total population that means every fourth person out of ten.

THE CASE

Savita Rawat lived in New Delhi. She was living in a joint family with her parents, grandparents. She had two siblings, one younger brother, and one elder sister. When her eldest sister was born, the father was very disappointed, as he wanted a baby boy. When her mother was pregnant for the second time, the father desperately expected a boy but when she delivered the second girl, the father became very upset and frustrated. He did not even see his new-born face for several days. He always wanted a boy child and this fuelled the desired couple to try for the third child and incidentally blessed by a boy at the third time. The father was overjoyed. He always discriminated against his children. Savita was young around nine years when her mother died due to Brain Haemorrhage. The family member did not take the sick woman to any hospitals rather they thought there was a bad spirit inside her and they called a 'Tantric' to save her life. All the attempts to revive her failed and she died. Her life could have been saved if they had taken her to the hospital and proper medical treatment was given.

Savita was very young to understand all this. She was not even allowed to see her mother's corpse for the last time. After the demise of her mother, Savita was sent to her maternal grand- mother's place at Hyderabad. Her maternal uncle there physically abused poor girl Savita and they all tortured her because they thought she was the real culprit of her mother's death. She was exposed to some Tantric activities and black magic that had built immense fear inside her. At that tender age, when she deserved a normal childhood, her life was made hell by her own family. For a child, it was very heart-breaking and was extremely very difficult to spend time at such a negative place and she ran away from that place at midnight. She cried for help on the streets, drained, hungry, and thirsty but no one extended a hand to lend help. She wanted to escape from there. She was too young to travel down to her father's home. After a few hours, she was caught and brought back home and her grandmother and her maternal uncle decided to sacrifice her to the God to free her mother's soul. That time Savita understood that her life is going to end. Incidentally, she was saved by a neighbour and was brought back to her father's home.

Though she came back and was alive from inside she was all broken and shattered. Her faith in the God and on people was broken. She was so scared of these life incidences that she did not share it with anyone, not even with her father and siblings. Her father was a very strict man so she could never gather the courage to share all those mental tortures and physical assault. She started being depressed and isolated, her interest was lost in studies and for household work and she started committing mistakes, for which her father used to beat her brutally. For every little thing, the father imposed his own ideas on his children like how to dress up, eat, and communicate with anyone. The children were not allowed to do what they wanted or felt. They were controlled by their father and were afraid to come in front of him and discuss their problems with him.

Savita, after her mother's death, was only close to her grandparents and they lived jointly as a family. However, when she was in fifth standard her father shifted to a new house and the grandparents lived separately. After a few months, her father re-married with another woman and it was a big shock for Savita and her siblings. After some weeks, the stepmother started mistreating the kids. The stepmother often put children starving with hunger if they refuse to listen to her for any small thing. She must clean the house, wash the clothes, and all household duties along with her sister. Savita could never call her 'maa' due to her bad treatment and abusive language.

All of this impacted Savita's mind and she developed a phobia of darkness and spirits. The phobia was so deep that even at the grown-up age of 16 she suffered from the problem of bedwetting. Every moment she felt endangered and felt treat for life.

She suppressed her feelings from everyone. She could not share a normal & a healthy relationship with his parents and siblings, as she never knew and learned to manage a relationship. She only partially understood one relation and that was friendship. She made a few friends, who were badly treated by her parents as they thought friends would spoil her career and academic performance. To give regard to her parent's feelings regarding friendship, she started being friends with random people but never made a sustainable or permanent relationship. This adversely affected her psyche especially her belief in people and relationship.

Savita's relative Mrs. Ravina took her to the one of the known psychologist Dr. Parvati Sharma. Ravina informed the doctor that the girl claims that she is different from others.

After establishing a good rapport, the doctor asked her about her likes, dislikes, friends, people in her life and education. Savita shared a few things initially and informed the doctor that she believes in friendship but does not know how to maintain it; she also informed that she now becomes friendly with random and unknown people to be adventurous. She is not at all close to her parents nor there exists a bonding between her siblings. She also shared that she is afraid of darkness and she becomes miserable in the dark, she informed the doctor that she has no control over her bladder and she urinates.

Savita shared her painful experience with the doctor about her past. She said that the death of her mother changed her life forever and she feels that she was the cause of her mom's death. She also said that her father and her own siblings feels the same and hence hate her from inside. Her stepmother also mistreats her on frequent occasions and she feels like ending her life. She informed the doctor that she had harmed herself many times whenever she feels breathless and in immense pain. Her faith in people and any kind of relationship has lost and now she feels like giving up life, she tried suicide by taking sleeping pills and other medicines that are very damaging. However, there also she failed.

On listing to Savita, the psychologist calmed her and convinced her to be administered on a depression test. Beck Depression Inventory was conducted and the total Score(s) came out to be 27 Cognitive-Affective 15 Somatic-Performance 12, (Total score from 0 to 9 is within the normal range from 10 to 18 indicates mild to moderate depression from 19 to 29 indicates moderate to severe depression from 30 to 63 indicates extremely severe depression).

(In a personal interview with a psychologist) Diagnosis of Depression - DSM-IV-TR Criteria for Major Depressive Episode and Major Depressive Disorder)

A. At least five of the following symptoms have been present during the same 2-week period and represent a change from previous functioning: at least one of the symptoms is either 1) depressed mood or 2) loss of interest or pleasure.

1. Depressed mood most of the day, nearly every day, as indicated either by subjective report (e.g., feels sad or empty) or observation made by others (e.g., appears tearful)) - **YES**
2. Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day (as indicated either by subjective account or observation made by others) - **YES**
3. Significant weight loss when not dieting or weight gain (e.g., a change of more than 5% of body weight in a month), or decrease or increase in appetite nearly every day - **No**
4. Insomnia or hypersomnia nearly every day
5. Psychomotor agitation or retardation nearly every day (observable by others, not merely subjective feelings of restlessness or being slowed down) - **YES**
6. Fatigue or loss of energy nearly every day -**YES**
7. Feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day (not merely self-reproach or guilt about being sick) - **YES**
8. Diminished ability to think or concentrate, or indecisiveness, nearly every day (either by subjective account or as observed by others) - **Yes**
9. Recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide- **YES**

(Source: Practice Guideline for the Treatment of Patients with Major Depressive Disorder (MDD), Third Edition, American Psychiatric Association, 2010).

Savita was found to be in major depression and her score was very high. Out of nine symptoms, eight out of these were found. She also shared that she pretends to be very strong to befool people and his family and to do the same she suppresses her feeling, which becomes more painful and depressing. She was counselled by the doctor and was educated on coping strategies. Several sessions of counselling and behavioural therapy helped her to be relatively better.

The psychologist also counselled her parents and her siblings. The psychologist told her parents that it is very important to nurture their children in a healthy environment. Family support plays a vital role in a child's life and upbringing. Now she is living her life with hope and courage. Her fear of the darkness has dealt with a great extent and she does not bed wet. The psychologist also shared a story of a girl who always thought she was different from others and is not a normal girl. The doctor told Savita about her childhood experiences and how her family tortured her. Doctor congratulated Savita that she is not the victim, but she was the real survivors (www.goodtherapy.org).

FINDINGS

Savita was the victim of child abuse. She was abused physically and psychologically and mistreated by her maternal family. From the counselling session, it was clear that because of her painful past she had developed a fear of relationship and phobia for darkness. She was also diagnosed with major depression.

The case identifies how the loss of a mother, loss of trust of family members and being a victim of their hatred can bring devastating personality changes in a calm and simple girl like Savita. It was also found out that lack of love, absence of a relationship of any kind can make a child try dangerous adventurous activities of being friends with random people and try being close to them, and how loneliness can push them to depression and such people may dare to commit suicide.

CHILD ABUSE AND IT'S SOCIO-ECONOMIC IMPACT (Based on Maslow's Hierarchy of Needs)

1. ***PHYSIOLOGICAL NEEDS*** includes the basic requirement that an individual need. Abused children are not given proper nutrition, they are deprived of food. They are malnourished. This will lead to the poor physical as well as the mental growth of the child. Such malnourished children cannot contribute to the society in major ways and society gets deprived of the good human resource.
2. ***SAFETY NEEDS****:* All the tortures that the child has gone through have a great impact on the mental status of a child. The child feels unsafe. He tries to get isolated from everyone. This develops the fear inside the child. A fearful and phobic child cannot be a leader or be an entrepreneur, the society will be deprived of great leaders who could have generated employment and supported the nation in the building.
3. ***BELONGING/PHYSIOLOGICAL NEEDS*** also include the intellectual resource. Due to all the abuses that the child has gone through, the child is not able to use his/her intellectual resource. Therefore, they are not able to contribute their energy to the society instead society and Government spends a lot on the victim. Therefore, the contribution of the individual is zero but the amount spends on them are very high. The survivor of child abuse faces many difficulties in future like a problem related to the relationships of any kind be it personal or professional. If their identity is disclosed to their place of work, they face abhorrence from co-workers.

   a) Low academic performance

   The survivor is mentally unstable and hence this leads to the poor academic scores. The child is not able to focus on his study. When the child is not able to score well and hence leading to poor academic grooming.

   b) Unemployment

   When the child scores low in academic, he is not fit for any job. Hence, this will lead to the unemployment.

   c) Anti-social nature

   When the child thinks that he is not a normal child, he becomes frustrated, irritated and thus society start treating the child as an abnormal child and starts criticizing him, due to this many children develop the anti-social nature.

   d) Criminal Behaviour

   The child becomes more violent and not able to control his emotions. Therefore, the individual may harm others. This gives birth to a criminal.

e) Unawareness

Most of the families are unaware of the fact or do not accept their child's abnormal behaviour or conduct and feels no need for psychological treatment.

f) Social programme

Many groups are working for the society. They also fight for the child rights. The government also give some funds for the survivor of the child abuse but still, a lot needs to be done to tap all such cases.

4. ***SELF-ESTEEM:*** The survivor has a very low self-esteem. As the child is not able to score well in academic, neither is good on extracurricular activities, he gets isolated. As a result, he develops a poor self-esteem, such children will not be a proud citizen of the country, and they will underestimate self and will not be able to compete with the competent people across the globe in their professional life. In their personal life also, they will struggle with gaining perceived respect etc.
5. ***SELF-ACTUALIZATION:*** Self-actualization is when the person reaches its higher potential. It is very difficult for the survivor to reach this age.

Other adverse socio-economic impacts: Direct cost and Indirect Cost It refers to the cost that is spent on sustaining the children welfare system to inspect claim of child abuse and neglect and the expenses by the judicial etc. to take care of the survivor of child abuse. Indirect cost is referring to the longtime economic cost of child abuse. It involves the adolescent conduct, 'mental illness', 'substance abuse' and 'domestic violence'. It also involves the loss of efficiency because of job loss.

RECOMMENDATIONS

1. AT THE INDIVIDUAL LEVEL (VICTIM OF CHILD ABUSE)

- The person should always speak to someone who is senior/adult in the immediate family or the person who come in the safe circle of the childlike grandparents, teacher, a reliable friend etc. If the child gets no help from the said sources, the child should seek the help from child helplines/from the police.
- The child should educate herself/himself about child rights through various sources like books, newspaper, internet and others and should use it for self-support.
- Last but not the least, the child should make herself/himself strong and can raise voice against the ill treatment towards him/herself. Only a bold personality can deal with adversities, and there is no better choice than to be a strong personality who help thyself.
- An abused child should understand that the event is not the end of life and there is the solution to all the problems. In addition, there are people, organisations and Govt who are always ready to help and support.

2. **AT THE SOCIAL LEVEL:** The case educates the society for an inclusive guardianship where each member of the family takes responsibility for each other's wellbeing and welfare.
3. **AT GOVERNMENT LEVEL:** The Government has favourable policies but people and children are not aware and unsensitised of that, Government should make sure that schools and community centres should educate and sensitise children and parents about such issues so that the problem doesn't arise only and if it does, it may be solved with utmost care and grace.

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HUMAN RESOURCE DEVELOPMENT IN TOURISM AND HOSPITALITY INDUSTRY: ISSUES AND CHALLENGES

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ABSTRACT

At present, tourism has become an emerging as a fastest and generating a large number of employments for people both skilled and unskilled. A business goes where it is invited but permanently stays, where it is respected. In India, industry has the major contribution towards the growth of GDP. Tourism as a Culture influenced by globalization has engineered a sound foundation for the development of Tourism industry in India. The increasing domination of Tourism industry in the process of economic transformation has been injecting new strength to the economy of the country. The future of tourism industry is definitely exciting but several human resource challenges are being faced such as poor supply of quality people and lack of infrastructural facilities are intimidating in providing the quality. The institutions and universities are failing in transforming soft skills of people through latest measures. Against this background the present paper makes an attempt to discuss different facets of tourism education, availability of training institutes and their status in Travel & Tourism Management and the available infrastructure of Hotels and Restaurants along with the workforce involved for serving tourists. The paper will also attempt to recommend what can be done to improve the status of tourism and hospitality education in India.

KEYWORDS
tourism industry, hospitality, tourism education, training, human resource development.

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INTRODUCTION

Tourism as one of the world's largest industries, supporting 277 million jobs and generating 9.8 per cent of world GDP i.e. US$7.6 trillion (10% of global GDP) and 277 million jobs (1 in 11 jobs) for the global economy in 2014. Recent years have seen Travel & Tourism growing at a faster rate than both the wider economy and other significant sectors such as automotive, financial services and health care. Last year was no exception. International tourist arrivals also surged, reaching nearly 1.14billion and visitor spending more than matched that growth. Visitors from emerging economies now represent a 46% share of these international arrivals (up from 38% in 2000), proving the growth and increased opportunities for travel from those in these new markets. Travel & Tourism is an important economic activity in most countries around the world. As well as its direct economic impact, the sector has significant indirect and induced impacts. The UN Statistics Division-approved Tourism Satellite Accounting methodology (TSA: RMF 2008) quantifies only the direct contribution of Travel & Tourism. WTTC recognizes that Travel & Tourism's total contribution is much greater however, and aims to capture its indirect and induced impacts through its annual research as in below Table.1:

TABLE 1

India	2014 US$ mn.	2014 % of Total	2015 Growth	US$ mn.	2025 US$ mn.	Growth
Direct Contribution to GDP	40,602.0	2.2	7.6	87,474.5	2.2	7.2
Total Contribution to GDP	125,211.0	6.7	7.5	271,758.0	7.6	7.3
Direct Contribution to Employment	23,024.1	5.5	1.9	29,019.7	5.7	2.2
Total Contribution to Employment	36,695.4	8.7	1.8	45,566.6	9.0	2.0
Visitor Exports	20,060.1	4.2	5.2	38,946.6	4.2	6.3
Domestic Spending	87,864.2	4.7	7.0	187,571.0	5.3	7.2
Leisure Spending	90,146.5	1.8	6.5	190,437.0	2.1	7.1
Business Spending	17,777.7	0.4	7.4	36,080.6	0.4	6.6
Capital Investment	34,523.2	6.2	9.3	71,067.9	6.9	6.5

*2014 constant prices & exchange rates; 2015 real growth adjusted for inflation (%); 2015-2025 annualized real growth adjusted for inflation (%); '000 jobs

Money spent by foreign visitors to a country (or visitor exports) is a key component of the direct contribution of Travel & Tourism. In 2014, India generated INR1, 224.4 bn in visitor exports. In 2015, this is expected to grow by 5.2%, and the country is expected to attract 7,757,000 international tourist arrivals. By 2025, international tourist arrivals are forecast to total 15,291,000, generating expenditure of INR2, 377.2 bn, an increase of 6.3% p.a. This indicates, there will be huge demand of skilled and trained manpower in this industry. It has been also reported that there is a big gap between demand and supply of manpower in this sector. This gap is proposed to reduce by-

1) Formulation of proper policy and strategy
2) Regular assessment of skilled manpower
3) State of art infrastructure for training
4) Regulating academic efforts.

Against this back ground, Government and Industry people should take initiative to promote tourism industry among the youth talented generation and to attract them to join for capitalizing this industry. The quality of the courses in Tourism Management being offered by the institutes and universities requires to be improved. The courses offered are not practical in nature and hence do not fulfill the sectorial need. The courses need to be revised and updated. The Tourism Education courses offered in the private, government institutions and universities are hybrid in nature and lacking skill specialization. There is a skill shortage in this sector and requires fair blending of information and communication technology. It is high time to provide a sound understanding of Real Time Data Base System (RTDBS) along with E-commerce, Customer Relation Management to the students for increasing practical solution to the business.

OBJECTIVES

1. To identify the challenges and opportunities in tourism industry.
2. To understand the need of capable human resource and employability in tourism sector.
3. To analyze the contemporary tourism and hospitality education in India.
4. To recommend the prerequisite of skill training and development institutions for human resource.

RESEARCH METHODOLOGY

Methodology, adopted in the research is a) Primary data from the sources such as, interaction with the experts of different Universities, Colleges and institutions providing tourism and hospitality education across India and personal visits and own observation b) Secondary data from the sources such as, books, journals, magazines, newsletters and newspapers and various websites of tourism and hospitality sector.

SHORTCOMINGS IN TOURISM EDUCATION

This sector is requiring 3.5 million people by the year 2020. A report found that huge volume of students is being trained in this sector by government, affiliated and privately owned institutions but it is interesting that major portion of people of them are pursuing careers in other services.

The report indicates that there is an alarming shortage of trained manpower in tourism industry resulted in big gap between demand and supply of trained people. This industry requires various strategies related to Human Resource for the development of this sector. Apart from this the industry is lacking a fair manpower planning, Job description, job specification and proper career planning at different level in the organization. Low payment, long working hours, lack of professional growth and training and development facilities has been the fate of this sector. Better corporate culture, healthy professional ethics and sound operational practices must be considered in this regard. In spite of several efforts Human Resource practices still lacking of professionalism in this industry. Major shortcomings in tourism education may be enumerated as **This industry has not any full proof recruitment policy:**

- This industry lacks competent and specialist people, having no specific degree requirement
- This industry lacks professional ethics, sound operation al practices & specialization
- There is no clear cut career path and the payment package offered is minimal
- The courses taught at institutes & universities are not up to date, need to be improved in the light of current developments
- The syllabus designed are faulty and not attracting right types of candidates
- Acute shortage of competent faculties.

QUALITY PEOPLE – NEED OF THE HOUR

The tourism industry has been facing a series of problems and the most effective way of resolving the same is making available to them quality people. The government policy makers and the institutions bear a responsibility of promoting excellence, which may create and establish a conductive environment for prosperity of this Industry. We cannot accept managerial proficiency from those who themselves are lacking quality. The falling dimensions of development of quality people draw priority attention:

RECRUITMENT

This dimension is concerned to the recruitment and se lection of quality people. The traits considered to be essential for the quality people need not to be underestimated.

TRAINING

Development is on-going process; change is a natural phenomenon. During yester decades, we find a large scale domination of techniculture in all most all arias. The techno-driven information systems are found very much instrumental in shaping the operational efficiency of Tourism Industries. The increasing trend of unlawful and unethical practices makes it essential that the traits like personal touch, ethics, humanism and ethos must be maintained to transform non-performer into star-performer.

MOTIVATION

Incentive becomes instrumental in motivating and shaping the people. Particularly in the present time, where consumerism has been found changing the lifestyles of general people, we cannot keep Tourism Industry in isolation. This requires a fair blending of financial and non-financial incentives.

PERFORMANCE APPRAISAL

To get good result, it is essential that an evaluation is made of the performance of individual or a group.

HUMAN RESOURCE DEVELOPMENT IN TOURISM AND HOSPITALITY EDUCATION

The future of tourism industry in India is very exciting but still there are many human resource challenges faced by this industry such as lack of qualified staff at both the operational and managerial levels. There is a huge gap between the supply side and demand side requirements in this sector. The development and sustainability of tourism industry requires development strategies for human resource and personnel involved in tourism, the development of host community, and tourists themselves. Sustainability based work culture, professional ethics, and operational practices are basic to sustainability in tourism. There is immense potential in Indian tourism industry, but is hardly showing any developments due to shortcomings in HRD domain. This is one of the basic reasons for its low performance in terms of unorganized human resources and unattended HR issues and policies both at micro and macro level.

HOTELS IN INDIA

- Approximately there are 1.2 million hotel rooms in the country. However, the star category of hotels account for only 7% of the total. (80000 rooms)
- According to a study, there was a need of approximately 2.9 million hotel rooms in India and this need rose to 6.6 million rooms in 2020.
- The four star and five-star hotel in the country including the heritage hotels provides employment to on an average 162 people per 100 rooms, compared to 122 in one, two and three star hotels.
- Almost 750000 people in India are employed in hotels within India. Around 1 lakh people are employed in motels on highways.
- The Employment in hotel industry is forecasted to increase to 3.5 million by 2020.
- The major portion of employees, approximately 60%, is working in F & B sector, Kitchen and Housekeeping.
- 80% of the manpower in employed in key hotel functions such as F&B, front office and housekeeping. Most of them are young and less than 40 years of age.

Most employees in the management/supervisory cadres in the front office, F&B services and housekeeping function of the larger four & five star hotels have a formal hotel management qualification. Almost half the managers and supervisors of the one to three star hotels have either a hotel management degree/diploma or a Food Crafts Institute Certificate. The hotels in the unorganized sector mostly employ untrained manpower.

RESTAURANTS IN INDIA

According to a study,

- It has been estimated that there are at least 140,000 restaurants in urban India.

1) In Delhi and Mumbai itself, there are nearly 15% of these restaurants.
2) The largest population is of Conventional restaurants which account for account 305 of the total population, followed by sweet shops (16%), fast food outlets (16%) and dhabas (30%).
3) The number of conventional restaurants ranges between 10-20 numbers per lakh of population and the total number of eating places account for 86 per lakh of population.
4) The total number of restaurants has touched 200,000 in the year 2010 and will be around 240,000 in year 2020.
5) Almost 1.85 million people are working in restaurants running in India. This Employment is forecast to increase to 2.73 million by the year 2020.
6) The small restaurants such as dhabas are employing more than 1.3 million people on the state and national highways.

TRAINING INSTITUTES IN HOTEL MANAGEMENT AND FOOD CRAFT

1) At present approximately 175 training institutes are engaged in Hotel management and Food Craft. Of them, 50 are owned by the government, 125 are private institutes and only 47 are registered with AICTE.

2) The total number of students obtaining training in government sponsored institutes are very less, approx 20% of the total. A total of 18000 students are graduating with a degree/diploma in hotel management or food craft.
3) The majority of the students are completing 3-year degree courses. Only 3800 students (21%) are completing Diploma or Certificate courses.
4) These institutes claim 100% placement for graduating class. However, more than 35 to 405 of the total graduates are joining other emerging sectors such as call centers because of the reasons such as better salaries, poor perceived image of working in hotels, and their reluctance to take up jobs in the service function of hotels.

In this scenario, there is likely to be a shortage of trained manpower in this sector.

TRAINING INSTITUTES IN TRAVEL & TOURISM MANAGEMENT

- Around 172 training institutes are engaged in travel and tour management education. Out of them only 11 are government sponsored institutes, 78 are affiliated to universities while the rest of them are privately owned.
- Approximately, 17,500 students are completing IATA/UFTA certified diploma courses, graduate and post graduate degree courses.

STRATEGIC RECOMMENDATIONS

- The present and as well as new hotel management institutes will have to provide training to substantially more and larger number students to cater to the increasing demand of hotels and restaurants.
- The total student throughout of diploma and certificate courses needs to be increased through immediate steps. This can only be done to by altering the students towards short term courses.
- There is also a requirement for Improvement in standards of training provided by the institutes.
- If the manpower required to impart training in institutes, if found to be scarce a training module in the form of audio and video CDs can be explored.

However, the existing training infrastructure for the travel and tour sector appears to be adequate.

- There is a need to undertake a joint campaign to generate pride in hotel and tourist management carriers. This will help attract and retain trained manpower in this sector.
- The syllabus and the curriculum are recommended constant up gradation.
- Constant training of teachers imparting training is required.
- There should be more scope and Better market acceptability of the pass outs.
- The working hours should be reasonable. Students having aptitude and inclination for a particular stream need to be trained.
- The fringe players in the tourism sector needs corporatization and consolidation.
- To introduce a subject or at least a chapter on tourism at the “+2” stage in all schools.
- To bring Guest faculties from international reputed Tourism institutes. This would bring global perception to our institutes.
- Exchange programme with foreign institutes, both for the students as well as faculty.

CONCLUSION

This Industry looks for dedicated performer. Nothing good is possible, when we continue with a pool of non-performer and nothing is impossible when we peak a team of star-performer. Presently we find tourism industry in India is facing problem of image. Increasing the number of star and dynamic performers need top priority in the sector. The apex institutions in India have stopped to offer specialization in Tourism Education courses. This has resulted complete negative impact over the fate and future of tourism education and supply of quality people. Therefore, immediate attention of Educational institutes, public and government is required in this regard to capitalise tourism and hospitality sector.

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