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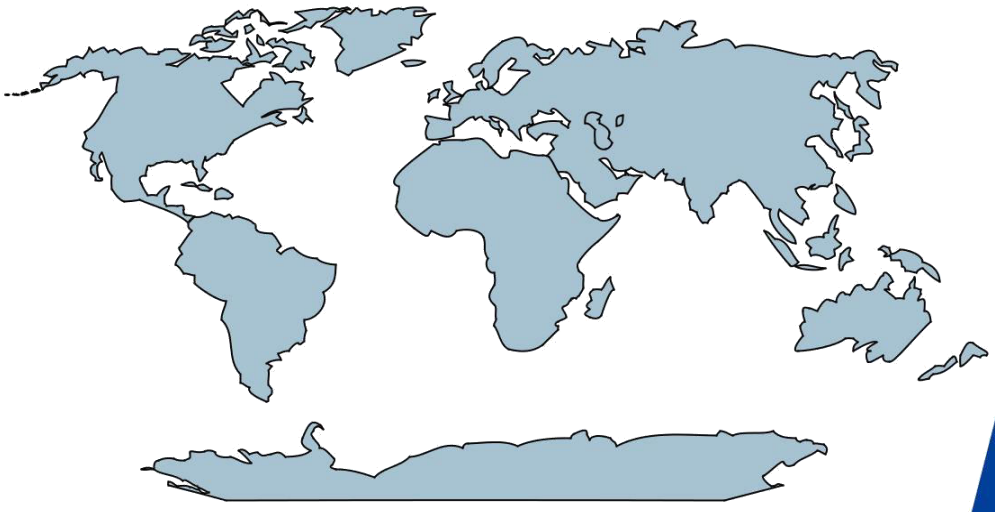

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Research Papers

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ARTIFICIAL INTELLIGENCE-BASED TECHNO-ECONOMIC ANALYSIS AND OPTIMIZATION OF GRID-TIED SOLAR PV FUEL CELL HYBRID POWER SYSTEM

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ABSTRACT
A hybrid combined generating system that makes use of renewable storage technologies such as those provided by fuel cells and uses hydrogen as a fuel, which is regarded to be a sustainable energy vector, is subjected to analysis in terms of techno-economically. To fulfill rapid rising in energy demand, all energy sources have to be explored. Renewable energy sources have no finite end and produce no harmful byproducts, but their intermittent nature presents a significant challenge.To get over this problem, engineers have developed something called a hybrid renewable energy system (HRES) by combining several energy sources. The purpose of this work is to analyze the state of the art in published research on HRES and provide an in-depth discussion of the findings. This review covers a system forHRES which would be used forsizing (software or traditional methods), optimization (hybrid methods, classical, and artificial method), control (hybrid control, centralizedand distributed), and energy management (techno-economic objective, technical objective,andeconomic objective).

Keyword: HRES, Renewable energy, Tech-economically, Energy management

INTRODUCTION
The massive extraction of fossil fuels that began in the mid of the 20th century [1] has resulted in anrapid rise in pollution in the surrounding environment. In addition, the estimated 2.3% annual rise in global energy consumption from 2015 to 2040 results in a discernible increase in atmospheric CO2 levels. This is due to 2019 having the highest annual average concentration of carbon monoxide in the atmosphere in the previous 800,000 years, at 409.8 ppm with error of +/-0.1 ppm[2,3]. Despite the statement that modern society is more concernedabout this issue, explanations are instantly required. Some of these solutions include increasing investments in the development of renewable technologies and conducting a search for renewable energy bases that are inexpensive, efficient, and, most importantly, reduce polluting emissions to the greatest extent possible, or at the very least, do not increase them. It is currently an objective to transition the energy sector toward renewable energies (RES);the proposed National Integrated Energy and Climate Plan (PNIEC) 2021-2030 [4] predicts that by 2030, 74% of Spain's power will be generated by renewable energies and that 42% of Spain's final energy usage would come from such sources. Renewable resources such as solar and wind have a lot of promise since they use resources that aren't run out in our lifetimes, such as solar radiation and wind. This gives them an advantage over traditional forms of power generation. However, this also indicates that you will need to adjust to their restrictions, such as differentiating the places where it has more or less potential for exploitation, their temporal unpredictability, which prohibits them from being used when unfavorable meteorological conditions, etc. As a result, renewable energy sources that operate independently do not provide a dependable energy source by themselves. Two strategies have been presented to go around these restrictions: (a) design a solution that uses multiple sources of energy generation (renewable or not), and then, in the event of an energy shortfall due to the constraints already discussed, switch across to a system that can provide energy accurately and continuously, such as a biomass generator or geothermal plant [5-8]; or (b) implement energy preservation methods in conjunction with an energy invention skills system and the energy conservation measures discussed above. This study analyzes the second strategy. This solution proposes a hybrid system that combinesa system that uses sunlight and fuel cells to generate electricity that uses hydrogen as a fuel [20-22]. Because of its status as a source of kinetic energy [23], this System is ideally suited for the issue of pollution. Hydrogen can be produced through various processes [24,25], but in this instance, its origination through electrolysis using solar-generated electricity is being investigated as a feasible option for residential applications. After being produced, the hydrogen is stored and converted back into usable electrical power as the System needs. In addition to that, the fuel cell can produce combined heat and power (CHP) [26] in residential applications [27,28], as was proven at the Center for CanadianHousing Technology [29,30]. The waste awayfrom the heat produced throughout the operation of a CHP system is caught and then repurposed to meet the thermal demand of a residence.

This study aims to provide and analyze a comprehensive literature review of current papers onHRES. This review focuses on four essential categories of HRES based on hydrogen fuel cells, which are sizing (using software or using traditional methods), optimization (using classical, artificial, and hybrid methods), control (using centralized, distributed, and hybrid control), and energy management (using technical objectives, economic objectives, and techno-economic objectives).

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A hybrid system incorporating this technology often has a very hefty price tag in today's market. However, it is expected to decrease over the next few years due to the development of new technologies and the increased manufacturing of components on a larger scale. Some of these components are fuel cells, electrolyzes, and hydrogen tanks. This is compounded by two factors that must be accounted for together: first, the cost of fossil fuels like diesel is expected to climb in the future, and second, there is a general tendency toward rising prices for such fuels[35]. As a result, there is speculation that hybrid systems designed for stand-alone or distant deployments will have a significant market entry.

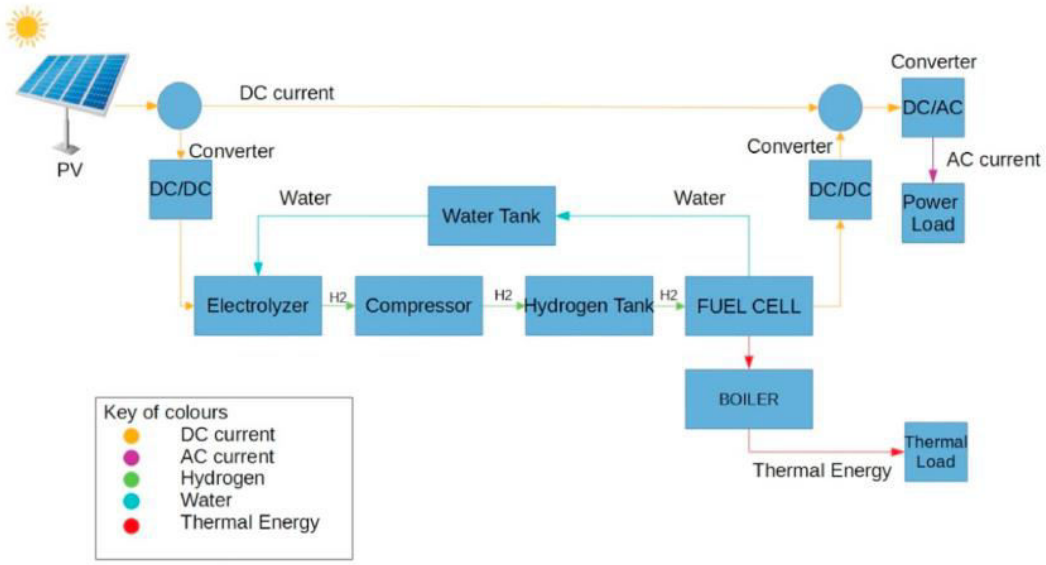

Fig 1: Components of a hybrid hydrogen fuel cell photovoltaic system are shown in a schematic diagram.

Converting solar energy into electricity that runs on direct current. It is necessary to use a DC/AC converter to generate varying currents before the electric power can be sent to the load.

Three distinct phases may be distinguished within the proposed fuel cell technology:

(1) The hydrogen creation process,

(2) The archiving phase and

(3) Phase of usage or implementation [36].

The electrolyzer is going to be the place where the hydrogen cycle will get its start. This will be where water will be converted into hydrogen by utilizing the energy generated by the solar modules. Compression will be used to store this hydrogen in steel composite tanks for the foreseeable future. Hydrogen will be supplied to the fuel cell responsible for producing the required power when required.

1.1Hybrid Renewable Energy System (HRES)

The integration of two or more different kinds of energy sources, either renewable or nonrenewable, is what constitutes a hybrid system. The hybrid system is comprised of the following fundamental elements: energy sources (alternating current and direct current). The System can be utilized either in conjunction with the grid (off-grid) or independently (on-grid)[38].In their book "A Renewable World," Professor Herbert Girardet and Miguel Mendonça (Research Chief of the World Future Council) characterized HRES with a single sentence: "Typical hybrid systems combine two or more energy technologies." [39]. Various dimension parameters can be used to choose the different device elements of a hybrid energy-producing plant, and a wide variety of commercial software—including INSEL (Integrated Simulation Environment Language), HOMER (Hybrid Optimization Model for Electric Renewable), iHOGA (Hybrid Optimization by Genetic Algorithm), RETScreen, and fur—are used for the sizes and the optimization processes.

Khan et al.consider the most recent studies on the optimal sizing methods for hybrid solar-electric-wind power systems. The latest optimization tools, cost-cutting tactics, and storage-system design are also briefly covered.[40]

In [41], The writers include Oman in their literature evaluation. The study also discusses some optimization strategies that could be used to evaluate the relative efficiency and cost of different hybrid systems throughout the energy extraction process.

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Tamer Khatib et al. center on the installation and evaluation processes for standalone PV systems. The authors also analyze the complications and disadvantages of stand-alone solutions and look into the most up-to-date evaluation standards and methodologies utilized in optimization. [42]Optimizing any microgrid level to reach the best operating circumstances when all requirements are met is possible. Compared to newer methods that use genetic algorithms, particle swarm optimization, etc., the conventional method employs rigorous procedures like linear planning.

RajannaSiddaiah and Sainiorganizing, structure, simulation, and optimization are the four pillars upon which an off-grid hybrid system must rest. In addition, this work analyzes mathematical frameworks developed by many researchers based on goal functions, finance, and validity studies concerning design factors. [43]

Samir Dawoud et al.pay special attention to the unique ways offered in energy-related practice, such as hybrid sources, physical modeling, and numerous optimization techniques for hybrid networks [44]. Vivas et al. perform a cutting-edge literary assessment of off-grid hybrid energy from renewable sources systems based on hydrogen storage [45].

Tezer et al.examines the rise and fall, over the last two decades, of the costs of systems and the reliability of multi-purpose optimization techniques[46].A dedicated power converter must precisely manage the amount of voltage, current, and quality of power generated by hybrid energy sources, whether operating independently or linked to the grid.

Vikas Khare et al. Investigate hybrid energy production systems by looking at Prefeasibility analyses, optimal sizes, models, controls, and dependability concerns[47].Hybrid systems that rely on renewable energy sources require energy management strategies to guarantee correct operation, meet increasing demands, and boost system efficiency. Meeting demand, extending component life, increasing operating costs, ensuring the highest use of renewable sources, decreasing energy costs output, protecting elements from overloaded damage, and improving reliability are all possible thanks to a well-implemented energy utilization strategy.

Yanfeng Liu et al.examined energy storage options, energy consumption patterns, energy modeling, HRES deployment, and emergency power management. Solar photovoltaics, wind turbines, diesel generators, and hybrid power systems that include batteries have all been shown to be superior energy generation methods[48].

This paper provides a comprehensive review of recent literature on four key aspects of HRES: measurement (usingtraditional methods or commercial equipment), optimization (the conventional approach, artificial approaches, and combination methods), managing the HRES (centralized, hybrid, and traditional methods), and handling its power mechanisms (objective of economic strategy, technical policy, and techno-economic strategy).Newly published techniques based on hybrid systems are also the primary topic of this study, as are the generators used by these approaches. The section concludes with a comprehensive analysis of the applications of the various algorithms, including their merits and disadvantages.

This paper is organized into five parts: the first looks at the various load profiles that can be used with a hybrid system; the second demonstrates the most common sizing methods, whether they're based on commercial programs or tried-and-true techniques; the third discusses optimization techniques in detail, whether they're based on classical, artificial, or hybrid approaches; and the fourth looks at some case studies. This paper's fourth and fifth sections address controlling and managing energy (technical, economic, and techno-economic techniques) of HRES.

2. Load Profile

This part will examine the load profile most often incorporated into renewable energy hybrids [49–50], which are utilized to meet demand in the worldwide grid and cover consumption in remote locations.

2.1 Isolated Area

Loads like these may be found in a variety of off-grid locations, such as a mountain, a tiny town in the Sahara, an island, etc., and have low power consumption and smaller firms or industries.

To feed a rural village in southwest Algeria, **Chouaib et al.**calculated the required area for a hybrid system consisting of solar photovoltaics, wind turbines, a diesel generator, and a battery storage system via the use of a modeling and optimization tool called HOMER PRO.

2.2 Residential Sector

This burden is set by the number of machines in use and the resident's place of origin, which might be a developing nation or a developed superpower. Inhabited structures are easily recognized by their low energy

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use, and most hybrid systems make use of solar power (photovoltaic cells and fuel cells), diesel engines, and other forms of energy storage.

Kharrich et al. optimize multiple hybrid systems with five algorithms to find the most dependable and affordable System for Egypt, and their findings suggest that theQOBOalgorithms (Quasi-Oppositional Bonobo Optimizer) are the best method to deal with the optimal financial structure problem facing hybrid micro-grid power systems[53].

2.3 Industry

Due to technical and economic limitations such as the need for a vast space, the consistency of energy invention, the excellence of energy, and the demand forsignificantfinancing money, researchers seldom look at this in their studies.

NhutTien Nguyen and Ryuji Matsuhashisuggest a HRES to meet the electricity and oxygen needs of the aquaculture industry. Their System includes wind turbines, solar photovoltaics, and fuel cell batteries. Optimal results and sensitivity analyses show that an alternative energy hybrid grid,coupledwith the grid, produces pure oxygen.[54]

2.4 Building

Hybrid renewable energy systems, such as those that use the top of the building to incorporate solar sheets, CSP, a Savonius wind turbine, or anenergy cell, may be implanted in many crucial buildings to cover electrical demand. The hybrid System will be sized to decrease the power cost and enhance the environmental effect of low-consumption (few kilowatts) grid-connected buildings such as stores, universities, laboratories, administrative or educational structures, etc.

Authors Abu Yahya et al. use the HOMER PRO package to size and enhance a hybrid system founded on solar photovoltaics, wind turbines, the grid, diesel generators, and batteries to meet the needs of a Jordanian school's electricity needs. After comparing three different hybrid systems combinations, they conclude that the Photovoltic/grid system is the most cost-effective option, with an investment cost of $10.5 million and a levelized cost of $0.03331 per kilowatt.[55]

A combination of renewable energy sources can be installed to produce green energy, lessen the ship's reliance on fossil fuels, tap into the vessel's renewable potential, and meet the ship's electrical needs. Using experimental data, Yuan et al. study a hybrid system for generating electrical power aboard a commercial ship in China that uses solar panels, a diesel engine, and a lithium-ion battery. Hybrid solar energy can reduce annual fuel use by 4.02 percent and CO2 emissions by 8.55 percent, according to studies[56].

Wang et al. feed an offshore ship from a wind turbine, the grid, and its battery and flywheel storage facility. The authors offer a two-stage optimum approach to finding the best solution to the design challenge[57]. To get to 100% renewable energy. Bogdanov et al. suggest using a hybrid system to create electrical power rather than producing synthetic gasoline to supply the transportation sector.

3. Sizing method of HRES

To identify the capacity of the generators, it is necessary first to determine a measure of the hybrid System's physical dimensions. If accurate sizing is not performed, there is a possibility that the System will be either oversized or undersized. The assessment of the actual load and the step time required to take variations into account appropriately are the two areas that provide the greatest challenges. However, most researchers sample data based on an average of hours, days, or months. [59]

The first kind of approach for sizing is accomplished via the use of software, and the second type is accomplished through the utilization of conventional ways (figure 1).

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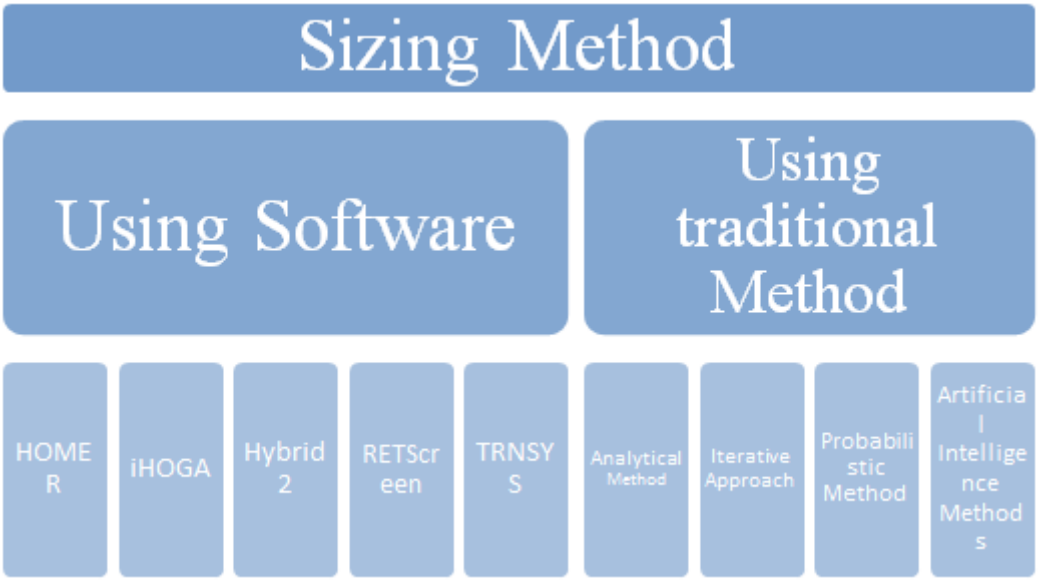

Fig 2: Sizing Method of HRES [60]

3.1 HRES of Sizing Method Based on Software

There are several commercial programs for sizing hybrid systems, including RET Screen, iHOGA, INSEL, and HOMER. Most of these programs were developed using the Windows operating system and the visual C++ language for programming [61].

To finding the size of a hybrid system in Shiraz (Iran) based on diesel generators, solar generators, and wind turbines with a storage system (battery), the researchers Baneshi et al. employ the HOMER program. This research focuses on using a hybrid system that is both low in cost and produces a low amount of carbon dioxide. Following the simulation, the optimum economic outcome was the System's levelized cost falling between 9.3 and 12.6 cents per kilowatt-hour, with 43.9% coming from global production and renewable resource. [62]

Using the iHOGA program, Fadaeenejad et al. show that use of a hybrid system at Kampung Opar in Malaysia to serve a rural hamlet. This hybrid System was produced using two renewable originators (a solar originator and a (WT) wind turbine) and two standard generators (a diesel generator and a battery). [63]

Massachusetts Institute of Technology's Renewable Energy Research Laboratory in the United States is responsible for developing the Hybrid2 software supported by the National Renewable Energy Laboratory. This program was used by Mills et al. to size a solar, wind, and fuel cell hybrid System in Chicago, United States of America. The simulation demonstrates sufficient renewable resources to meet the load profile, with the addition of a fuel cell being optional. [64]

TheMinistryof Natural Resources, Canada produced an application of software program for energy approaches sizing and optimization in the year 1998 called "RET Screen." This software application replicates techniques under several aspects, including scientific, commercial, ecological analysis, energy efficiency, etc. Liqun et al. simulate the Shanghai system in China, which utilizes software from Canada for the solar generator, wind turbine, diesel generator, and hybrid battery system. The findings point to a decrease in greenhouse gas emissions, which may be attributed to the fact that the hybrid System relies almost entirely (more than 99%) on renewable energy [65].

The program known as "TRNSYS" was created at the University of Wisconsin in Madison, located in the United States. Its primary function is to simulate thermochemical systems. In, this program was used to construct and simulate a hybrid photovoltaic and thermogenic system. The findings showed that a hybrid system is superior in terms of its technical capabilities and economic viability compared to a solar photovoltaic system. [66]

Table 1 shows how the different programs compare in terms of their capabilities and restrictions and highlights some key considerations for making a software choice: the HOMER and RET Screen programs system sizing but employ a relatively elementary optimization equation; the iHOGA program can size any system up to 10 kilowatts; the Hybrid2 program has some internal issues; and the TRNSYS program optimization is required for any generator sizing. As a result of this analysis, we can confidently state that HOMER and RET Screen are special programs for sizing hybrid renewable energy systems.

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Table 1: presents a comparison of several pieces of software [61,42].

Software	Advantage	Disadvantage
HOMER	1. Create a graph showing the efficacy of the findings. 2. Simple to comprehend	1.Based on linear equations of the first degree 2.Time-series data import failure.
iHOGA	1. Use either single- or multi-objective optimization. 2. Short simulation time steps.	1.Inability to analyze sensitivity and likelihood. 2.Constantly low use (10-kilowatt hours)
Hybrid2	1. Numerous electrical load choices 2. Option for Specific Dispatch	1.The lengthy computation duration 2.The project was written effectively; however, there were mistakes in the simulation.
RET Screen	1. Number one weather information resource 2. Excel-based instrument	1.fewer inputs of data 2.Time-series data cannot be imported.
TRNSYS	1. Simulation adaptability 2. The graphic accuracy is superb.	1.Certain types of generators, such as hydropower, cannot be modeled. 2.There is no optimization choice

3.2 A Conventional Approach to Sizing a HRES

Traditional techniques of sizing consist of four main components:

1. Analytical (Numerical) method (AM)
2. Iterative approach (IA)
3. Probabilistic method (PM)
4. Artificial intelligence methods (AI)

1. Analytical (Numerical) Method

In this approach, the hybrid System is modeled numerically, and its potential footprint is established accordingly [67]. Amos Madhloparesearched a hybrid system in South Africa using an analytical technique in 2015. The hybrid System consists of a solar generator and a wind turbine. The investigation aims to determine how the hybrid System may best optimize its water use efficiency. According to the findings, the hybrid central produces 100,000 MWh of electricity annually, at 0.97 euros per kWh, and 75,000 cubic meters of water annually [68].

2. Iterative Approach

This technique is an algorithm program that is based on a recursive process, and it comes to a conclusion when the best possible Design for the System is found. This approach was used by Camargo et al. to size a stand-alone hybrid system that was based on solar photovoltaic, wind power, and batteries to deliver electricity to a rural town in Brazil. The result of this investigation should be a system with both a low operating cost and a high degree of dependability.

Based on the results of the simulation, the optimal Design for a hybrid system consists of 0.5 kW of solar photovoltaic panels, three wind turbines with 0.6 kW output each, and five batteries with 1.2 kWh capacity each. The Brazilian real is the country's official currency, and the overall cost of this System comes to 25672.01 R$ [69], with an average unit cost of 1.044 R$ per kWh.

3. Probabilistic Approach

The influence of wind speed isolation and modifications made to the system design are considered by the probabilistic methodologies used to determine the size of an integrated system. This strategy is one of the most straightforward approaches to size, but the findings suggest that it is not always the most effective approach for locating the optimal answer.

Wen Hui Liu et al. uses the Probability-Power Pinch Analysis (P-PoPA) approach to create an algorithm to size solar photovoltaic, wind turbine, and biomass and battery systems. The findings indicate that the energy storage capacity and power rating of the storage system were maximized, while the amount of energy obtained from external sources was minimized [70].

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4. Artificial Intelligence

In the paper "A review on configurations, control and sizing methodologies of hybrid power systems," Subho Upadhyay defined artificial intelligence. He wrote: "Artificial intelligence is a term that in its broadest sense would mean the ability of a machine or artifact to perform similar kinds of functions that characterize human thought".

Researchers use many algorithms to determine the best size for a hybrid system. These include genetic algorithms [71], methods for differential evolution with many objectives [72], mine blast algorithms [73], particle swarm optimization [74], Algorithms for competing in multi-objective lineups [75], ant colony optimization [76], preferences sparked the development of coevolutionary algorithms [77, 78]. Artificial bee swarm algorithm [77], Improved fruit fly algorithm [78], A-Strong [79], bacterial food algorithm [80], artificial neural network [81], and fuzzy logic [82]. Biogeography based on optimization (BBO) [83], cuckoo search (CS) [84], discrete harmony search (DHS) [85], and simulated annealing-chaotic search [86]. The next table summarizes the various size approaches, including the various parts of the System and the objectives of each.

Table 2: provides a review of current research on the appropriate size.

Tools for Measuring	The module of the System	Goals and aims	Reference
AM	Photo-voltic/wind turbine	Low cost	69
IM	Photo-voltic/wind turbine /Battery	Power supply loss is low	68
PM	Photo-voltic/wind turbine /Biomass/Battery	Probability-Power pinch Analysis	70
GA	Photo-voltic/wind turbine /CSP	Low cost of energy is minimum	71
Multi-objective self-adaptive differential evolution algorithm (MOSaDE)	Photo-voltic/wind turbine /Diesel Generator/Battery	Cost of Electricity (COE) is low	72
Non-dominated sorting genetic algorithm (NSGA-II)	Photo-voltic/wind turbine /Battery	Minimum total cost	73
Mine blast algorithm (MBA)	Photo-voltic/wind turbine /Diesel Generator/Battery /Fuel cells /Hydrogen Tank (HT)	Total annual cost is low	74
Particle Swarm Optimization (PSO)	Photo-voltic/wind turbine /Battery	Minimize LCC	75
Multi-objective lineup competition algorithm (MLUCA)	Photo-voltic/wind turbine /Battery	Total Annual cost is low	76
ACO	DG/PV/Battery/WT	Total Annual cost is low	77
Preference-inspired coevolutionary algorithm (PICEA)	DG/PV/Battery/WT	Total Annual cost is low	78
Biogeography based on optimization (BBO)	DG/PV/Battery/WT	Total Annual cost is low	79
Cuckoo Search (CS)	Battery /PV	Total cost is munum	80
Discrete harmony search (DHS)	/Biodiesel/Battery/ PV/WT	Life cycle cost is minimum	81
Simulated annealing-chaotic search	PV /Battery/ WT	Life cycle cost is minimum	82
Artificial bee swarm algorithm	Fuel cells/ PV/WT/	Total cost in minmum	83
Improved fruit fly algorithm (IFFA)	/DG/Battery/ PV/WT	Cost and emissions	84
A-Strong	WT//PV/Battery	Cost and reliability	85

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Bacterial food algorithm		Cost and emission	86
Artificial Neural Networks (ANN)	PV/WT/Battery	Minimize total life cycle cost (TLCC)	87
Fuzzy logic	Battery/PV/WT/	annualized cost of the System is minimum	88

3.3 Comparison among Sizing Methods:

Their ease and speed of execution distinguish usual techniques; nevertheless, despite these benefits, traditional methods are restricted in their performance and analysis. This disadvantage may be ignored by using a technique based on artificial intelligence, which uses many objective functions to resolve complicated issues.

A simple technique employing a recursive procedure to find the optimal size system can tackle this issue iteratively, although this method has the drawback of ignoring certain crucial elements. Statistical approach size combines features rapidly with minimal adaptability that utilizes a basic numerical model. Artificial intelligence provides the finest possible outcomes for all complex methods compared to any other method. The intricacy of the algorithms used by this approach is the most daunting component of this problem. All complicated procedures can be solved with the help of machine learning.

Table 3: compares the various methods of sizing that may be utilized in hybrid systems [9,29,88].

Approaches	Benefits	Downsides
Analytical Method	Quickly	Lacking adaptability
Iterative Approach	Facilitated usage	Ignore numerous significant variables, such as a higher height for the wind turbines or a steeper tilt for the solar photovoltaic array.
Probabilistic Method	Simple in operation	The hybrid System cannot demonstrate flexibility.
Artificial Intelligence Method	Resolve a situation with several objectives.	Complex Procedure

5. Optimization Method Used for Hybrid Renewable Energy System

Many goals need to be optimized for hybrid systems, such as sizing, control, management, etc. This section compiles a list of the optimization strategies that have seen the greatest usage over the last several years. Classical techniques, AI, and hybrid methods are the three groups into which optimization strategies fall (figure 3).

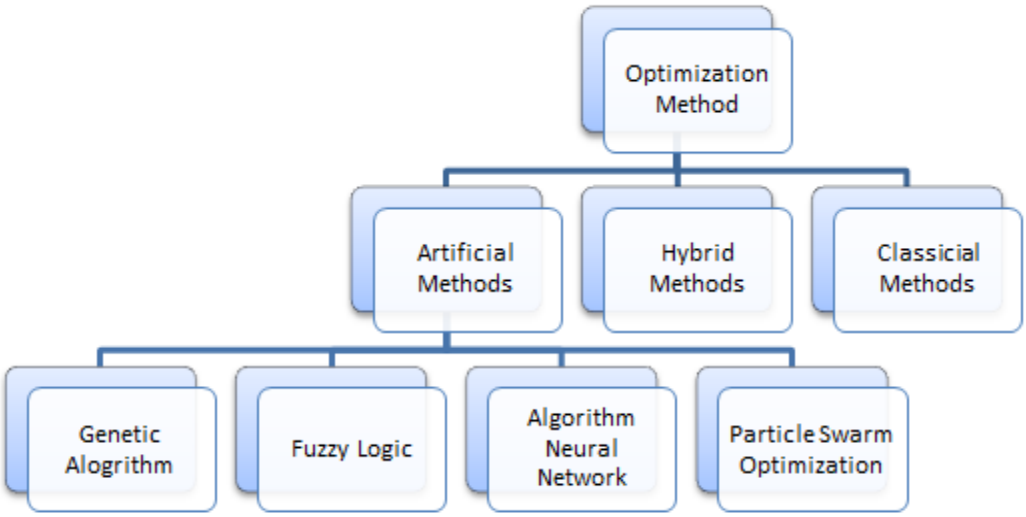

Fig 3: Optimization Method of HRES

4.1 Classical Method

According to [12, 89], the classical approach is defined as the technique that makes use of differential computation in such a manner as to arrive at the best possible result. These methods were used by researchers very seldom because of the limited space optimization they provided. Classical optimization techniques include the LPM(linear programming model) [90], multi-choice goal programming [91], MOEA (multi-objective evolutionary algorithms) [92], MILP (mixed integer linear programming) [93], DP (dynamic programming) [94], and the (NLP)(nonlinear programming) [95].

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4.2 Artificial Methods

The bulk of the artificial techniques covered in the sizing study are also utilized for optimization, although the ones highlighted here are the ones most often and lately used by academics.

4.2.1 Genetic Algorithm (GA)

The term "genetic algorithm" (GA) is a search algorithm that models biological evolution via genetic inheritance, mutation, and crossover mechanisms. John Holland, the original developer of the genetic algorithm, is mostly forgotten in today's use of the phrase "genetic algorithm" [96–98].

Bilal BO et al. employed a genetic algorithm to develop and optimize a hybrid system that supplies energy to remote parts of Senegal. This System included a generator powered by solar cells, a wind turbine, a diesel generator, and a storage device (battery). Both economic and environmental concerns will be addressed in this investigation. The first aim is to minimize the levelized rate of the System, and the next goal is to decrease the production of carbon dioxide and other greenhouse gases.[99-102].

4.2.2 Fizzy Logic

Suganthi et al. explain fuzzy logic in aneasy statement and inscribed: "Fuzzy logic deals with reality, and it is a form of much-valued logic" [103]. Fuzzy logic may be considered a mathematical theory of a fuzzy set.

To regulate the energy flow in a hybrid system that included solar photovoltaics, wind turbines, and batteries, Derrouazin et al. applied fuzzy logic multi-input-output. According to the findings, In a hybrid energy system, the electrical switch signals correctly and instantly conform to the power input that has been applied [104].

The adaptive neuro-fuzzy inference system (ANFIS) that adapts is only one example of the numerous fuzzy logic methods available [105], the fuzzy AHP(analytic hierarchy process) [106], the ANP [107], the fuzzy clustering [108], the fuzzy GA [109], the fuzzy TOPSIS [108], the fuzzy PSO [109], the fuzzy honey bee optimization [110], the Quantum behaved PSO[111], etc.

4.2.3 Neural Network Algorithm (NNA)

Many scientists believe that the superficial resemblance between the neural network algorithm, as Michael and Warne described, and the human brain's structure is overstated. The authors provide a technical explanation for the significance of neural networks by stating, "In engineering terms, what is important is that the ANNs can be trained to perform' a necessary action"[112]. In optimization, ANN may be used in a wide variety of methods.

Using ANN, Amirtharaj et al. [113] offer an approach they term AGONN, which combines ANN with anAGOA(adaptive grasshopper optimization algorithm) to identify optimum utilization and minimize switching loss in the System. Current, voltage, and power signal performance are all improved using the proposed method as compared to the grasshopper optimization algorithm (GOA), the CMBSNN(combined modified bat Search algorithm), and the WOANN (whale optimization artificial neural network).

4.2.4 Particle Swarm Optimization (PSO)

In this approacch, every particle (or animal) stands for an alternative, and the way it moves with varying locations and velocities throughout the area in three dimensions is crucial [114,115]. Hongtao et al. [116] used this technique in conjunction with a GA to optimize a solar/concentrator solar photovoltaic/battery hybrid system, and their results demonstrate the optimization across both financial and technical aspects (10.92% stationary behavior performance and 305.94 GWh strength output).

4.3 Hybrid Methods

Any approach that uses the strengths of many algorithms to compensate for the weaknesses of any one algorithm is considered a hybrid approach . Many new hybrid optimization techniques, such as simulated annealing and evolutionary algorithms, have emerged recently.

HSSA (Harmony Search-Based Simulated Annealing) [117], IHSCSA (Improved Harmony Search-Based Chaotic Simulated Annealing) [118], and Chaotic Search-Based Harmony Search Annealing (SA-CS) [119].

Furthermore, there are several hybrid approaches, such as the combination of Monte Carlo simulation with multi-energy balance/financial equations [120], GAPSO (genetic algorithm and particle swarm optimization) [121], MOCSA (multi-objective crow search algorithm) [122], GMDHMFOA (Group Method of Data Handling neural network and modified fruit fly optimization algorithm) [123], and so on.

4.4 Alternative of Optimization Techniques

Although optimization techniques are characterized by high performance, the ability to solve complicated procedures, and the capacity to apply many objective functions, the most prevalent disadvantage of all optimization methods is that they take too much time and are too complex.

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Classical techniques are the most helpful strategy in economic optimization; nevertheless, this method only allows for limited space in the optimization parameters. The artificial technique needs a high level of hardware performance to function well owing to the complicated processes and codes used; nevertheless, the benefits of this method include high levels of efficiency and speed along with excellent accuracy. Combining traditional and artificial approaches reveals a strategy characterized by high speed and resilience but also requires sophisticated Design and is difficult to create the proper code.

Table 4: for each optimization method present the advantage and disadvantage

Method	Advantages	Disadvantage
Hybrid	Able to solve multi objective problem Requires less time	Space optimization is limited
Classical	1. Energy Level is maximum 2. High convergence speed	1.Not Able to solve complex process
Artificial	1. Robustness 2. Convergence is quick	1.for designing the system is complex

5. Methods of Control in Renewable Energy Hybrid Systems

In general terms, the following parameters should be managed in every hybrid System [124-127]:

1. Stability means the System's voltage and frequency.

2. Protection, which refers to monitoring the flow of electricity.

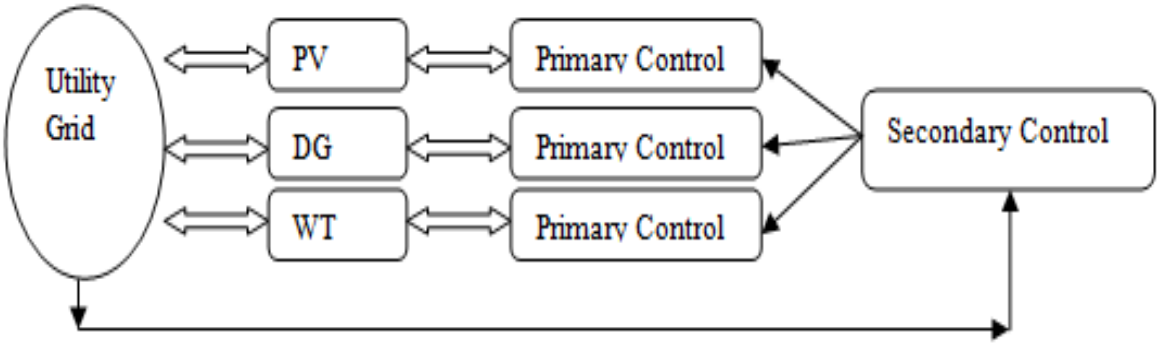
3. Power balance: the best allocation of load.

Some writers, such as Vivas et al. in [14], have categorized the secondary control of hybrid systems into three primary groups: centralized control (figure 4. a), distributed control (figure 4. b), and decentralized control (figure 4. c). In addition, Chong L.W. and colleagues have proposed yet another categorization, which categorizes control techniques that may be divided into two categories: intelligent control and classical control [128].

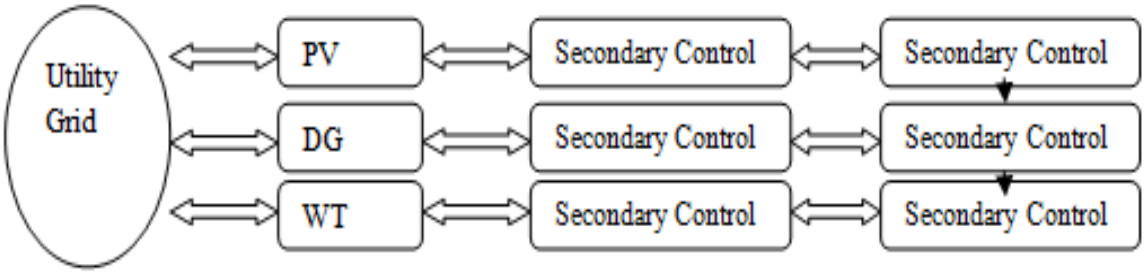
Wind turbine control methods includeMaximum power point tracking(MPPT) based on PSO [129], DPC-based voltage vector selection on the rotor side converter [130], and robust sliding mode pitch control [131].

MPPT based on GRNN (general regression neural network) [132], deep learning neural network for predicting power photovoltaic [133], and employing MPPT under partly shadowed situations [134] are only a few examples of the various control approaches used to enhance solar photovoltaic panel performance.

VC (Voltage control) [135], frequency control [136], and reactive power [137] have all received a significant amount of attention in recent diesel generator research.



A) Centralized Secondary Control



B) Distributed Secondary Control

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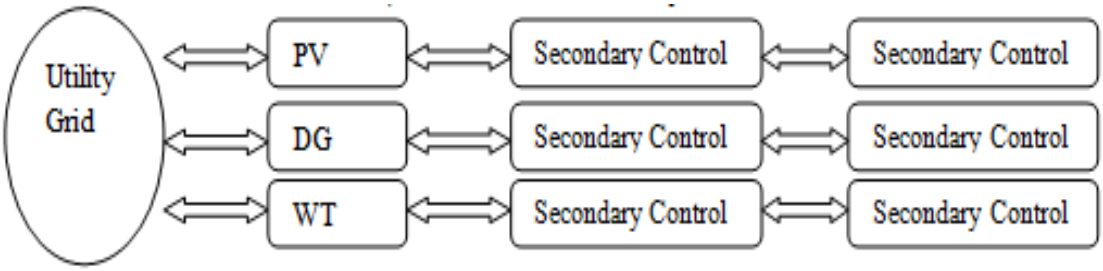

C) Decentralized Secondary Control

Figure 4: Concept of hybrid system control (A, B, C)[36]

Hybrid renewable power systems, however, may be regulated in various ways. Figure 4 depicts a variety of control strategies, including centralized [138], distributed [139], hybrid [140], and classical [141], such as rule-based [RBC] and proportional-integral [142] control. The conventional ways are the intelligent approaches, such as the neural network algorithm [143], the fuzzy logic controller [144], the multi-objective particle swarm optimization (PSO) [145], and the adaptive neuro-fuzzy inference system (ANFIS) [146].

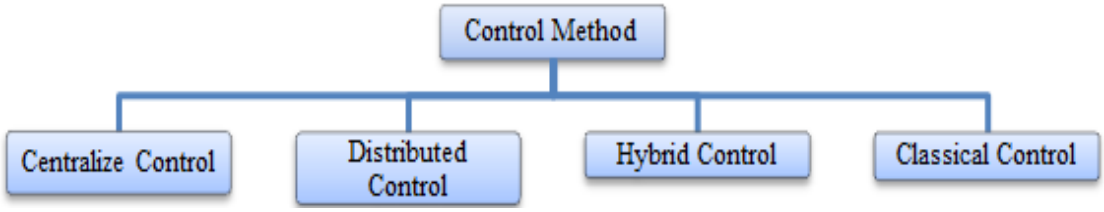

Fig 5: Control Method of HRES

Most hybrid systems employ some form of dispersed or hybrid control due to its many advantages over centralized control, including reduced risk of system failure, greater flexibility in how various forms of control can be implemented within a single system, and the ability to use both conventional and novel forms of control.

When this control style was applied to a small-scale hybrid renewable energy system, the centralized control showed great efficacy, improved performance, and simplicity in Design. In addition, centralized control's cost is appealing compared to distributed or hybrid control. Up to this point, there is a high risk that the System will be fully shut down if there is an issue with the generators or a scheduled repair. The following table provides a synopsis of the primary types of control.

Table 5: Advantage and disadvantages of each methods

Method of Control	Advantages	Drawbacks
Centralized	Power Cost is Minimum Global Optimization cab be achieve	One Central Control
Distributed	Chances of system failure is low	Lot of complex connection
Hybrid	Local optimization is achieved	Controlling system is complex

6. Management Method of Hybrid Renewable Energy System:-

Hybrid system management ensures high system efficiency and high reliability at the lowest possible cost, allowing for continuous system supply throughout the year [14], a longer lifespan for the System's components, and a decrease in economic parameters like total cost and marginal cost, among others (see Figure 6).

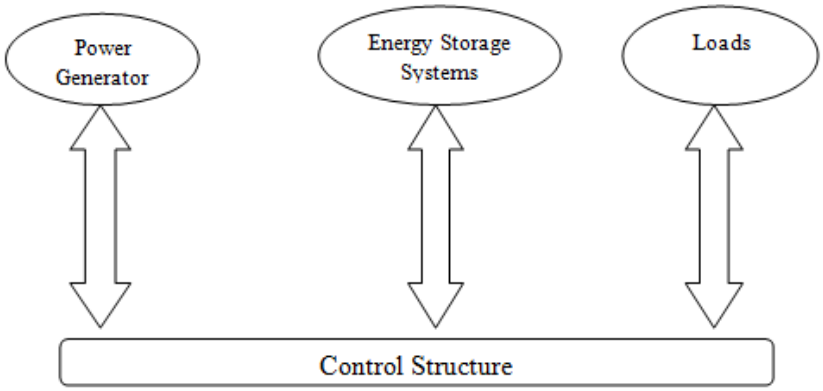

Fig 6: Controlling Structure

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Because of the importance of objective strategy, management techniques may be divided into three groups (figure 7) [36]:

1. Technical Objective Strategy
2. Economic Objective Strategy
3. Techno-economic objective strategy

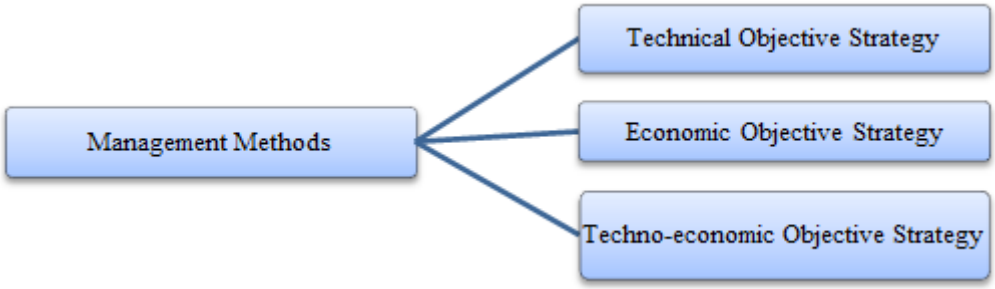

Fig 7: Management Methods of HRES

1. **Strategy with a Technical Objective**

The fundamental objective of this strategy is to take into account the technical characteristics of the hybrid System to satisfy the load demand [147], prolong the life of equipment [148], increase performance [149] and system stability [150] and prolong the life of the storage system [151]

(figure8). These variables are controlled using a variety of methods, including predictive control [152], PSO [153], real-time optimization [154], a neural network [155], and HOMERsoftware [156].

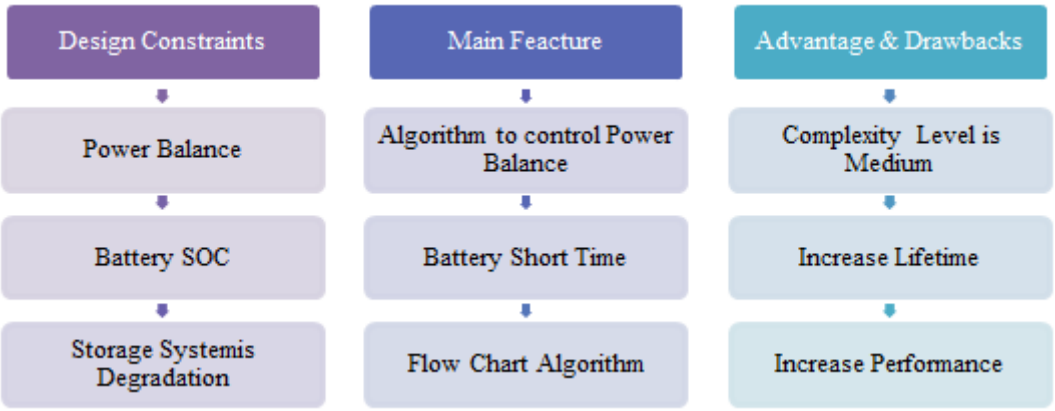

Figure 8: Show the Strategy with Technical Objectives

2. Economic Objective Strategy

The economic goals strategy refers to any strategy that takes into consideration specific criteria that influence the economic condition of the System independent of the System's current technical position (stability, performance, etc.) (figure 9) [36]. The coverage of demand and the reduction of system cost are the two primary goals of the major published studies in economic strategy. These goals were accomplished using a variety of algorithms, such as the generic algorithm [157], the differential evolution algorithm [158], the model predictive control, the mixed-integer linear programming [159], the fuzzy logic [160], the interior search algorithm [161], and also commercial software such as HOMER [162]. Etc.

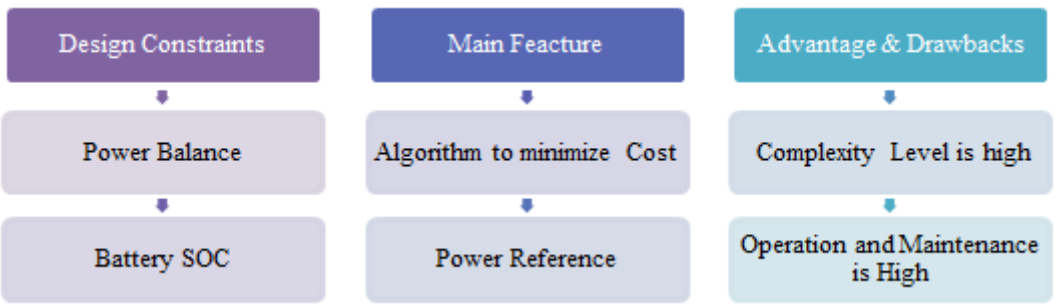

Fig 9: Shows the strategy for economic objective

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3. Techno-Economic Objective Strategy

This technique uses nonlinear optimization to solve multi-objective functions and incorporates technical and economic elements. Its foundation is in nonlinear optimization. The benefit of using this technique is that it allows for an improvement in the technical characteristics of the component, such as its performance and lifespan, while simultaneously reducing the economic parameters, such as the global cost (figure 9) [25]. Particle swarm optimization (PSO) [163] and fuzzy logic [135] are two examples of the types of algorithmic-based methodologies that are used extensively in this strategy. The flow chart [164], the artificial electric field algorithm [165], and the HOMER program [166] are a few examples of the many different ways that are used in this strategy.

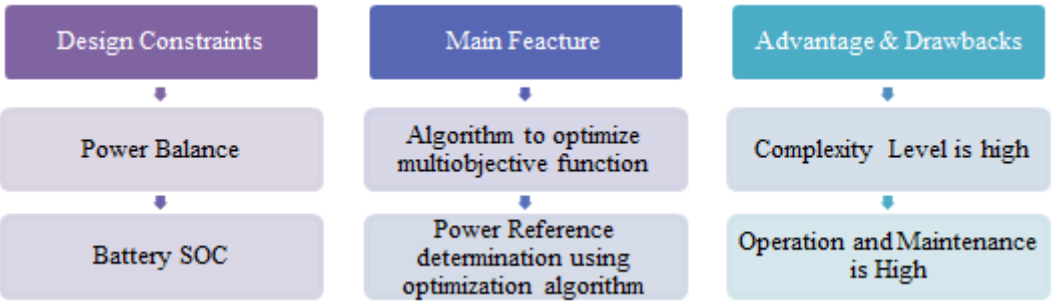

Fig 10: Objective for techno-economic strategy

7. CONCLUSION

Hybrid energy systems are largely accepted as a viable grid supply option. It has been shown that increasing the size of a system may reduce its overall cost, while decreasing the size of a power source can leave it without enough juice to run properly.

The most up-to-date study on sizing HRES often uses commercial software or more conventional methodologies. The former is more useful because of its speed and simplicity, whereas the later is limited since it uses just a single optimization equation. Traditional methods may be able to optimize a size field more quickly and with superior outcomes than commercial software, and they may also be able to deal with a multi-objective problem, but they are notoriously difficult to adapt to new circumstances.

According to a review of the relevant literature, three different methods have captured the interest of optimization specialists: the classical, the artificial, and the hybrid. Classical methods in techno-economic analysis are fast and accurate but at the cost of a constrained optimization space.

Due to their greater efficiency, high precision, and quick convergence, artificial approaches have become the most common option for optimization. However, these advantages do not come without certain limitations.

Hybrid methods optimize performance rapidly by combining the efficiency of traditional procedures with the accuracy and speed of artificial ones. Despite these pluses, hybrid systems aren't without their drawbacks. The intricacy of their Design and the difficulty of giving code is particularly vexing issues.

Both dispersed, and hybrid systems are widely used in hybrid system control. Centralized approaches are also possible. It is primarily distributed, and hybrid control is superior in many respects, including the ability to regulate each generator independently, the reduction of system failure, the extension of the life of the System, and the application of the most advanced control techniques to each component. However, the most bothersome part of this control is the extra complexity it introduces to internal system connections or the running of programs.

Although not universally agreed upon, techno-economic objectives are generally preferred by the research community because they ensure both technical (increase lifetime, cover consumption, improve performance) and economic (minimize System cost, enhance saving cost, reduce energy cost) analysis of a HRES to determine its most efficient setup. HRES may have their parts' efficiency tracked using everything from fuzzy logic and particle swarm optimization to neural networks and commercial software like HOMER.

These advantages of a renewable energy hybrid system for off-grid power generation, grid augmentation, pollution reduction, and cost savings in the energy sector were explored in this article. Sizing, optimization, control, and energy management are the key techniques along each axis, and their advantages and disadvantages were discussed. Key insights include the following:

1. HRES (when linked with a storage system, diesel generator, or fuel cell) may effectively meet energy demand in distant places using artificial methodologies or commercial software.
2. To improve HRES, many people turn to artificial methods like fuzzy logic, evolutionary algorithms, and artificial neural networks in addition to commercial software. Regarding optimized commercial applications, HOMER PRO and RETScreen come out on top.
3. Maximum power point tracking (MPPT) is the most common control method, often based on PSO, neural networks, and fuzzy logic to ensure system stability, protection, and power balance.
4. This study employs a method for managing a HRES based on machine learning, commercial software, and a neural network.
5. To achieve the best results in sizing, control, and energy management, it is necessary to use a variety of approaches in each study and compare them to one another to achieve the perfect functioning of the System and achieve the objective purposes of the research.

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AVAILABILITY, PRICES AND AFFORDABILITY OF ESSENTIAL MEDICINES IN A NORTH INDIAN STATE

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ABSTRACT
Medicines play a very important role for saving the human race from various communicable and non-communicable diseases. The human capital formation and growth of an economy is dependent on good health. Medicine prices played a very important role in determining compliance to treatment. If the medicine is provided at cheaper rates, but its availability is inadequate then the cheap prices will not serve the purpose. Adequate availability of essential medicines is of utmost importance and is one of the key components of universal health coverage. This paper is devoted to study the availability, prices and affordability of essential medicines in the state of Punjab. We have used the WHO – HAI methodology for the same. The essential medicines listed in the Punjab Essential Drug List (2017-18) have been used for the analysis. The data have been collected for 132 medicines from 18 Jan Aushadhi Kendra and from 29 private pharmacies. Overall the availability of essential medicines was low (less than 50%) across the sectors. The essential medicines had been procured at reasonable prices. Patient prices in the Jan Aushadhi Kendras were not excessive in the terms of Median Price Ratios. For majority of the items their medicine prices were acceptable (MPR ≤ 2.5) in the private sector. The cost of treatment and affordability data indicates that majority of the medicines were affordable for the target group (unskilled workers). It has been suggested to adopt more efficient procurement policies, increase consumer awareness about the efficiency of generic drugs and improve prescribing policies of doctors so that required medicines can be afforded by everyone.

Keywords: Essential Medicines, Availability, Prices, Affordability, WHO – HAI Methodology

INTRODUCTION
The constitution of World Health Organization **(WHO, 2006)** defines health as "the state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity". Health status of population has become a very important determinant of economic development of every nation. India's health sector lags far behind even to provide the basic aspects of health-care to its vast population. However, some of the health indicators have improved over time. Health, being a basic need **(Streeten et al., 1984)**, a consumption as well as an investment good **(Bloom & Canning , 2003)** is considered as a state subject and a very important component of United Nation's Millennium Development Goals, and hence constitutes an important determinant of development of a nation.

It is empirically proven and widely recognized that education and health impact the growth of an economy and providing accessible, affordable and equitable quality health care, especially to the marginalized and vulnerable sections of the population is one of the key objectives of the Government. **(Government of India, Economic Survey, 2015-16)** Health standard of the population is considered as an important indicator of development but quantitatively inadequate health services **(Planning Commission,12th FYP)** and heavy burden of diseases lead to thirty two and a half million people to fall below the national poverty line in a single year.**(Garg and Karan, 2005)** Hence, medical expenditure can have an impoverishing effect. **(Niëns et al., 2010)** In India, expenditure on medicines accounts for 50% to 80% of treatment costs.**(Srinivasan,2011)** The medicines form a large component of the healthcare out-of-pocket expenditure. **(Dror et al., 2008; Engelgau et al., 2012)**

It is argued that medicines are the most significant tool that society possesses to prevent, alleviate, and cure disease and a very large part of the world's population has inadequate or no access to essential and life-saving medicines. **(UN Millennium Project, 2005)** The role and relevance of medicines, vaccines and other supplies are critical, as these are considered to be important elements of the health-care system.**(Bigdeli et al., 2013).** Low availability, low affordability and high medicine prices make medicine not accessible to high percentage of population and lead to harmful effects on patient's health. **(Hogerzeil, H., 2006) (Perehudoff et al., 2010)** Access to safe, effective, quality and affordable medicines has been included into the Sustainable Development Goals (SDGs) of United Nations. **(United Nations, 2003)**

Human capital theory is premised on the notion that an increase in a person's stock of knowledge and health raises his or her productivity in both market and non-market activities. Like all capital, health depreciates over time and is assumed to do so at an increasing rate with age. **(World Bank, 1993)** According to **WHO Medicines Strategy (2004)** one third of the global population lacks reliable access to treatments in the form of needed medicines and for households in low-income countries, medicines represent 50%-90% of out-of-pocket

spending on health. Especially the availability and affordability of healthcare is a very pertinent issue taking into consideration that the Indian healthcare system is characterized by 70:70 paradox that is 70% of healthcare expenditure is incurred by people as out-of-pocket expenditure, of which 70% is being spent on medicines alone, because of this paradox people are suffering from indebtedness and impoverishment. **(Golechha, 2015)**

According to the High Level Expert Group Report on Universal Health Coverage for India **(GOI, 2011)** millions of Indian households have no access to medicines because they cannot afford them and the Indian health care sector faces three major challenges of accessibility, availability and affordability, which ultimately leads to very high out of pocket healthcare expenses. In the present paper, we will analyse the availability, prices, and affordability of essential medicines in the state of Punjab, India.

ESSENTIAL MEDICINES

The concept of "essential medicines" has evolved from military tradition, where medicines were very important part of goods to be carried into the battle zones **(Greene, 2011).** Before the participation of WHO in the essential medicine concept, governments had initiated task to fulfill the therapeutic needs of their residents by the provision of essential medicines **(Mirza, 2008)**. In 1963, Cuba launched a list of basic medicines **(Wirtz et al., 2017).** The Maurice King's revolutionary book in 1966 provided an international checklist of basic medicines **(King, 1966)**. After this, Tanzania and Peru introduced its national lists in 1970 and 1972, respectively. **(Wirtz et al., 2017)**. In 1977, WHO published the first WHO Model List of essential medicines, including 212 medicines. **(World Health Organization, 1977) WHO (2004)** defines essential medicines as those which fulfill the healthcare needs of the majority of the population and are selected with due regard to disease prevalence, evidence on efficacy and safety, and comparative cost- effectiveness. The Declaration of Alma Ata (1978) included the provision of essential medicines as an element of primary healthcare **(World Health Organization, 1978)**. Also essential medicines were considered as fundamental tool for preventing and treating diseases that are affecting millions of individuals throughout the globe **(Pillon, 2016)**. In 1977, WHO adopted the first Model List of Essential Drugs. **(World Health Organization, 1977)** The WHO Model List of Essential Medicines has been updated and revised in every 2 years by the WHO Expert Committee on Selection and the Use of Medicines. The latest (21st) Essential Medicine List was published in 2019. It includes 460 drugs that meet priority health needs globally. **(World Health Organization, 2019).**

In India, the first National Essential Medicine List was developed in 1996 **(Sharma et al., 2010)** and it has been revised over the period of time according to the disease pattern, prevalence and other factors. Current (4th) National Essential Medicines List of India was published in 2015 and comprised of 376 medicines categorized under thirty sections. **(GOI OR Ministry of Health and Family Welfare 2015)** However, the list is being improvised and many new drugs have been inserted in the original list thereafter. Indian states can also develop their own essential lists as per their requirements.

Data and Methodology used for Availability Analysis: In the present study, medicines listed in the Punjab Essential Drug List (2018) have been used in the analysis of medicine prices and availability. There were 218 medicines/ items in the Punjab Essential Drug list. The data have been collected from 18 Jan Aushadhi Kendra / Generic Drug Stores and from 29 private pharmacies. The Jan Aushadhi Stores are established under the 'Prathan Mantri Bhartiya Jan Aushadhi Pariyojana' to improve the access to medicine and at the time of the study, 39 Jan Aushadhi Kendras were working in Punjab. The Punjab State Essential Medicine List had 218 items that can be divided into six different parts. 132 out of 218 medicines were same in Jan Aushadhi Kendra / Generic Drug Stores medicine list and Punjab's essential medicine list. So we have collected data on 132 items from the Public and Private Sector that is from the Jan Aushadhi Kendra / Generic Drug Stores and Private Chemist Shops, respectively.

The availability of individual medicines is defined as the proportion of pharmacies in which the medicines were available at the time of the survey and the mean availability was calculated as the average percentage value from all medicines. **(Bertoldi et al., 2012)** In this study, the following ranges given by **Gelders et al. (2006)** have been used for describing availability:

♦	< 30% very low	♦	50–80% fairly high
♦	30–49% low	♦	>80% high

Z-Test for Two Proportions **(Afthanorhan et al., 2015)** has been used to know the statistical difference between the medicine availability of both the sectors.

Price Analysis : In the case of public sector the procurement prices (the prices at which the government procures medicines for free distribution) and the price of medicines prevailing in the surveyed Jan Aushadhi

Kendras (JAKs) has been collected. The medicine prices of 137 items has been compared with the International Reference Prices (IRP) given by Management Sciences for Health (MSH) **(Frye.,2016)** that serves as an external standard to facilitate national and international comparison. Out of our list of 218 essential medicines, for 137 IRP was available. Unfortunately the International Reference Prices (IRP) given by Management Sciences for Health (MSH) has not been published since 2016 (2015 Edition published in 2016). So we have to adjust the International Reference Prices for the year 2019. For this purpose we have used the Wholesale Price Index (WPI) for Manufacture of pharmaceuticals, medicinal chemical and botanical products. (For calendar year 2015-2019) The data collection was started in the month of October, 2019. So, the average exchange rate for the month of October, 2019 has been used to convert the IRP into Indian Rupees. For each available medicine, their median price has been calculated on per tablet basis, in the case of tablets or capsules and per milliliter or ml in the case of injections etc and then they have been compared with the IRP expressed as Median Price Ratios (MPR). By patient prices we mean the prices, a patient pays when he/she buys a medicine from a public or private sector pharmacy.

Out of 137 essential medicines for which IRP were available, 84 medicines in the public sector outlets and 127 MSBs and 90 LPGs were available in the private sector. In the case of Public procurement of medicines, for 107 items IRPs were available. So the MPR has been compared for this number of medicines only.

Medicine prices has been presented as median price ratio (MPR) i.e. the median unit price across the surveyed outlets divided by the International reference price, both in local currency. If MPR is 2, it means that the local medicines prices are two times greater than the international reference prices. **(WHO-HAI, 2008)**

$$Median\ Price\ \ Ratio\ (MPR) \quad = \quad \frac{Median\ Local\ unit\ price}{International\ Reference\ unit\ price}$$

MPR is the standard indicator to present the data that allow international comparisons.

The following cut-off points MPRs given by **Gelders et al. (2006)** represent acceptable local price ratios:

• Public sector – patient price: MPR ≤ 1.5

• Private retail pharmacy – patient price: MPR ≤ 2.5

MPRs above these values to represent excessive local prices.

Affordability Analysis: According to the WHO-HAI's methodology the medicine affordability should be measured for ordinary people, and for this purpose the wages of lowest paid unskilled government worker (LPGW) are being used. However, only a small number of people fall under this category of employment in Punjab, so we have assessed the affordability of agricultural labourers and other unskilled workers in unorganized sector. The medicines costing one day's wage or less (for a full course of treatment for an acute health condition or a 30 days' supply of medicines for chronic disease) is generally considered affordable. But the studies conducted in India by **Tripathi et al. (2005)** and **Patel et al. (2006)** has used less than 5 days' wage criteria for assessing the affordability of medicines. In this study we have examined the affordability by using both less than one days' wage criteria.

According to WHO- HAI's methodology the treatment cost for an episode of illness is compared to the daily wage of the LPGW (agricultural labourers and other unskilled workers in unorganized sector, in the present study) to determine the number of day's wages needed to pay for the cost of treatment.

FINDINGS

1.1 Availability of Essential Medicines: The average availability of medicines was suboptimal / inadequate in all the sectors. Medicine availability in the public sector was only 37.12 %. In the case of private sector medicine availability, it was 43.86% for Most Sold Brand products (MSBs) and only 17.61 % for Lowest Priced Generics (LPGs).**(Figure no. 1)** It was observed that the availability of MSBs and LPGs was 43.86 and 17.61%, respectively. (Table no.2, Figure no. 1) The availability of MSB products was significantly higher than LPGs (z value = 24.34) and medicines found in the Public Sector (z value = 5.24). Public Sector availability was also significantly higher than the LPGs (z value = 17.24).

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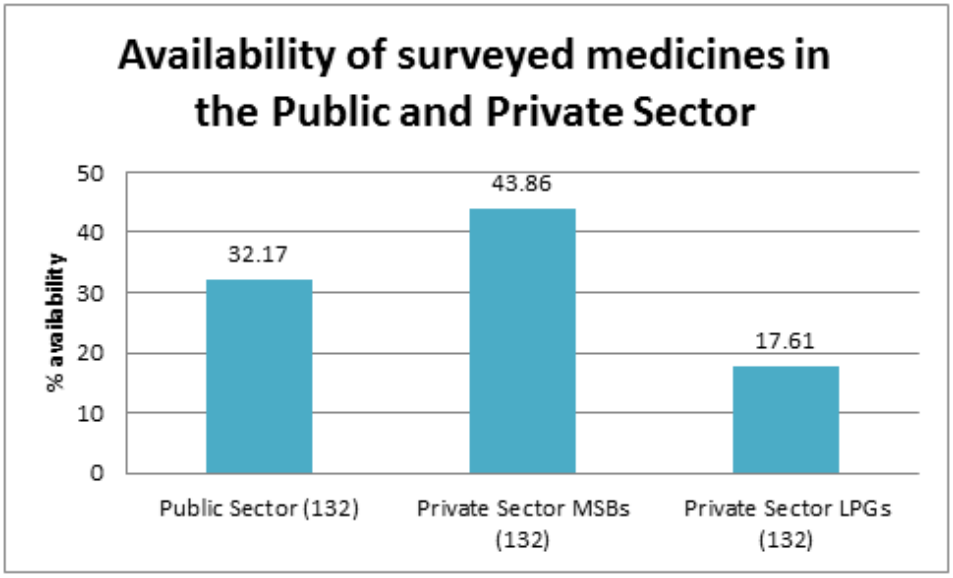
Figure no. 1 : Availability of surveyed medicines in the Public sector JAKs and Private Sector MSBs and LPGs in Punjab



Source: Field survey

1.2 Availability of medicines/items in different forms: In this section the medicine availability has been reported under different type of medicine forms such as Injections, IV Fluids, Ear/ Eye/ Nasal drops, tablets or capsules, creams / solutions and syrups / suspensions. **(Table no.2)**

Table no. 2: Availability of medicines in different forms

Section/ Categories		Medicine availability in Public Sector		Medicine availability in Private Sector	
		No. of Medicines	% Availability	% Avail-ability MSBs	% Avail-ability LPGs
1.	Injections	33	18.69	29.89	3.45
2.	I.V. Fluids	08	11.81	34.05	16.81
3.	Ear/ Eye / Nasal Drops	02	36.11	29.31	12.07
4.	Tablets / capsules	71	47.18	49.20	21.37
5.	Creams / solutions	07	40.48	52.71	17.24
6.	Syrups / suspensions	11	42.94	56.11	24.76

Source: Filed survey

(1) Availability of Injections: This part included 33 injections that can be divided into fifteen different therapeutic categories. The mean availability of injections was found to be very low in both the sectors. Overall the availability of Injections was significantly higher in the MSBs than the LPGs and Public Sector. Fairly high i.e. more than 50% availability was observed for only one item- Injection Human Insulin in the MSBs form. No injection was available for the Psychotherapic category in any private sector/ medicine outlet visited/ surveyed.

(II) I.V.Fluids: This category includes 11 items for private sector and 8 for the public sector that can be divided into 4 categories. The availability of these fluids was very low/ poor across the sectors. 4 of them in the public sector and 3 in the LPG form were not at all available. Only Dextrose 5% was available at a fairly high level in the MSB form. The overall availability was low for the public sector and very low for the private sector. Overall the availability of I.V. Fluids was significantly higher in the MSBs than the LPGs and Public Sector.

(III) Ophthalmological medicines: There were only two and three items under this division/ part/ category for the Public and Private sector respectively . The availability of Xylometazolino nasal drops was at fairly high level in the public sector but very low in the private sector. Gentamycin eye/ear drops were comparatively more available in private MSBs sector than others. Overall availability of these items/products was low for public sector and very low for the private sector. Overall the availability of Injections was not significantly different in the Public Sector and Private sector MSBs.

(IV) Availability of Tablets and capsules: This section includes 95 tablets and capsules that can be divided into 18 categories for the private sector. Tablets/capsules can be divided into 18 categories. In the case of Public sector there were 71 tablets/ capsules categorized in 16 parts. Overall the availability of tablets /capsules was

low (less than 48%) across the sectors. Overall the availability of tablets and capsules was significantly higher in the Public Sector than the Private Sector MSBs.

(V) Availability of Solutions, Creams and Applications: The private sector medicine availability analysis included 18 items, that can be divided into five categories. In the case of the public sector only 7 items under 3 categories were included. The overall availability was low for the private sector MSBs and medicines found in the public sector and very low for LPGs. Overall the availability of these items was not significantly different in the OB and Public Sector.

(VI) Availability of Syrups/Suspensions: In the case of private sector analysis, there were 21 items that can be divided into 9 categories. For the public sector 11 items were included for the analysis that can be divided into 6 categories. The overall availability was very low for LPGs. For MSBs and the medicines found in the public sector the availability was low (less than 46%). Overall the availability of Syrups/Suspensions was not significantly different or higher in the in Public Sector than the MSBs.

1.3 Reasons for Low Availability of Medicines

- Generally private medicine outlets do not keep the Psychotherapic medicines.
- The availability data refers to the day of collection at each surveyed outlet (public or private) and do not reflect the average monthly availability of that particular outlet. But it has been pointed out by Kotwani and Holloway (2013) that since the survey is conducted in several outlets over a period of time thus the data provide a reasonable estimate of the overall situation and is indicative of the real-life situation faced by the patients on a daily basis.

2. Essential medicine prices in the State of Punjab: Overall median price ratios of surveyed medicines to MSH reference prices varied from 0.01 to 11.53 i.e. the prices of medicines to a patient in Punjab (India) varied between 79.03 times less to 11.53 times more than the price listed in the International Reference Price guide. Innovator Brand products or Most Sold Branded medicines showed a great variation from 0.04 to 11.53. The Lowest Priced Generics showed lesser variation ranging from 0.02 to 3.36. 78 of the 84 (93%) medicines found in the public sector Jan Aushadhi Kendras (JAKs) have MPR less than 1 which indicates that the patients are purchasing these medicines at very reasonable rates. The Punjab govt. has been procuring medicines (107 medicines for which price data was available) at the median MPR of 0.29. This indicates that the govt. is procuring medicines at very reasonable /efficient prices. **(Table no.2, Figure no.1)** 24 (19%) out of 127 Innovator Brand or Most Sold Brand products and 3 (3.33%) LPGs out of 90 products fell into excessively priced medicines. **(Table no.3)**

Table no.2: Median Prices Ratios (MPR) in Public and Private Sector

Sector	Type and No. of medicines	Median MPR	25th percentile	75th percentile	Minimum MPR	Maximum MPR
Public	JAK (n = 84)*	0.45	0.22	0.75	0.01	1.89
	Procurement (n = 107)	0.29	0.17	0.41	0.02	3.82
Private	MSBs (n = 127)	1.13	0.60	1.93	0.04	11.53
	LPGs (n = 90)	0.68	0.33	1.03	0.02	3.36

Source: Field survey

Note: Jan Aushadhi Kendras are denoted as JAKs Most Sold Branded Medicines are denoted as MSBs
Lowest Priced Generic medicines are denoted as LPGs *the number in the parenthesis indicates the number of medicines/items for which the median prices or the results has been compared.

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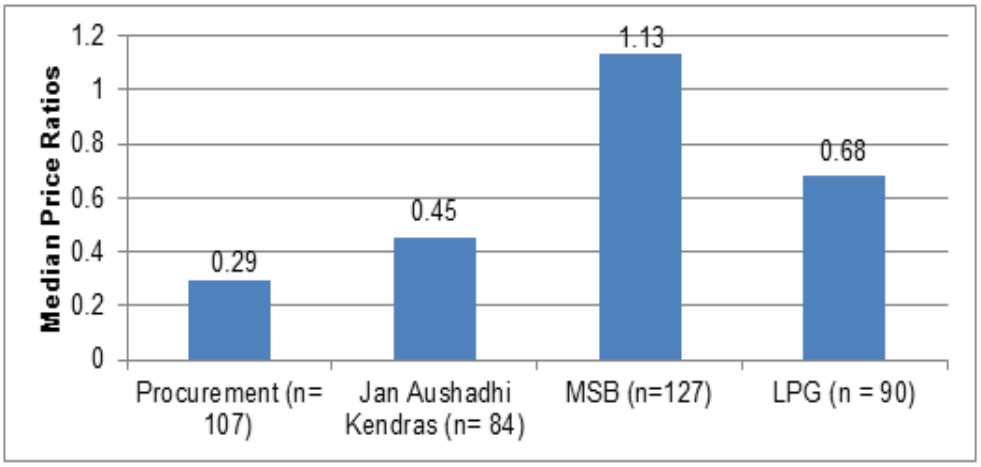
Figure no.1: Median Price Ratios in the Public and Private sector of Punjab



Source: Field Survey

Table No.3: Comparison of number of medicines with different range of median MPR in both sectors

MPR	Public Procurement	Public Sector Outlets (JAK) (84)	MSBs (127)	LPGs (90)
≤ 1	105 (98%)	78 (93%)	56 (44%)	66(73%)
> 1 to 2	–	6 (7%)	40 (31%)	17 (19%)
> 2 to 2.5	1 (1%)	–	07 (6%)	04 (4%)
≥ 2.5	1 (1%)	–	24 (19%)	03 (3%)

Source: Field survey

3. Affordability of Medicines: For the affordability analysis, some common diseases such as Hypertension, Diabetes, Asthma, Arthritis, Anxiety, Anaemia, Diarrhea, Fever (Paediatric), Acute Respiratory Infection (Adult and Paediatric), Bacterial Infection, Gonorrhoea, Epilepsy (a common neurological disorder), and Peptic ulcer has been considered. The affordability has been measured on the basis of the average daily wage (267.9 rupees) of unskilled agricultural and other workers. The cost of treatment and affordability data indicates that the majority of the medicines (MSB, LPGs, and medicines bought from JAKs) were affordable (cost less than one days' wage) for the target group (unskilled workers). In the case of MSB Tab. Glimipride 2mg (used in Diabetes) and Injection Ceftriaxone 1g (used in bacterial infections), the treatment costs more than one days' wages. In other words, the treatment with these two items was unaffordable for the surveyed respondents.

We have to interpret the medicine affordability results keeping in mind that medicines are affordable, only for those people who are earning minimum wages of 270 rupees per day.

DISCUSSION

According to essential medicine definition essential medicines should be 100 per cent available at all times in all the facilities.**(Kotwani et al., 2007) Kotwani et al. (2007)** evaluated the price and availability of common medicines at six sites in India and observed lesser (availability of core medicines ranged between 0 to 30%) availability of medicines in the public sector. A similar study **(Swain et al., 2015)** conducted for child specific medicines in Odisha revealed that the mean medicine availability for public sector and private sector LPGs was only 17% and 38.5%. Another study meant for children's medicine in Chhattisgarh **(KR et al., 2012)** observed that the mean availability in the public and private sector retail pharmacies and other profit-making outlets was suboptimal (17%) and inadequate (46 and 35%), respectively. **Prinja et al. (2015)** observed the mean availability of medicines related with more than 21 therapeutic categories was 45.2 and 51.1 % available in the public health facilities of Punjab and Haryana, respectively. Similarly **Tripathi et al. (2018)** examined the access and availability of prescribed medicines in the public sector health facilities of Chhattisgarh and found 58% of these medicines available on the day of data collection.

SUMMARY

As we have discussed that the procurement / patient prices of the surveyed essential medicines are reasonable. However, only reasonable medicine prices will not serve the purpose, these medicines should also be sufficiently available. The present study observed that the average availability of medicines was suboptimal / inadequate (below 40%) in all the sectors. The availability was significantly higher in the public sector than in the private sector. The availability of LPGs was significantly less than MSBs and medicines found in the Public Sector. Only a few (12 and 6) medicines had fulfilled WHO's criteria of optimal availability (Ewen et al., 2019)

i.e. they were more than 80% available in the public sector and as MSB. Not a single LPG medicine was available at a high level. Only 34 medicines had fairly high availability in the public sector. Tab. Metformin 500mg was available in every public medicine outlet visited.

The average availability of different item groups such as injections, I.V. Fluids, tablets etc was not optimal across sectors. For the majority of therapeutic categories, the medicine availability ranged from very low to low the public sector generic drugs and private sector MSBs. For all the 28 categories, LPGs were available at a very low level. The majority of the medicines found in the public sector Jan Aushadhi Kendras (JAKs) have very reasonable rates. The surveyed essential medicines are being procured at reasonable prices in Punjab. For majority of the branded items/ products, the medicine prices were acceptable. Only 19% and 3% of MSB and LPG items had excessive local prices, respectively.

In the case of some medicines, the Public sector procurement prices have been greater than the public sector (Jan Aushadhi Kendras) patient prices, MSBs as well as LPGs. For a small number of items, no price difference was observed between MSBs and LPGs. In the case of some medicines, the median price in the Public sector has been greater than the MSBs and LPGs. According to the WHO- HAI methodology, the cost of treatment and affordability data indicates that the majority of the medicines (MSB, LPGs and medicines bought from JAKs) was affordable (cost less than one days' wage) for the target group (unskilled workers).

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A STUDY OF HYBRID WORKING AND ITS IMPACT ON CULTURE AND PRODUCTIVITY OF TEACHERS WITH REFERENCE TO INDIAN EDUCATION SECTOR

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ABSTRACT
Education is the building block of any nation; it builds skills, habits, knowledge and mind of the child. Any nation cannot afford the discontinuation of its education system. Health is also a major concern for any nation and keeping its countrymen healthy is the responsibility of the nation's government. The study aimsto know the teacher's perception and its impact on online teaching productivity during COVID – 19 Pandemic.An online questionnaire was prepared and distributed to 100 teaching professionals in higher education through online from which 65 responses were received and analysed. Study analysed the impact of hybrid working on culture of online classes. as well as teacher productivity. Google meet is the most commonly used for providing education through digital platform.

INTRODUCTION
During the pandemic, online learning has become a popular trend, and educational institutions have planned to involve the students online using various readily accessible social media apps. By giving the pupils a variety of homework assignments, online education has begun to keep the students entertained and occupied during lockdown.

As a form of distant education, online teaching and learning is an educational process that occurs through the Internet. Technology has played and will continue to play a significant part in the growth and development of online learning. As a result, the use of online resources has reportedly increased at numerous universities. Numerous initiatives have been made over the past ten years to incorporate new Internet technologies into higher education's teaching and learning procedures.

Online access to higher education has made degrees that were previously impossible to obtain for working professionals, military instructors in remote locations, and residents of rural places possible. In addition, many traditional organisations indicate that a significant portion of their online areas are occupied by residential students wishing to increase their course load or take advantage of the flexible planning and accommodations of online projects. The COVID-19 pandemic in India is a component of the global coronavirus disease pandemic of 2019, which is brought on by a coronavirus that causes severe acute respiratory syndrome. As of May 2021, India had the second-highest number of COVID-19 infection cases reported worldwide, with approximately 24 million cases confirmed, and a higher fatality rate.The respiratory disease in a group of persons in Wuhan, Hubei, China, which was reported to the WHO on December 31, 2019, was caused by a new coronavirus, according to the WHO.

LITERATURE REVIEW
Laachir, Abdelouahed, Elhassane El Hilali, Mohammed Moubtassime, and Abderrahim El Karfa (2023) The purpose of this paper is to investigate the E-learning process and challenges faced by students in the sixth semester of the English department at Moulay Ismail University in Meknes, Morocco. The discoveries exhibit that most understudies are disappointed with remote learning and accept it has harmed their scholastic execution. The outcomes lead us to the acknowledgment that a gigantic change must be made to the Moroccan school system.

Huat, Tan Seng, Ling, Goh Mei, Fern, Yeo Sook, and Chin, Elaine Ang Hwee (2022). Based on the Unified Theory of Acceptance and Use of Technology (UTAUT) framework, this study aims to examine the factors that influence the attitude of primary school teachers toward online teaching.Except for facilitating conditions, the findings indicate that school teachers' attitudes toward online classes are significantly influenced by performance expectancy, effort expectancy, and social influence. It was discovered that performance expectancy was a significant predictor.

Zhu, Xinhong, and Zheng, Taoyun(2021) conducted this study with the intention of evaluating the efficacy of both in-person and online surgical nursing instruction in undergraduate nursing education. This study uncovers that 45.1% understudies held nonpartisan disposition towards online course of Careful Nursing.

Babita Dubey and Shivendra Singh (2020) described teachers' perceptions of and experiences teaching students online during lockdown. According to the study, teachers believe that online education is actually broadening

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their knowledge and increasing their technical knowledge. However, teachers also work longer hours as a result of the reduced communication gap between students and teachers throughout the day thanks to the online connection.

KhadjiaAlhumaid, Sana Ali AnbreenWaheedErum Zahid, and Mohammed Habes (2019) investigated teachers' perceptions of online learning as a replacement for traditional education. During Covid 19 in Pakistan, the findings showed a positive correlation between technology acceptance and e-learning.

NEED FOR THE STUDY:

Education is a nation's foundation; It develops the child's mind, habits, skills, and knowledge. The impact of Covid-19 on online education is the subject of this special investigation. It explores the causes behind the Coronavirus pandemic and in the end influences on the understudies. The study would give readers a chance to think about how they know about students, parents, and teachers during the pandemic in order to choose the best ways to carry out subsequent studies correctly.

OBJECTIVE:

To learn about the perception of teachers and how it affects online teaching productivity during the COVID-19 pandemic.

METHODOLOGY OF THE STUDY

This empirical study was carried out at the Colleges of Agra city. Helpful Inspecting technique has been embraced to gather the information from the complete populace. A questionnaire was created and sent out online to 100 higher education teaching professionals; 60 responses were received and analyzed. Devices like Basic Rate examination, Chi-Square Test, Rank investigation and Likert Scale examination were utilized in the review to dissect the view of internet showing in advanced education.

Analysis & Interpretation

S.No	Demographic Factor	Labels	No.of Respondents	Percentage (%)
1.	Gender	Male	36	60
		Female	24	40
2.	Age	25years to 35years	18	30
		35years to 40years	15	25
		40years to 50years	17	28.33
		Above50years	10	16.67
3.	Designation	Guestlecturer	12	20
		AssistantProfessor	11	18.33
		Associate Professor	16	26.67
		Professor	21	35
4.	Type of Institution	Government	38	63.33
		Private	22	26.67
5.	Teaching Experience	Upto 5years	**12**	**20**
		5years to 10years	11	18.33
		10years to 15years	16	26.67
		Above15years	21	35
6.	Frequencyof Online Classes	Once in a week	10	16.67
		Twicein a week	**12**	**20**
		Thricein a week	28	46.67
		Morethan thriceina week	10	16.66
7.	Modeof Communication	Zoom App	15	25
		Google Meet	25	41.67
		Skype	04	6.66
		MS-Teams	10	16.67
		Others	06	10

Does hybrid working of teachers impact on culture of online classes?

Level of acceptance	Frequency	Percentage	Cumulative %
Strongly Disagree	04	**6.67**	**6.67**
Disagree	11	18.33	25.00

Undecided	10	16.67	41.67
Agree	15	25.00	66.67
Strongly Agree	20	33.33	100
Total	**60**		

Interpretation

The table above shows that 6.67 % of the respondents arestrongly Disagree, 25.00 % of the respondents showing Disagree Also, we have 41.67 % of the respondents who are undecided, 66.67 % of the respondents who are undecided and 33.33 %of the respondents who strongly agree that hybrid working and culture of online classes after pandemic phase.

Ho: There is no correlation between hybrid working and culture of online classes after pandemic phase

Scales	Observed Frequency	Expected Frequency	(O-E)2	(O-E)2/E
Strongly agree	04	12	64	5.33
Disagree	11	12	01	0.08
Undecided	10	12	04	0.33
Agree	15	12	09	.75
Strongly disagree	20	12	64	5.33
	60			

Source: Author Calculation

Interpretation

Calculated value of chi-square at 4 degree of freedom is 11.82. Since the calculated value i.e. 11.82 is greater than the tabular value i.e. 9.49. The null hypothesis is rejected and alternate hypothesis is accepted. It indicates that, there is relationship between hybrid working and culture of online classes after pandemic phase.

Does flexibility in hybrid working impact teachers' productivity?

Level of acceptance	Frequency	Percentage	Cumulative %
Strongly Disagree	11	**18.33**	**18.33**
Disagree	09	15.00	33.33
Undecided	12	20.00	53.33
Agree	18	30.00	83.33
Strongly Agree	10	16.67	100
Total	**60**	**100**	

Interpretation

The table above shows that 18.33% of the respondents arestrongly Disagree, 15.00% of the respondents showing Disagree Also, we have 20.00% of the respondents who are undecided,30.00% of the respondents who are undecided and 16.67%of the respondents who strongly agree that hybrid workingaremade an impact on teacher's productivity.

Ho: There is no correlation between hybrid working andteachers productivity post pandemic phase.

Scales	Observed Frequency	Expected Frequency	(O-E)2	(O-E)2/E
Strongly agree	11	12	01	0.08
Disagree	09	12	09	0.75
Undecided	12	12	00	0.00
Agree	18	12	36	3.00
Strongly disagree	10	12	04	0.33
	60			4.16

Source: Author Calculation

Interpretation:

Calculated value of chi-square at 4 degree of freedom is 4.16. Since the calculated valuei.e.4.16is less than the tabular value i.e. 9.49. The null hypothesis is rejected. It indicates that, There is correlation between hybrid working and teachers productivity post pandemic phase..

FINDINGS

1. Most of the respondents were male

2. Majority (34%) of the respondents age group is between 25 years to 35 years.
3. 41% of the respondent's designation is Assistant Professor.
4. Mostly (80%) of the respondents work in Private Institutions.
5. Nearly 45 % of the respondents have the teaching experiences of 10 -15 years.
6. Majority (47 %) have online classes more than thrice in a week.
7. Mostly 35 % of the respondent's mode of communication is through goggle meet with the students.

SUGGESTIONS

1. The teachers can stay flexible and be ready to adjust deadlines and grading policies and deadlines in response to student needs.
2. Students can be asked to lead discussions during online classes.
3. Some students will be unresponsive so the teachers can have a plan for reaching out to them.
4. Teachers can put extra effort to ensure the students to understand what is expected of them.

CONCLUSION

As the Establishments are moving to online guidance despite Coronavirus, academicians are battling with teaching subjects on the web. When compared to face-to-face instruction, high-quality online instruction is more challenging and demanding. It necessitates greater preparation in advance, as well as more individualized feedback and assistance. Even though online learning faces a number of obstacles, such as a lack of student feedback and the right technology, these obstacles can be overcome by upgrading e-learning systems, using online discussion forums, and using new web-based software.

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TRIBAL COMMUNITY WANT TO READ

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ABSTRACT
Scheduled Tribes are defined in Article 342 of the Constitution of India. In this section, it was said that the people belonging to all communities are indigenous, have their own culture, and are separated geographically. They are called Scheduled Tribes or Scheduled Tribes. 8.9% of the total population in India, the number is not less. In a democratic country like ours, some constitutional safeguards are normally provided for this weaker section, these constitutional safeguards are

1. Article 14 of the Constitution provides for equal treatment and equal rights in the eyes of the law.

2. Article 15(4) of the Constitution entitles all States to provide special facilities to SC, ST, and OBC who are socially and educationally backward, according to circumstances.

3. Article 16(4) of the Constitution entitles the State to special reservation for the backward people in the field of scholarship. At present this reservation has been extended to admissions in higher education as well. Apart from this, special privileges are given to SC, ST and Other Backward (OBC) people through various Articles of the Constitution like- 17, 46, 275(1), 330, 340, 341, 342, 244 (1) etc.

Despite the above-mentioned opportunities, we see that the tribals are lagging behind, so where is the real problem, what is our attitude towards their education, how can we take them forward, how can we make them an educated citizen in the society by giving them opportunities, and contribute for the better society. We all want an equal society where no one is left behind. This paper shows the difficulties faced by the tribes and social and governmental facilities for them in terms of education ,job and society but despite all these things there occurs certain gap between the opportunities given and the out come the gap lies basically in the social mind set that we bear for prolong time and some how in the twenty first centuries we cannot get rid of it .this paper shows a few plausible solutions for the betterment and equal treatment for all irrespective of any one in society especially for the tribes

Keyword: Scheduled Tribes, Constitutional safeguards, special privileges, education, social mindset.

INTRODUCTION
Commencement day of the first organized mass struggle in the history of India — 30 June. It may not be a coincidence: this day also coincides with the first assessment period after the post-corona school year and the long imposed, summer break of 2022. The day is hull day. It is now celebrated every year to commemorate the Santal uprising of 1855 - the government also participates in this celebration. Suddenly, on the evening of June 29, a notice came that there would be no examination the next day on the occasion of Hull Day. By the time the news came, there was no way to inform the students. The next day a strange situation, in the meantime some school authorities said, there is not a single adivasi in our school, so why should we stop the examination? When it was said that it was not just a 'Maji' event, it was India's first organized public uprising, then the history was shocked and the message spread on WhatsApp saying 'after midnight all schools are closed'. It is easy to imagine what has happened to the education of the adivasis by seeing how this extremely vulgar joke has become a source of mass laughter among the teachers.

Picture One
According to the 2011 census, the literacy rate in West Bengal is 76 percent. The tribal literacy rate in all of India is 59 percent. In West Bengal it is 58 percent. 6 percent of the population of West Bengal are tribals. Five percent of India's total tribal population lives in West Bengal. The difference in literacy rate between the total population and Scheduled Tribes in the country as a whole is 14 per cent, while in West Bengal it is 18 per cent.

The general opinion regarding the education of the tribals is that education will not be given to them. This is considered as a racial and cultural defect. Few people feel the responsibility of the state or the larger society as the cause of backwardness. Of course, lately a kind of sympathetic climate has been created through various programs at the government level, there are no accusations of being 'appeased' like the odd Muslim.

Although a substantial number of indigenous children are found at the entrance to the overall structure of schooling, far fewer reach the final exit-point. If the primary school is in a tribal area, if it has one or two friendly teachers, it is possible to come and go to school. The word kind is important here. Direct experience

has shown that a Bengali head teacher with just one colleague has created a wonderful world with students learning Saotali language. He was so successful that the Officer-in-Charge of various Sub-Divisions came to visit the school. There are also schools where mid-day meals are served with a boiled egg over dry rice. If you ask why it is not good, the answer is, they have to be there. Can any word sit here without the heartless? Maybe that's why the mid-day meal had to be prepared for the week.

Mother tongue is mother's milk in education, how many poems, how much excitement, how many discussions about this. But I don't see mothers in Bengal being worried about the fact that so many people in Bengal are not able to learn their mother tongue like Saotali, Kurukh, Mundari, Sadri etc. There is no doubt that there can be no substitute for mother tongue in the beginning. It is also essential that the teacher should also know the language. The process of switching from mother tongue to another language should also be properly implemented. Alchiki is a painstaking script. But if there is no opportunity to take it to the higher level of education, according to many people, it is practical to practice language learning in Bengali Baroman or Devanagari or Oriya script.

Merit is the criterion for admission to higher education, there should be no compromise with it - this saying keeps repeating itself in the so-called educated public. Even those who teach in schools and colleges, believe in science and ethics built on this peculiar need of class interests. They also want that teaching becomes easier if there are a few students who have passed in the class. But to look at the large number of students who are dropping out of this education

Picture Two

Having a teacher made the matter even brighter. Many do not want to go home on vacation, especially older girls. The reason, of course, is the lack of food in the house, the second being the fear of hard, life-sucking manual labor. The tribals work in the fields. The traditional image of 'chash kari anande' does not instill any joy in these children.

The Santal family also has some influence because among the tribal groups they are numerically and with little help in political history, the vanguard. There are some of them in various offices, they have some presence in the education sector, but other communities like Kora, Lodha, Mahali — their situation is more difficult. First of all, the department is upset with their caste determination, and the position of another language group in the school is dire. These students go to school, sit in a corner and eat mid-day meal. comes back,The minority and scheduled caste enrollment is almost 100 per cent when it comes to applying for scholarships. But almost all the people belonging to the ethnic group failed to apply in time. Recently due to ‘Duare Sarkar’ many people are aware about the caste certificate, but still there are reports of many people not getting the certificate. Then there is the bank account opening problem, name mismatch somewhere or Aadhaar card, voter card birth certificate. All this hindered their progress. Many people do not know how to care for the name thing carefully. Not understanding the beauty or meaning of the name, many a time the local school teacher, leader or clerk writes down a name at will. The name should be kept and remembered everywhere, this is the social demand. And the spelling that is not known should be learned, this is the demand of education. Unfortunately, none of the claims are accepted.

A survey researcher visited a village of ‘Shabar Janjati in Purulia and found that there was not a single child who could read and write. Although many are enrolled in higher primary. Countless such villages can be found across the country, where the school is a lifeless structure. Some helpless faces when entering the house. Those who no one loves, it is assumed that they come and go for rice. The teacher's indifference, lovelessness, What could be more cruel than that.

Two lines of that poem by Satyendranath Dutt, in the পাঠশালাতে দোকানঘরে / গুরু মশাই দোকান করে।' Or rather than the education of the happy gurumashai of 'Pather Panchali' In the more frequent trade, their modern version is the local teacher in the countryside, some is a land grabber, some is a fish farmer, above all a political leader. The fact that their role in the prescribed education is not always seen in the tribal areas. Let me tell you 10 reasons why tribals don't learn.

Picture Three

The Asiatic Society's introduction to the Bengali edition of Santal Folk Tales by Gaul Olaf Boeding states that this may apply to most ethnic groups whose relations with Santals are mainly exploitative. As per the 2011 census, almost half of the people above the age of six are illiterate in a community that has a rich cultural heritage, a rich vocabulary, a language that is included in the Eighth Schedule of the country. They don't sit in the classroom. In fact, no other way is thought of except slapping.

Statistics show that in 2011, Santals are the largest tribal population in West Bengal, numbering more than 25 lakhs. The literacy rate among them is 54.7 percent (male 57.3, female 43.5). What a large number of people are living beyond minimum literacy. 6 percent reservation for ethnic groups at all levels of education. Accordingly, tribals should get at least 100 seats in the medical college. In the end, no more than four or five people break the minimum qualification barrier. They are the second largest group after the Santals, and their language is Kurukh. But many of them have forgotten it. A large part of them are workers in tea gardens, there are many languages spoken. But even that does not have a reading system. Many learn Hindi as a nearby language. But even in Hindi medium government schools, Madhyamik question papers do not come in Hindi. The literacy rate among the Mundas is 57.7 percent. Literacy of Lodha, Kheria, Kharia is very low - 45.5 percent. Their livelihood is forest-dependent, besides being laborers from agricultural labor to road construction. I hope you remember the story of Chuni Kotal, the first female graduate of Lodha. In 1985, he was assaulted and killed on 16 August 1992. This is the responsibility of the whole Bengali graduate of the theory and ultimately the golden professors, classmates and society at large. This process is going on all over India. We know about Rohit Vemula's suicide in Hyderabad Central University in 2016.

The so-called suicide of Payal Tadvi, the first female medical student of Tadvi Bhil Samaj at BYL Nair Hospital in 2019, is hard to forget. Payal committed suicide because she could not bear the insults of her classmates and others just because she came from the tribal community. Can these really be called suicide? To tell the truth, the society is not prepared to accept that the people of the ethnic group will reach the education of empowerment.

Picture Four

In the meantime, due to the corona epidemic, schools have been closed for more than two years, and the school education system is in complete disarray. A slur like online education certainly doesn't apply to ethnic groups at all. As a result, in these two years, many teachers brought sand to schools near their homes and were 'able' to study due to Uthashree's welfare or in some other way. The office is shocked to hear their grief, it has no heart to think what will happen to the students. Sincere interest was among a few people who tried to teach the students in various ways during school closures. Now after the opening of the school, it is naturally seen that the boys and girls of the ethnic groups are left behind or kept the most. The sullen expression of the fifth grade students during the first comprehensive assessment, or the listlessness of the students during the Madhyamik examination, all prove the dire rifts that have taken place in primary and secondary education. The Right to Education Act 2009, which repeatedly emphasizes free education, from which no one is excluded, has been repeatedly violated. Although there are few initiatives by the government to bridge this gap of two years, the teachers, parents and private tutors associated with direct education are walking on the path of traditional syllabus. If there is compatibility, the tendency to send to private schools has also increased. It is a c trend. Oddly enough, ethnic boys and girls in some private schools appear to be doing quite well in an anti-caste climate. In the northern part of the state, a larger proportion of ethnic groups (Lepcha, Tamang, Likhu Sherpa-Bhutia-Toto-Sukpa, Rava, Mech Oraon) are more likely to be sent to private schools than in the south. Most in Darjeeling. However, with this comes the fact that private tuition is essential for private schools.

As surprising as the election of an indigenous woman to the post of head of state may be at the moment, the position of indigenous people is a long way from actually playing a decisive role. First of all, expansion of education is necessary. For that basic thinking about the curriculum as well as the infrastructure is essential. At the core of this thinking should be the principles of diversity and equality. A special letter is also required for the appointment of teachers. Orientation workshops that are held from time to time should deal with a holistic approach and not just a few methods. Today, tribal families take special initiative to bring their sons and daughters to school. Compatriots have raised their hands, they have come to the door, are we ready?

CONCLUSION

From the above picture we got an idea of the current condition of the tribal society, they are in a miserable condition, how can they be taken forward from here, they are also a part of this society. The backwardness of the tribal society is due to personal reasons such as negligence by the upper castes, or lack of awareness among the first generation students. Poverty, lack of interest in education, inexperience in education, inability to play a cooperative role, lack of educational institutions, lack of teachers, all these reasons are the same for which students have to commit suicide, tribal students are seen with pity, where tribal students mean backwardness, in fact, society's rules and laws, many opportunities to move forward will all work properly if we change the perspective of people in the society, giving everyone equal self-respect .If you judge, this distinction does not exist in society, so you have to look at how to change the attitude.

In order to solve the problem of Scheduled Tribes, various measures can be taken like Establishment of special coaching cum counseling centers for SCs and STs,

Programs of special coaching, New Programs in Information Processing Technology

Labor Welfare Scheme, fund. Such welfare programs include health, housing, education, family welfare and social welfare programs, Special benefits for bonded laborers fund. Such welfare programs include health, housing, education, family welfare and social welfare programs. Special benefits for bonded laborers: A long standing problem in India

Some recommendations for the improvement of backward persons

Recommendations for Development of Backward People) Following are some recommendations for educational and economic development of tribal

(A) Regarding Educational Institutions
(i) Diversification of secondary and higher secondary level curriculum and provision of time-varying vocational education.

(ii) Giving freedom in course selection.

(iii) Opening more polytechnic and vocational colleges in rural areas. (iv) To ensure universal education.

(v) Those backward people are already getting many privileges educationally and financially

Substantial self-sufficiency and development in terms of reducing the benefits to those who have not yet received any benefits or are unaware of the benefits by searching for them and making them aware of the benefits. (vi) Further expansion of adult education, non-traditional and open education. As well as improving its quality.

(B) Regarding Parents
(i) Educational needs of parents and their duties and responsibilities in this regard and discuss in detail about special privileges. Special advice should be given to them if necessary.

(ii) Parents shall endeavor to ensure that sons and daughters acquire at least basic education.

(iii) About the recently passed 'Right to Education Act' in Parliament parents must be notified.

(iv) The authorities of rural schools should sensitize parents through various programs about the need for education. c

Regarding Government
(i) Government should extend scholarship money and scholarships. Also those who have shown excellence need to be motivated in various ways.

(ii) Free textbooks should be distributed to all at specified times.

(iii) Infrastructural improvement of the school is required.

(iv) Adequate number of teachers should be recruited.

(v) Provision of hostels at short notice. To increase hostel facilities and appoint full time hostel superintendent points of view.

Assimilation: According to Ogburn and Nimkafra, through this process, separated individuals or groups become aware of each other's interests in a particular way and their lines of difference gradually disappear. Various social development organizations, voluntary organizations are planning for this purpose and are trying to bring the weaker people back into the mainstream of society through various actions. Although the process is not easy, because the tribal people very easily their ... Cannot abandon own tradition or behavior. In that case, forcing it from outside can cause emotional dissatisfaction. So the process has to be carried out very gradually through making emotional connections.

These are some recommendations to solve the issue but certain points of view the other way to solved the problem, the way is three parted divided the parts are

Science isolation (Isolation): Through this process it is said to isolate the people belonging to the tribe. So that they can enjoy life freely and not be subjected to the violence of other people from the outside society. But care must be taken to ensure that the process of assimilation continues even within this distance.

Integration: It is through this process that development activities are currently being carried out for the purpose of closing the Scheduled Tribes. If assimilation is considered to be imposed, segregation is never desired. In that

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case coordination is the most effective process. It is also possible to rehabilitate them through recognition of their separate heritage and existence. That policy will be followed in our country at present.

Tribal problems can be solved by showing enough respect to tribal culture, without imposing modern culture. It is undoubtedly the responsibility of the state to provide the facilities of modern science and the light of education to them. However, in the name of mainstreaming, it is recommended to ensure that their human rights are not violated.

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LABOUR CODE: UPLIFTMENT OF LABOUR

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Labour is one of the most important factors of production. Labour laws in India, as in several other countries, have been enacted to create conditions for the protection of labour from unfair employer practices and to provide a legal framework within industrial relations. Indian labour legislations origin and growth can be traced back to East India Company regulation of 1837 which was on recruitment of Indians for employment in British colonies. An average Indian worker of today is distinctly different from one at the time of attainment of the country's Independence. The amalgamated form of multiple statutes thus obtained is called a labour code.

Keywords: Labour laws, Independence, recruitment, legal framework.

Labour's welfare is receiving utmost importance in the Labour code. Internationally efforts have been made through various Conventions to draw the attention of all States so that they best special care and assistance to the problems of labour. Labour and Industrial Law were introduced in India in order to protect rights of the worker, pressure their social welfare and to establish industrial peace.

Law is a social science. Law is a powerful instrument for social development. Its growth and development is co-related with the society. It must change with the changing needs of the society. Welfare of the Industrial Labour is becoming the greatest directive force of law. It is known as Labour Law or Industrial Law or employment law.

Labour is one of the most important factors of production. Land, capital and organisation – all are important but in spite of the combination of all these factors the wheels of an industry cannot move without help of labour. On their efficiency and wishes the industrial productivity depends mostly. There was a time when the workers were treated as machines. They worked in industries without any right – political or economic, not to speak of the collective bargaining right as understood today. But now this kind of attitude of the employers to the workers has been changed. Now a worker is not merely a means of production but is essentially a human being with a personality having a sense of responsibility towards his family, the industry and the nation. Further a cordial relationship between the labour and the management is *sine-qua-non* for industrial peace and productivity.

LABOUR LAWS:

In essence the Labour Laws are the laws designed to ameliorate the conditions of labour, establish industrial peace and ensure increase in productivity by creating conditions leading to the efficiency of labour and to promote mutual understanding between labour and management. Labour Laws are the innovation of 20th Century in the industrial world and evolved to correct the imbalances and socio-economic disparities created due to free-hand given to the employers, by then prevailing Political and Economic System governed by *Laissez Faire* Philosophy and to curb inhuman treatment to workers in the form of long working hours, bad working conditions, low wages, the employment of children below the age of 7 years and also hire and fire policy of employment. Labour Legislation in India has now become an important part of social and economic legislation. The inspiration is the recognition of the wider responsibilities which the State has undertaken to protect the economically weaker sections.

In India the century between the Battle of Plassey and the First Battle of Indian Independence marked the maturity of the Industrial Revolution in England. The concept of an industrial revolution denotes an economic transition in which the means of production become increasingly specialised, mechanised, and organised. This process uses technology, in some association with science, to create large increases in the productive capacity of an economy, which in turn eventually transforms society as a whole.

PRE-INDEPENDENCE ERA

Before Independence, the policy of the British Government was not in favour of industrial development in India. No incentives were offered to Indian industries for their growth. There were many desired and undesired hurdles placed in the way of the growth of Indian industry. Whatever industrial development took place in India was in spite of the negative and hostile attitude of the British Government.

Indian labour legislations origin and growth can be traced back to East India Company regulation of 1837 which was on recruitment of Indians for employment in British colonies. The plantation industry in Assam was the

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first organized industry to attractive legislative control. Thus to some extent the first labour enactment in India dates back to 1859, when the workmen's breach of contract Act was adopted which was followed by the adoption of the employer's and workmen disputes Act in 1860. These two Acts instead of helping labour were able to regulate employment and rendered workmen liable to penal action under the Indian Penal Code 1860 for breach of contract. So these legal provisions were able to bound the Indian workers by contract to serve for a limited period of term only.

Due to industrialization voices were raised for the adoption of protective labour legislation, which was due to the impact of lanchaire under the British interest which faced competition from Indian manufacturers. And this led to the passing of first Factories Act 1881 and first Mines Act in 1901. As such the labour legislation in the real sense had its origin in India in the last quarter of 19th century and in the beginning of 20th century. The Factory Act first enacted in 1881 was amended in 1891 and 1911 respectively. But these laws provided for only some very nominal restriction on the unlimited working hours, unsafe working conditions and unrestricted employment of women and children in factories and mines.

Labour laws in India, as in several other countries, have been enacted to create conditions for the protection of labour from unfair employer practices and to provide a legal framework within industrial relations. Labour legislation is regarded as "the most dynamic institution. From a simple restraint on child labour in factories Act 1881, labour legislation in India has become an important agency of the State for the regulation of working and living conditions of workers, as indicated by the rising number and variety of labour Acts. This rapid development of labour legislation is an integral part of the modern social organization."

However, before the First World War (1914-18), there was no legislation for the general class of industrial workers or for their welfare, social security, service conditions, wages, trade unions and trade disputes. Even the regulations under the Factories and Mines legislations were more a show than a substance, because at that time the policy of the British Government in India was influenced by the Capitalist theory of laissez-faire free economy and non-intervention of the Government in labour and industrial matters; and by the common law based on unrestricted competition in the spare of master and servant relations; and because most of the industries were owned by the foreign capitalists; and further because, the Indian workers were not organised into trade union. The experience of the World War I influenced a great deal the attitude of the Government and the employers towards labour in India. Labour has gone abroad as soldiers. The revolutionary wave was created throughout the world by the Russian Revolution of 1917. The growing discontentment among the Indian Working class suffering from the evil effects of the war-economy, soaring prices, hard labour, low wages, inhuman working and living conditions together with the motive of the high profits for the employers, in utter disregards of workers' suffering gave rise to the birth of the trade union movement under the political leadership of the Indian National Congress. The rising tide of industrial unrest, along with the pressure put by the social and political leaders as also the workers themselves for amelioration of the labour conditions by legislation resulted in the growing consciousness on the part of the Government of the necessity of protecting workers from the evil effects of industrialization viz, improving their working and living conditions and also of maintaining industrial peace, law and order. After the First World War labour movement was started in India. The father of Indian trade union movement was N.M. Lokhanday. The trade union movement has provided a powerful vehicle to the working population for the realization of its hopes and dreams. With the help of the union, the workers belonging to the organized sector have been able to improve not only their economic lot but also their working and service conditions.

INTERNATIONAL LABOUR CODE

International Labour Conference is a main international forum for discussion of labour problems and for setting international standards in the shape of Conventions and Recommendations which are collectively called as International Labour Code. Because of the tripartite nature of ILO structure the individual is not only a beneficiary but also a direct participant. Therefore a system has been evolved by which the partners to disputes can work together at the international level. The mere passage of convention has ramifications for all member states even those not ratifying it. A Convention is a treaty which when ratified by the Member State, becomes international binding on the State to implement. It forms basis for legislation by the State whereas a Recommendation when adopted by a Member State it acts a guide to the national action. The member state may give effect to its provisions as far as practicable in the light of local conditions. Such tripartite representation resulted in considerable pressure being brought against Member State. The Conventions and Recommendations have by and large played an important part in the shaping of legislation and executive programme drawn up by the member state to ameliorate the conditions of labour.

During the last half-century the labour standards evolved by the International Labour Organisation have gradually become the leading external influence upon the labour laws in many countries. They have had a far-reaching impact in most of the countries. The establishment of the ILO in 1919, of which India was a member since its inception, gave a great fillip to labour legislation in India as many of its Conventions and Recommendations for laying down international labour standards for improvement of labour conditions were adopted by India. As a result after 1920 labour legislation took great strides in India. The new Factories Act and Mines Act were passed in 1922 and 1923 respectively to improve the working conditions of workers working in Factories and Mines. Many new and important laws were enacted e.g. the Workmen's Compensation Act, 1923; the Indian Trade Unions Act, 1926 and the Trade Disputes Act, 1929. In 1931, the Report of the Royal Commission on Labour in India was published and it contained a series of valuable recommendations for the enactment and administration of Labour Laws. As a result, many existing labour laws were thoroughly amended and new Acts were also enacted, e.g., Workmen's Compensation (Amendment) Act, 1933; Indian Dock Labourers Act, 1934; Factories Act, 1934; Trade Disputes (Amendment) Act, 1934 and 1938 and the Payment of Wages Act, 1936. In pursuance of the recommendations of the Royal Commission on Labour, the Government of India constituted in 1942 a tripartite consultative machinery consisting of Indian Labour Conference and Standing Labour Committee for regular and periodic discussion between the central and provincial Governments and also representatives of employers and workers for co-ordinating the labour policy, considering proposals for labour legislation and advising Central and provincial Governments in framing of rules and regulations, labour-research, etc. This tripartite labour machinery made a significant impact on the growth and direction of labour legislation in India. All major legislative and administrative proposals regarding labour and industry were first processed through this forum. The years between 1942 and 1947 witnessed a remarkable extension in the scope and content of protective labour legislation. Notable among these are the Industrial Employment (Standing Orders) Act, 1946; Mines Amendment Act, 1945 and 1947; Factories (Amendment) Act, 1946 and the Great Industrial Disputes Act, 1947 etc.

POST-INDEPENDENCE ERA

In the post-independence era, the state also introduced a number of pieces of legislation, some relating to employment and its regulation as well as terms and conditions apparent thereto, while some others are in respect of social security and allied subjects. Infact, labour legislation has since then become a very important part of social legislation which has been inspired by a sense of social justice based on fairness, social equity and natural justice with a view to protecting the weak and the under-privileged against the strong and the privileged and in pursuance of the Directive Principles of State Policy as enshrined in the Constitution of India.

The great part of labour laws has traditionally been adopted to the people employed under contracts of service. It is an essential of the legislation specifically adopted to deal with social problems. Labour Law is now tending more towards requiring people to do things that will improve worker's conditions and promote economic growth.

An average Indian worker of today is distinctly different from one at the time of attainment of the country's Independence. He is better educated, better trained and skilled. Better paid, comes from better strata of society, organisation and the milieu in which he lives and grows, he is acutely conscious of his social, economic and political rights as never before. All this have helped him to a large extent to secure his place in the modern society. So a progressive and sophisticated trade class of worker has come into being, who have their own trade unions and who have thus gained a bargaining power which enables them to give a tough fight to their employers to establish their rights in the growing industrial society.

Industrialization had its beginning in India in the sixties of the 19th century. The employer's eagerness for easy and quick profits and the abundant supply of very cheap and submissive labour led to enormous profits for the employers by inhuman sweating of men, women and children working in those industries. At that time, the policy of the Government was to 'protect the social' system for workers rather than protect workers from the social system. The existing set of labour laws should be broadly amalgamated into the following groups: a. industrial relations; b. wages; c. social security; d. safety; and e. welfare and working conditions as per the recommendations of the 2nd National Commission on labour. To bring about labour reforms which will benefit both the workers and the employers, the Ministry of Labour and Employment had successfully undertaken the task of simplifying, rationalizing and amalgamating the existing 29 labour laws into four Codes : the Code on Wages, 2019; the Code on Industrial Relations, 2020; the Code on Occupational Safety, Health and Working Conditions, 2020 and the Code on Social Security, 2020 after extensive consultations with all stakeholders and social partners. The related rules have also been published and circulated to the States to undertake a similar exercise. Implementation of the labour code and rules has the potential to accelerate India's journey to lead the

world's strongest economies. It promises to provide the new and old workers of India a safe, secure and enabling work environment.

The Labour Code is a mean to consolidate various statutes into a pruned and uncomplicated form. The amalgamated form of multiple statutes thus obtained is called a labour code. This operation is done with a view to have a unified law which can be understood and implemented with ease. Labour Codes will facilitate the implementation and also remove the multiplicity of definitions and authorities without compromising on the basic concepts of welfare and benefits to workers. The Code would bring the use of technology in its enforcement. All these measures would bring transparency and accountability which would lead to more effective enforcement. Widening the scope of minimum wages to all workers would be a big step for equity. The facilitation for ease of compliance of labour laws will promote in setting up of more enterprises thus catalyzing the creation of employment opportunities.

K. Chandru – J is a retired judge, Madras High Court says, over the years, there has been proliferation of labour legislation. Numerous labour laws provided for some specific issues. Often, there were duplications and contradictions. Compliance with numerous labour legislation is becoming a big challenge.

Whereas a recommendation when adopted by member state act as a guide to the national action. So after the establishment of International Labour Organisation (ILO) large numbers of beneficial industrial laws have appeared on the Statute book of many countries of the world including India. Therefore ILO has been shaping a system of international labour law.

LABOUR CODE:

India, being a founding member of the International Labour Organisation (ILO) has deep respect for its principles and objectives. The Government of India has always upheld the basic tenets of tripartism. ILO has not commented about India's lack of compliance with ILO Convention -144 on Tripartite Consultations in implementing the Labour Code.

The four Codes, viz, the Code on Wages, 2019, the Industrial Relations Code, 2020, the Occupational Safety, Health and Working Conditions Code, 2020 and the Code on Social Security, 2020 have been notified in Gazette of India. Prior to that, the Government had done extensive consultations inviting all Central Trade Unions, Employers' Associations and State Governments. The Government had undertaken nine tripartite consultations on all the four Codes on 10.03.2015, 13.04.2015, 06.05.2015, 14.07.2015, 06.10.2015, 04.10.2017, 22.11.2018, 27.11.2018 and 05.11.2019 inviting all Central Trade Unions, Employers' Associations and State Governments. All these Codes were also placed on the website for inviting comments from all stakeholders including general public.

Further, all the Codes were referred to the Parliamentary Standing Committee on Labour for examination. The Parliamentary Standing Committee on Labour, in the process of examination of the Codes, had invited the views/suggestions from Trade Unions/ Organizations/Individuals/Stakeholders and also took oral evidence of the representatives of Central Trade Unions and various other Associations/Organizations/Stakeholders. The reports of the Committee were taken into account before these Codes were considered and passed by the Parliament. As a step towards implementation of four Codes and to discuss the draft Rules on four Codes, tripartite meetings inviting representatives of all Central Trade Unions and Employers Associations were convened through Video Conferencing on 24th December, 2020 and 12th January, 2021. Third tripartite meeting was held on 20th January, 2021 in physical mode.

However, the Industrial Relations Code, 2020 reduces the requirement of minimum continuous service in case of fixed term employees from five years to one year.

LABOUR REFORMS

'Labour' as a subject is in the Concurrent List of the Constitution of India and under the Codes, the power to make rules has been entrusted to the central government as well as state governments. As a step towards implementation of the four Labour Codes, the central government has pre-published the draft rules, inviting comments of all stakeholders. Union Minister for Labour and Employment Bhupender Yadav said almost all states have prepared draft rules on the four labour codes and the new rules will be implemented at an appropriate time.

Labour reforms are progressing as at least 24 states have pre-published draft rules for four labour codes on wages, social security, industrial relations and occupation safety, As many as 31 states/UTs have pre-published the draft rules under the Code on Wages, 26 states/UTs under Industrial Relations Code, 25 states/UTs under

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Code on Social Security, and 24 states/UTs under Occupational Safety Health & Working Conditions (OSH) Code, Minister of State for Labour and Employment Rameshwar Teli said in a written reply to the Loksabha.

The ministry intends to implement all four codes by the Centre and states in one go for a seamless transit to the new legal framework in the country. The new laws are in tune with the changing labour market trends and at the same time accommodate the minimum wage requirement and welfare needs of the unorganized sector workers, including the self-employed and migrant workers, within the framework of legislation.

It's ultimate goal for establishing industrial peace and consequently aiding in economic development of nation leading to the over all upliftment of the labour.

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A STUDY ON MARKETING STRATEGIES ON HINDUSTAN UNILEVER LIMITEDTOWARDS ERODE DISTRICT

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ABSTRACT
In the modern day, there are several ways in an effective marketing strategy can be made. Companies use conventional as well as modern channels for devising a working strategy. The elements of Marketing strategies are product, price, place and promotion. Stages to study the Marketing Strategy are Analyze market, Analyze competition, Marketing Research, Define marketing mix, Financial analysis, Review and revise, Understand customers etc.. The purpose of the study was developed based on the marketing strategies on the particular brand and it will be helpful for the management to identify the customer preference on the questionnaire asked. It helps in learning about the particular brand detailed from production to sales and helps the organization to know why customer are willing and not willing to buy the product. The scope of the study helps the organization to overcome or steps will be taken on the particular product which customer dislikes or not willing to buy and change its current marketing strategies. The data were collected by using the questionnaire method form 250 samples and the data analyzed by the percentage and chi-square method using the SPSS. Based on the findings and conclusionthat

Keywords: Marketing strategy – Elements - Analyze market - Understand customers –Marketing mix - Willing – Organization.

INTRODUCTION
MARKETING STRATEGY is a process that can allow an organization to concentrate its limited resources on the greatest opportunities to increase sales and achieve a sustainable competitive advantage.

Strategic planning involves an analysis of the company's strategic initial situationprior to the formulation, evaluation and selection of market oriented competitiveposition that contributes to the company's goals and marketing objectives.

Strategic marketing, as a distinct field of study emerged in the 1970s and 80s andbuilt on strategic management that preceded it. Marketing strategy highlights therole of marketing as a link between the organization and its customers.

Marketing strategy leverages the combination of resources and capabilities within an organization to achieve a competitive advantage and thus enhances firm's performance.

DEFINITION OF MARKETING STRATEGY

According to **Philip Kotler & Kevin Keller** "The marketing strategy lays out target markets and the value proposition that will be offered based on an analysis of the best market opportunities."

IMPORTANCE OF MARKETING STRATEGY

- Marketing strategy provides an organization an edge over its competitors.
- Strategy helps in developing goods and services with best profit-makingpotential.
- Marketing strategy helps in discovering the areas affected by organizational growth andthereby helps in creating an organizational plan to cater to the customer needs.
- It helps in fixing the right price for organization’s goods and services based on information collected by market research.
- Strategy ensures effective departmental co-ordination.
- It helps an organization to make optimum utilization of its resources toprovide a sales message to its target market.
- A marketing strategy helps to fix the advertising budget in advance, andit also develops a method which determines the scope of the plan, i.e., it determines the revenue generated by theadvertising plan.

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ELEMENTS OF MARKETING STRATEGIESPRODUCT

A product is any goods or services that consumer wants. It is a bundle of utilitiesor a cluster of tangible and intangible attributes. It involves planning, developing,and producing the right type of products and services. Its deals with the dimensionof product line, durability, and other qualities. Product policy of a firm also dealswith proper branding, right packaging, appropriatecolour, and other product features.

PRICE

Price decisions and policies have a direct influence on sales volume and profits of the business. In practice, it is very difficult to fix the right price. Right price can be determined through pricing research and test marketing. Demand, cost, competition, government, regulations etc. are the vital factors that must be taken into consideration in the determination of price. Price mix involves decisions regarding base price, discounts, allowances, freights payment, credit, etc...

PLACE

The element of the marketing mix involves choices of the place where products are to be displayed and made available to the consumers. It is concerned with decisions relating to the channels of distribution.

A manufacturer may distribute his goods through his own outlets, or he may employ wholesaler and retailers for this purpose. Irrespective of the channel used, management should continuously evaluate channel performance falls shortof expected targets. Management must develop physical distribution system for handling and transporting the goods through the selected channels.

PROMOTION

Promotion component of the marketing mix is concerned with bringing products to the knowledge of customers and persuading them to buy. It involves decisionswith respect to advertising, personal skills, and sales promotion. All these techniques help to promote the sales of products and fight competition in the market. No single method of promotion is alone effective and therefore a promotional campaign involves a combination of two or more promotional methods.

OPPORTUNITIES OF MARKETING STRATEGY

There are several advantages of a good marketing strategies. Some pros ofmarketing strategiesare:

1. A right marketing strategy promotes the products or services to target audience.
2. It helps the company to understand its customers.
3. Marketing strategies ensures that a correct communication is delivered to its targetcustomers.
4. An effective marketing strategy can help increase sales & business.
5. Enhances customer loyalty as well as brand loyalty.
6. A good marketing strategy increases market share and gives competitive advantage.

OBJECTIVES OF THE STUDY

1. To identify the customers opinion towards the marketing strategy in HUL.
2. To know the methodology followed by HUL in marketing strategies.
3. To analyze the effectiveness of marketing strategies in HUL.
4. To identify factors that influencing the respondents to purchase HUL.
5. To identify the overall customer satisfaction towards using HUL products.

REVIEW OF LITERATURE

The Review of previous studies is considered as an essential for every research to carry on investigation successfully. It helps to understand the problem in depth, the methodology followed and to identify the unexplored part of field of the study. In this regard, a review of some of the previous studies the field of thepresent study is summarized bellows.

- **Dr. Sukhmani D. (2011)** Role of Promotion Mix in Influencing Rural Consumers, International Journal of Business & Information Technology, Volume1, No1, June, 110-118, concluded in their study that, changes in lifestyle, rising incomes and a focus on value, are pushing up growth for different product categories in the rural areas. Indications of larger disposable income and a perceptible shift in consumption priority in the rural sector also appearto be favoring the FMCG organizations. But, in order to be successful, organizations

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needto develop business models and marketing mix strategies that aredeveloped in accordance with this changed scenario in the rural marketsof India.

- **Kulkarni, Dr. Hundal B. (2011)** Role of Promotion Mix in InfluencingRural Consumers, International journal of Business & Information Technology. Vol-1 No. 1 June 2011, pp-110- 118, concluded in his study that, the rural market in India is quite fascinating and challenging inspite of all the difficulties existing. The potential is enormous. Eventhough, these markets have weaknesses, they also have tremendous opportunities which should be availed by the marketers. It is well known that "Markets are created and not born". The market so created should be tappedeffectively.

RESEARCH METHODOLOGY
Research is an out of scientific investigation and research methodology is a way to systematically solve the research problem. Hence the methodologies for each research problem need to be designed by the researcher through research.

RESEARCH DESIGN
Research design is blueprint or framework for conducting marketing research project. It specifies the details of the procedures necessary for obtaining the information needed to structure and solve marketing research problem. The research design used in this study is descriptive research.

DESCRIPTIVE RESEARCH
Descriptive research is also known as statistical research, describe data and characteristics about the population or phenomenon being studied. The description is used for frequencies, averages, and other statistical calculations. The research deals with everything that can be counted and studied. But there arealways restrictions to that. The research must have an impactto the life of peopleliving around the researcher.

SAMPLE DESIGN
Sampling can be defined as the section of some part of an aggregate or totality on the basis of which judgement or an inference about aggregate or totality is made. The steps involved in sampling design are as follows

SAMPLE UNIT
The sampling unit of this study was marketing strategy of **Hindustan Unilever Limited**

projects.

SAMPLING SIZE
Sampling Size is the total number of units which covered in our study. The sample size of thisstudy is 250.

SAMPLING TECHNIQUE
Sampling technique used in this study is Non-Probability Convenience sampling.It is that typeof sampling where the researcher selects the sample according to his or her convenience.

NON-PROBABILITY
Non-probability sampling is defined as a sampling technique in which the researcher selects samples based on the subjective judgment of the researcher rather than random selection. It is a less strengthen method. This sampling method depends heavily on the expertise of the researchers.

DATA COLLECTION
The data can be collected in two ways, and they are as follows:

1. Primary Data
2. Secondary Data

TOOLS USED IN THE STUDY
The data gathered through questionnaire for the study were consolidated in relevant table and classified as

1. Percentage Analysis
2. Chi Square Test

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CHI-SQUARE TEST TABLE

TABLE – 1

CHI-SQUARE ANALYSIS BETWEEN AGE GROUP AND MODE OF PURCHASE NULL HYPOTHESIS

There is a no relationship between age group of the people and differentmode of buying behaviour.

ALTERNATE HYPOTHESIS

There is a relationship between age group of the people and different modeof buyingbehaviour.

CROSS TABULATION

MODE OF PURCHASE / AGE GROUP	ONLINE MODE	SUPER MARKET	RETAIL STORE	PETTYSHOP	TOTAL
BELOW 20 YEARS	26	13	29	12	80
21-30 YEARS	42	34	24	20	120
31-40 YEARS	8	6	10	1	25
ABOVE 40 YEARS	2	8	11	4	25
TOTAL	78	61	74	37	250

CHI-SQUARE TEST

FACTOR	CALCULATED VALUE	TABLE VALUE	DEGREE OF FREEDOM	LEVEL OF SIGNIFICANCE
AGE GROUP	18.324	16.919	9	5%

RESULT

It could be observed from the above table that the calculated value is greater than the table value. Hence, the alternative hypothesis is accepted and it is concluded that there is significant relationship between age group and the modeof purchase.

TABLE - 2

CHI-SQUARE ANALYSIS BETWEEN GENDER AND AWARNESSLEVEL ABOUT PRODUCT

NULL HYPOTHESIS

There is no relationship between gender and awareness level about product.

ALTERNATE HYPOTHESIS

There is relationship between gender and awareness level about product.

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CROSS TABULATION

AWARENESS ABOUT PRODUCT / GENDER	YES	NO	TOTAL
MALE	132	18	150
FEMALE	80	20	100
TOTAL	212	38	250

CHI-SQUARE TEST

FACTOR	CALCULATED VALUE	TABLE VALUE	DEGREEOF FREEDOM	LEVEL OF SIGNIFICANCE
GENDER	2.979	3.841	1	5%

RESULT

It could be observed from the above table that the calculated value is lesserthan the table value. Hence, the alternative hypothesis is accepted and it is concluded that there is no significant relationship between gender and the awareness level about the product.

TABLE - 3

CHI-SQUARE ANALYSIS BETWEEN AGE GROUP AND USUALPREFERENCE PRODUCT

NULL HYPOTHESIS

There is no relationship between age group and usual preference product.

ALTERNATE HYPOTHESIS

There is relationship between age group and usual preference product.

CROSS TABULATION

USUAL PREFERENCE PRODUCT / AGE GROUP	FOOD CARE	HOME CARE	PERSONAL CARE	REFRESHMENT	TOTAL
BELOW 20	15	42	18	5	80
21-30 YEARS	13	6	6	0	25
31-40 YEARS	5	17	1	2	25
ABOVE 40YEARS	39	45	30	6	120
TOTAL	72	110	55	13	250

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CHI-SQUARE TEST

FACTOR	CALCULATED VALUE	TABLE VALUE	DEGREE OF FREEDOM	LEVEL OF SIGNIFICANCE
AGE GROUP	22.8149	16.919	9	5%

RESULT

It could be observed from the above table that the calculated value is greater than the table value. Hence, the alternative hypothesis is accepted and it is concluded that there is significant relationship between age group and the usualpreference product.

FINDINGS, SUGGESTIONS AND CONCLUSION

FINDINGS

PERCENTAGE ANALYSIS

- Majority 60% of the respondents are male.
- Majority 48% of the respondents are above 40 years of age.
- Majority 38% of the respondents say that they know about HUL because of advertisement.
- Majority 32% of the respondents say that the quality is unique in HUL.
- Majority 44% of the respondents say that they usually prefer home care products.
- Majority 44% of the respondents say that sales promotion strategy made them to buy.
- Majority 43% of the employees say that the most attracted product is food care products.
- Majority 44% of the respondents say that they were using the HUL products for 3-6years.
- Majority 85% of the respondents say that they were aware about the products available inHUL.
- Majority 40% of the respondents say that they buy the products from retail stores.
- Majority 51% of the respondents say that the steps have been taker for their queries andcomplaints.
- Majority 36% of the respondents say that they are highly satisfied withthe quality of theproducts.
- Majority 64% of the respondents say that they are highly satisfied withthe quantity of theproducts.
- Majority 39% of the respondents say that they are highly satisfied withthe price of theproducts.
- Majority 36% of the respondents say that they are highly satisfied withthe packing of theproducts.

CHI-SQUARE ANALYSIS

- The alternative hypothesis is accepted and it is concluded that there is significant relationshipbetween age group and the mode of purchase.
- The alternative hypothesis is accepted and it is concluded that there is nosignificant relationship between gender and the awareness level about the product.
- The alternative hypothesis is accepted and it is concluded that there is significant relationshipbetween age group and the usual preference product.

SUGGESTIONS

Hindustan unilever limited are one of the reputed companies in consumer goodslike food, beverages, cleaning agents, personal care products, water purifiers andother FMCG products. Majority of the respondents are under the satisfied level of the segment. The dealers have to concentrate more on urban population and offers some discount to customers those who boughtthe HUL products. The strategy was attracted the customer prefer this HUL products for morebuy one get one free offer. Most attracted product is food care products.

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In order to improve its sales, advertisement promotion should be taken care, excellent customercare should be provided.

CONCLUSION

HUL products become a very successful brand in India. Customer satisfaction is to be their main motive. Providing customer satisfaction is the crucial step of the company. From the studyit has been concluded that most of the HUL products preferred with services are fully satisfied.

Now HUL products providing a greater number of features for the convenient purpose of the customers. So, it has maintained a high customer baseproviding them complete satisfaction. HUL products are also perceive it as a strongest brand. Practicing a proper marketing strategycan only do it and HUL products implement it properly. So why it is now among the top namesin the world.

The suggestions mentioned earlier can be considered for its further improvement.

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CONSUMER BUYING RULES AND ROLES IMPACT ON PURCHASE DECISION MAKING OF CONSUMER DURABLE GOODS

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ABSTRACT
In this research article, authors made an elementary study on consumers to find out the impact of the Consumer buying rules and buying roles on purchase decision-making of consumer long-lasting goods. This research study focused to explore the reviews of various literatures in depth on the effect of buying rules and buying roles on purchase decision-making of long-lasting goods based on the consumer behavior. The research work outcome has revealed that consumer roles makes higher impact on purchase decision making and in a nuclear family parents most of the times assume the role of a decider, preparer and maintainer and on the other hand most of the children assumes the role of an initiator, influencer, user and disposer. Further concludes that the consumer to employ one or more non-compensatory decision rules, apply a rule to shortlist the brands, sequentially to apply another to make the final choice and finally decision depends on the level of involvement in purchasing. The marketer thus, attempt to meet essential product attributes and possible to serve best than the nearest competitor.

Keywords: *Consumer, buying roles, buying rules, consumer decision making.*

1. INTRODUCTION
A customer or buyer is considered as the receiver or beneficiary of a service, an idea, good or a product taken from a merchant through any precious deliberation[1][2] generally, a client is person who is likely to do business, on the other hand a buyer obtain things on occurrence however a buyer normally involve in transactions. Customers are classified as entrepreneur or trader and end user: in the beginning, a trader is a broker who acquires things for re-selling. Later, eventual customer otherwise an end user who do not re-sell the goods that customer buys and is an actual consumer or an agent for the consumer [1][3]. A customer and consumer are the confusing terms and both terms are slightly different. A customer now and then may be a customer or may not be a consumer. A customer generally a person who buys goods, on the other hand consumer uses them[4]. A final customer might be a consumer also, however simply consumer may have brought the items to ingest. A middle customer is not at all considered as consumer [3]. The situation is complicated by the fact that end purchasers of commercial items & services (generally includes manufacturers, educational & medical institutions and government bodies) consumers utilize the commodities other things that consumers purchase for themselves or to make other final goods, thus consumers are technically users as well. Nevertheless, people are more commonly referred to as commercial users or B2B customers. Consumers who acquire services instead of commodities are also frequently referred to as consumers.

The line of differentiation between customer and consumer is very slight and fuzzy. In the business field and normal day to day life these words are used many a times interchangeably. However these two terms indicate dissimilar meanings, **Customer** is a person who purchases to things and pay for it, on the other hand consumer is the person who is the user of purchased goods. *"A customer is a person who has engaged in a number of form of exchange transaction. A customer can be a consumer, but a consumer does not necessarily need to be a customer"[5].*

Consumer is a part of and parcel of distribution chain link. The consumer is the one who makes a payment to consume goods and services which are produced by different organizations. As such, consumers play an essential position in the economic structure of a nation. When there is no demand for the goods from the consumer side, producers would definitely do not show positive response to produce and sell to consumers. Understanding consumer buying rules has been critical in purchasing any goods, and it's critical for marketers to grasp the rules that customers use when making purchases. Especially when purchasing durable goods, which demands the application of various restrictions since consumers spend more than the nominal price. Major responsibilities also have an impact on this process, in addition to these rules. Consumers of Fast Moving Consumer Goods(FMCG) products consider Value, Reliability, Brands, Lifestyle, Promotion, and Packaging as key evaluating criteria, according to this study. Consumer education qualifications, awareness, and accessibility of FMCG products are all important aspects that influence the evaluation process.

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1.1. Consumer types

Earlier in the olden days the marketing strategy was relied on one- size-fits all concepts applied to produce and sell the products of the companies but modern marketplace approach depends on right customer, right time and right place. This approach is more effective to see the products. Considering the past researcher have identified 5 types of consumers in marketing as shown blow;

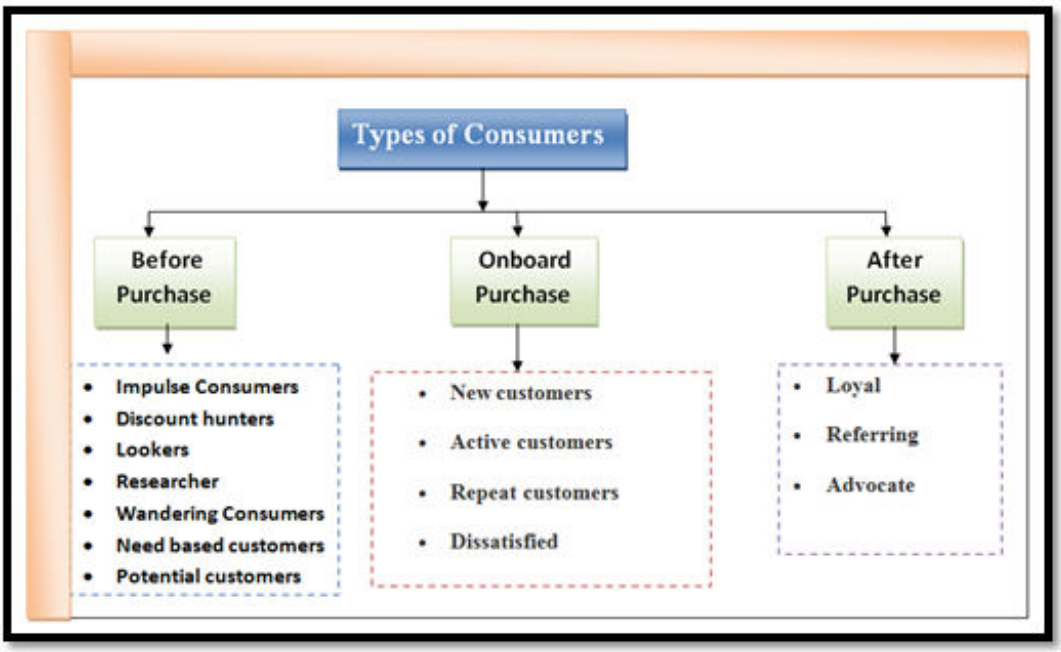

Figure 1: Types of consumers

There is a saying; customers are the king in the marketing. Company need to satisfy their needs, proper allocation of resources to them generate more profit, hence it is necessary to recognize and divide the difficult kinds of customers. Better understanding of these kinds of customers helps the companies to develop and implement successful strategies. Impulse customers do not keep shopping list in their mind instead purchase spontaneously. Impulse customers are more likely to receive for the recommendations made by the others. Bargaining hunters always seek best deal and discounts while bargaining hunters purchasing the products. Lookers are just explorers looking for nothing in particular. Researchers are customers engage in extensive research of gathering information about the product of a particular company and competitors brand in general. Wandering customers do not have any precise need or aspiration in mind to purchase the product. Wandering customers are attracted based on the locations of the business. Need based customers motivated by specific need. Need based customers quickly enter the shop. Purchase required thing and leave the place. Potential customer is not the customers of the company yet, however a customer requires help to make them to purchase.

On-board type of customer's falls in this category is the customer who already in track of using the products of the company comes under this category. Company need to aim at retaining them by adding utmost value to them. New customers are the persons who have recently made their primary purchase. Active customers are the persons who are vigorously using company services or products. Unhappy or dissatisfied consumers are those consumers who have bought the particular company products but dissatisfied consumers are not happy or satisfied with the product or services purchased. Repeat customers are the persons come again repeatedly to purchase a new product of a few months of company service. These types of customers can work as a one kind of backup income to the company.

Post purchase category the customers are already on the board and become new acquaintances to the company. In this referring customers outspread the message regarding companies brand. On the other hand advocate customers advance step ahead. Similar to referring customers advocate customers outspread the information about particular companies brand. Furthermore, involve in on-line and actual discussion regarding a product.

Finally loyal customers are the persons who stick on to the particular product or brand may be due to need satisfaction or feelings and emotional attachments towards the particular product.

1.2 Consumer Durable (CD) goods

Durable goods, at times known as a hard good, are one that does not quickly wear out, or, to put it another way, one that serves a purpose over time instead of being used only once. Bricks, for example, might be called

extremely long-lasting because bricks should theoretically never wear out. Refrigerators and automobiles are examples of highly durable commodities that can last three or more years.

CD industry mainly consist of consumer electronics like laptops, sound systems, computers and so on., are categorized as brown goods. On the other hand the consumer appliances which includes refrigerators, washing machine, air conditions and similar appliance, are categorized under white goods. This segment observed sharp reduction in order in July, August, and September (Q3) financial year 2021(FY21) because of Covid-19. Nevertheless, with consequent phases of open in the nation, the demand for the consumer goods has been improving on a periodical basis in Q3 financial year 2021 and show the consumer electronics 32.1% alone as per the statistics from CMIE & CARE Rating March-2021, Industry Research) [41], meaning that the manufacture of CD goods in Q3 financial year 2021 in contrast through manufacture in the similar time past financial-year 2020.

2. REVIEW OF LITERATURE

In this section authors demonstrates the widespread analysis of literature and the most significant theoretical ground rules are drawn from consumer buying behavior, buying rules, buying roles and buying process of durable goods. According to the products availability is very vast, considering various elements in the purchase decision making process is essential. An attempt has been made to review the various literature works.

Consumers make a decision on a habitual basis. Decisions are merely making choices. These choices concerning criteria such as various brands, products, stores, and so on. Now and then; the consumer does not get to make options as there is only one option accessible, so one has to choose that only. The purchase decisions taken during such single product situation are known as 'Hobson's choice.' consumer researchers view consumers as cognitive or thinking decision makers who actively seek pre-purchase information, evaluate options, and then reach a certain purchase decision. This perception also holds that in this era of information overload, consumers may or may not try to obtain all the information for each and every decision and would rather stop looking for more information if people generally believe, already have the data needed to make a "satisfying conclusion"

Emotions like achievement, fear, success, love, and so on, frequently persuade one's purchase decisions leads to kind of sentimental analysis. Consumer moods also persuade decision making. Study of consumer frame of mind and their effects on decision making are particularly significant for point-of-purchase and service encounterssstimulus, context and marketingcontent communication [6]. Storing image also creates impact the mood of the consumers and affect decision making. The store ambiance can lift the spirit of the consumers, or it can displease end users. A store with good music, lively colors may lift the consumer's spirits and can influence time and money spent in the store, number of items purchased and revisit intentions of consumers [7].

Harry Sharp et. al., in his study stated that there is substantial difference between the different economic choices. For instance, though husbands generally choose which type of car to purchase. On the other hand most of the time husband in family don not makes ultimate judgment on foodstuff spending. Also, in choosing and buying a new home and fix on anywhere to go on trip, married pair relies mainly on compromise instead of making unilateral PDM. Income dissimilarity among urban families are frequently related to patterns of purchase decision making (PDM)[8].

Lussier et.al., in their learning revealed that when the total number of choices considered for selection is huge, consumer might exercise the conjunctive or disjunctive method to get rid of unwanted brands of products and later build their ultimate option between the branded products which is left out, with the help of multi attribute attitude model[9].

David Grether et. al., on the topic revealed that using conjunctive rule consumers fix minimum cut off level for every feature which symbolizes the absolute least value consumers are ready to accept. For instance, consumer ready to pay any taxi Rs. 100 to reach his destination place. Hence consumer rejects the alternative taxis that fixes the price above 100 and select the car who offer the price Rs. 100 or less than 100 [10].

Eloise Coupey,in Eloise's study stated that restructuring may persuade the form of choice decision rule used by the consumer. Less involvement PDM products relatively requires simple heuristics as consumer will try to minimize the mental cost of such decisions [11].

Michael A. Belch et al.,in this particular article, asample of 458 men and women were taken for the study, the result recommended that there have been significant change in the family Purchase Decision Making (PDM) and wife in a family taking an important role in influencing all the areas of decision making. Result also indicated that the marketers need to recheck their ideas and plans to suit the ongoing requirement for products or services [12].

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John R. Hauser et al.,reveled on the topic that if there are many products are accessible, non-compensatory type of rules are applied often, extra attempt is necessary for making the judgment, there is more time force and various characteristics need to be assessed [13].

Naveen Gudigantala, the outcome of authors study revealed that devastating support is provided for consumer's implementation of only non-compensatory rules not for compensatory rules. However there is no clue is provided with regard to sorting out the problem of customer when he is in dilemma during the purchase process. Hint are stated only about the way consumer makes a decision by choosing different attributes [14].

Dr. Padmaja, the study revealed that comparative influence of husband, child and wife play a most important role in the PDM method, the specific types of persuades depend on a variety of aspects together with, the product, the phases of the PDM method, the level of every persons choice and a couple's consideration of fairness issues within the situation of their relationship. The present nuclear family setup children participation also seen [15].

Mir javeed iqbal, conducted a study and it revealed that the main reason of the purpose of this research was to look into purchasing habits of the buyer on the basis of Education qualification, Gender and income. For the study descriptive type of research has been used. mean score, Correlation and Simple percentage examination has been utilized. Research revealed that highly qualified and professional persons in Bhopal city are more likely to be involved in PDM than those who are less educated. Male consumers are considerably participating in buying of consumer durables than the female ones[16].

SC Vetrivel et. al., on their study findings reveled thatin rural areas with regard to durable goods, TV and cell phone play a significant role under the age of 21 to 50 years. In rural areas the income, brand, price and discounts are the most influential factors which induces the people of rural area to purchase the product. Finally with regard to PDM, family members play a very important role [17].

3. ANALYSIS OF BUYING ROLES AND BUYING RULES

3.1. Buying Roles: Gender has a crucial function, particularly in Pakistan, where society is predominantly male. The combination of low individualism as well as a significant power gap (Hofstede, 1984), In contrasting Pakistani households to those around the world, these can be significant aspects. For the year 2004-05, the usual Pakistani family size was 6.75 (www.statpak.gov.pk), reflecting the importance of children in the household.

Eva Polya, and Robert Sandor Szucs, members in a family takes different positions in buying process. Family person's can be idea generators, specialists, things purchasers, consumer, variety choice maker, and decider. Most of the cases women appear as initiators, brand choosers or deciders[18].

Family members play a crucial role in purchase decision making method of durable goods and the study revealed that Females operate as an initiators in contrast to male family member [16]. Kotler (2008) located decision making roles includes;

- Initiator – an individual from whom consumer gets an idea
- Influencer – an individual who persuades to buy
- Decider – an individual who make a decision on the things
- Buyer- an individual who actually purchases the product and
- User – an individual who actually utilize the product.

It is critical for companies to understand who plays what part in a community's chain of roles as shown in Fig 2.

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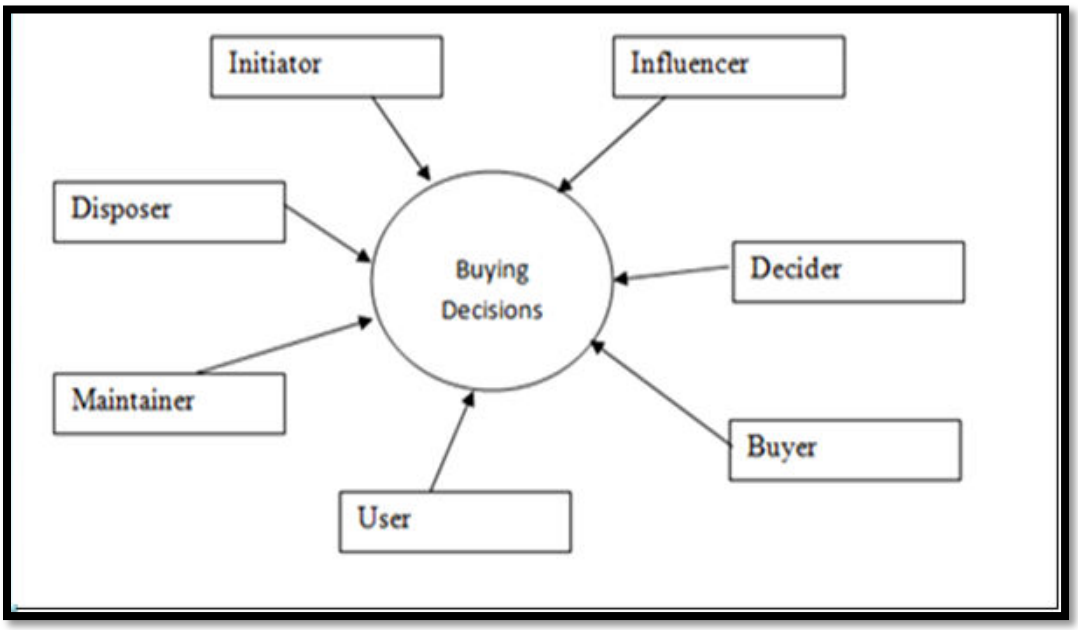

Figure 2: Consumer Buying Roles

The product can be used by a single person or several people. The functions that an individual or a small group of people who are playing in buying and using a product are known as buying roles. The number of people involved in each function varies based on the goods. It varies by one family to another in the case of families. The nature of buying roles is changing.As a result, in order to target the correct audience, marketers must first understand the various purchase roles that consumers play. Different roles assumed by the people are;

- **Initiator:** A individual who comes up with the idea of buying a goods. He knows that by obtaining the product, the problem can be fixed or avoided.
- **Influencer:** An individual whose opinions and counsel have an impact on purchasing decisions. When important buying decisions must be made, the range of influencers grows much wider.
- **Decider:** person who chooses where, when, why, and how to purchase goods. The ultimate decision on the proposed purchase is made by the deciders. When it comes to large organizational purchases, it's common to see a group of senior executives working together to make the decision.
- **Buyer:** The person who actually pays for the item.
- **User:** person who really utilizes the product
- **Maintainer:** A person who fixes or maintains a product.
- **Disposer:** person who get rid of the product.

A specific kind of goods being purchased by a specific demographic that may or may not be the ultimate users of that product, such as parents purchasing sweets and gifts to their own children. In the instance above, we could observe that children and parents take on various and unique responsibilities: the parents may take on the duties of selector, purchaser, arranger, and custodian, while the kid takes on the positions of originator, booster, consumer, and disposer[19].

The mother's relevance is a major aspect, which appears to stem from conventional men and women positions in Poland, that imply that shopping is a woman's responsibility. Furthermore, mothers are primarily viewed as social agents because their participation is greater than that of dads[7].Mujahid-Mukhtar, E. and Mukhtar, H. in early decays has investigated the role of purchasejudgment in home appliance products as a good indicator of a woman's dominance inside the home in Pakistan[20]. It is their clout in the acquisition of modern domestic renovation technology (such as automobiles, gadgets) whose high cost and lengthy lifespan make their purchase a critical decision.

Lakshmi, G. and P. Rengarajan,authors study found that in household leverage decisions, regardless of an individual-consumer age, money, lever of education, prestige, household size, and other factors, the interaction people have with one another leads to the best "buy." In the end, more interaction between diverse roles leads to higher involvement, which almost always leads to a satisfied product purchase [21].

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3.2. Factors influencing evaluative criterion of Consumer decision making

Consumer makes decisions on a regular basis. A decision is simply making a choice. These choices can be regarding various brands, products, and stores[31]. Buyers' purchasing decisions vary as soon as people get marry, according to research in [32]. Haggling behavior of the consumer revealed that there are many non-economic factors like the need for achievement, affiliation, and dominance, apart from price which drive consumer to haggling[33].

In consumer decision making important part that need to be considered is the role of moods and emotions. Emotions such as fear, success, achievement, love, and so on., often influence once purchase decisions and people have great emotional connection to certain brands and products.

Consumer moods also influence decision making. Study of consumer moods and their effects on decision making can be particularly important for purchase point and service encounters stimuli, context and marketingcontent communication[34]. The store ambience can either please and life the spirit of the consumers, or it can displease them and spoil their mood. A store with soothing music, appealing display, lively colors, for example, can lift the consumers' spirits and can influence time and money spent in the number of items purchased and revisit intentions of consumers[35].

3.2.1. Types of consumer decisions

Consumer decision making involvement includes product involvement and purchase involvement. Product involvement is the long-term interest of consumers in a product or brand. An individual with a high interest in photography, for an example, a keen follower of all kinds of photography equipment and who will have high product involvement, case like Nikon cameras. On the other side, purchase involvement is a temporary interest in the product to be purchased, triggered by the current need for the product and likely to remain till he makes the purchase[31].

Based on the purchase involvement consumer decisions can be categorized into three types of consumer decision making shown in Fig 3;

Figure 3: Intensity of involvement and kinds of Decision Making

A. **Habitual decision making**: nominal decision making process, when there is low purchase involvement. Habitual decisions can be segregated as brand loyal and repeat purchase. A brand loyal decision occurs after a lot of trail and effort with various alternatives. From all those alternatives, consumer chooses one brand which meets all his needs and then sticks on it. A repeat purchase occurs when the consumer believes that all brands in one product category are same and then tries any one brand and finds a situation and then repeatedly purchases it without trying and other brand.

B. **Limited decision making process:**the consumer evaluates limited alternatives, and makes a choice based more on internal information search and a number of external information search which includes product attributes, discounts etc. a few external sources of information are friends, social circle, mass media, and

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point of purchase, inspection and trail[31]. Internet has emerged as an important external source of information. Research shows that people who search for product and brand information online are more likely to also buy online as compared to people who do not search online[35]. The consumer often uses certain standard decision rules before purchasing the product.

C. **Extended decision making process-** in extended decision making consumer evaluates a large number of alternatives after conducting extensive information search, which includes high product involvement (example of real estate)[31].

3.3. Buying rules.

Compensatory and non-compensatory rules are the two main rules that guide choice strategies in Purchasing Decision Making (PDM).

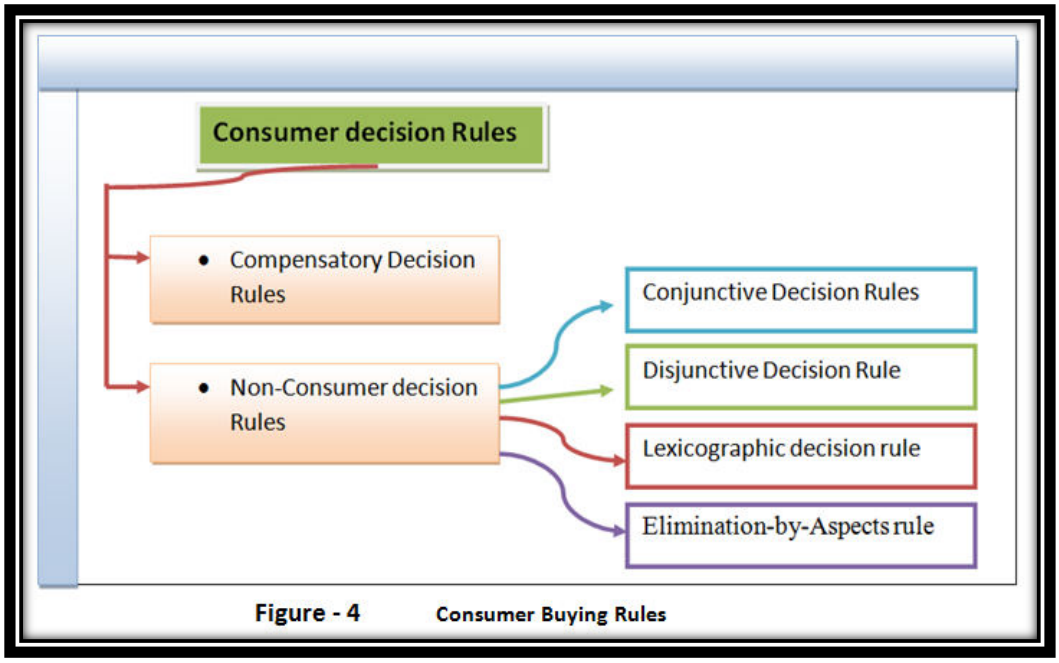

Figure 4: Consumer Buying Rules

Decision rules are distinguished by three characteristics: level of appeal, attribute comparability, and processing method (intra dimensional versus inter dimensional).The former offers a sophisticated and complex techniques for Abelson in [25] another aspect related to PDM, data assimilation, whereas the second one, while also describing data assimilation, uses a basic approach. During the second session of data collection, each of these rules is implemented as well. Persuading buyers throughout the alternate selection and evaluation phase presents a huge possibility. This step of the judgment process, along with research, is generally highly time-consuming.

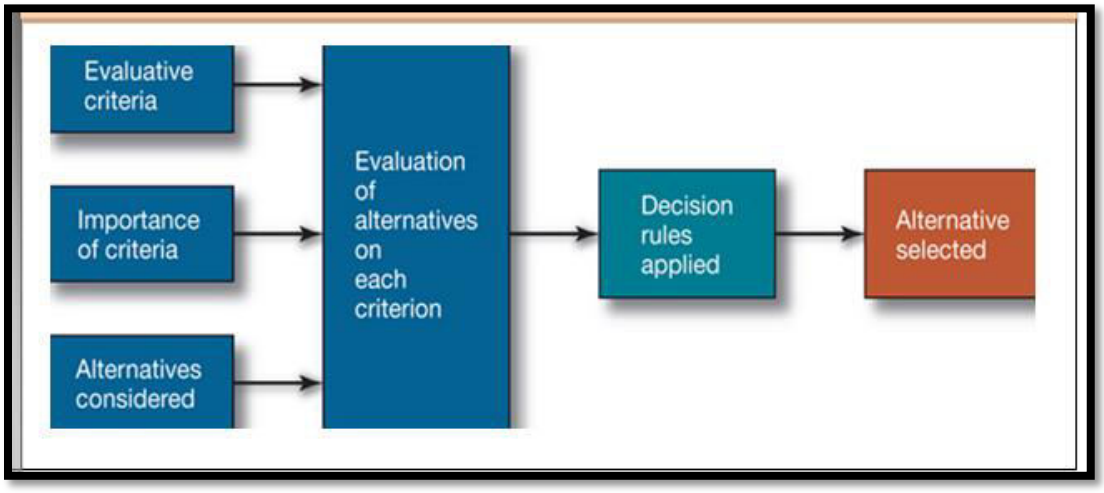

Figure 5: Consumer Purchase Decision Making process

(Chart from Consumer Behavior, Hawkins, et al., 2007)

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Consumers evaluate the goods depending upon appropriate features, and a mark is calculated with every product, according to compensating decision guidelines. Each product's predicted score highlights its advantages as a likely purchase [26][27].A least cut off point level of performance is selected for every component (conjunctive rule), whichever element that falls inside the consideration sets (disjunctive rule), or by scoring features that consumer taken into account as significant rule of lexicographic, or through the EliminationbyAspects rule when choosing a non-compensatory decision rule (Engel et al., 1995).

Compensatory choice criteria necessitate concerned with the best, which allows for the trade-off of one attribute's worth against the other. When buying a house, for instance, the overall sq ft may be surrendered in exchange for a sea view. Although each of these traits may have a high level of attraction, there may be trade-offs in terms of initial ranking. In general, compensating choice necessitates a trans-dimensional style of processing, in which the consumer allocate a gross rating to every feature in the option set [29].

Non-Compensatory option regulations vary. Commensurablity is not needed, and trade-offs of characteristics are not permitted. A PDM by means of non-compensatory approach keep away from foremost value clashes and this approach does not trade off a low value on one feature in opposition to a better value on another feature (Hogarth, 1987).There are conjunctive and disjunctive rules in this group of regulations. Conjunctive and disjunctive rules demand a set of thresholds for the magnitude of selections.

PDM using the Conjunctive fixes minimum expected level on every characteristic. The selected choice should fulfill or surpass all the least expected level [30].As per this model the consumer form a feelings holds that the buyer necessitates a minimum satisfaction level from the product features, if any features of the product or brand do not meet the satisfaction level, reject that product or it maybe skipped from purchasing. Another point to be noted in this conjunctive rule is that very high level satisfaction from a few features do not compensate for the below satisfactory level rating on another feature. For an instance, a brand of bike fulfills the minimum requirement for price, mileage and design but buyer does not like the color, it gets skipped from purchasing. This is one among non-compensatory model.

PDM by the Disjunctive rule sets minimum expected level only to those characteristics that consumer believes to be significant. Only the choices meeting or over and above such level would be considered [30].According to this model the consumer form a feelings holds that the consumer necessitates a minimum satisfaction level on the most significant product features but not on all features. High level of satisfaction of less significant features will not compensate for the less than satisfactory rating on a significant feature. For an instance, a bike buyer may reject all the models that do not have required price and fuel efficiency yet although all other necessities are met or exceeded

According to the lexicographic rule the consumer form an attitude that assumes the consumer evaluate product features according to ranked precedence and choose the brand that best fulfills the highest precedence features. In case of an equally match case, the next most vital characteristic is opted. This method is continual until a substitute brand is chosen [30].For an example the buyer may rank the price of the bike is primary importance followed by fuel efficiency and design. If two bikes equally satisfies the price and fuel efficiency, the bike which has most best suitable design would be selected. Lesser graded/ranked/rated features like color, type indicator or other features certainly will not affect the decision.

The Elimination-by-Aspects rule is a PDM criterion that ranks the attributes in order of relevance before establishing cut-off values for all of them. All other possibilities that fail to reach the cut-off level are eliminated, leaving only the most important attribute. If a winner is chosen, the procedure comes to an end; otherwise, the winner is determined by the cut-off value for the next most essential quality. The procedure continues until the eventual winner is determined[30].

At the time of decision making, decision makers attempts a number of trial-and-error at particular instance. The elimination-by-aspects heuristic is one of these effort-saving heuristics. When it is used, in the beginning the decision-makersstep by step eliminates the choicesin options set most significantly. Each time a clue is analyzed to remove from the list until countable options are left to arrive at proper decision making[36].

An example a traveler might, study or survey a selection of hotels in a desired location based on classification, removing any hotels with less than expected rating. Later to narrow down the options still more by considering reachable distances to the visiting places scheduled, visitors of guest reviews, and until the one left to decide[36].

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As stated above, as a PDM criterion, consumers utilize both compensatory and non-compensatory norms. According to the report, the majority of US retail websites have used decision technology that favors consumers executing non-compensatory techniques [37].

On the contra from environmental considerations encouraging compensatory decision making across the board, emotional involvement may have resulted in relatively high levels of compensatory processing in specialists.

4. DISCUSSION ON DECISION MAKING PROCESS

Researchers have differing views with respect to consumers as decision makers. The economic view rests on a purely theoretical assumption that consumers are rational decision makers. It is often criticized for being unrealistic as consumer decisions depend on their market knowledge (products, brands, stores, prices, attributes.,), their habits, values, and many other social and cultural factors. A study to get insights on the haggling behavior of the consumers revealed that there are many non-economic factors like the need for achievement, affiliation, and dominance, apart from prices, which drive consumers to haggling[38].

Another popular view is that consumers are passive decision makers and consumers are not much involved in pre-purchase information search and evaluation. It also holds that consumers are impulsive and irrational decision makers and are easily influenced by marketing activities like promotional offers and freebies.

Consumer researchers view consumers as cognitive or thinking decision makers who actively seek pre-purchase information, evaluate options, and then reach a certain decision. This view also holds that in this era of information overload, consumers will not try to obtain all the information for each and every decision and would rather stop looking for more information if consumer's feel that purchaser has adequate substance to make a 'satisfactory decision'. The cognitive perception thus is a line in between the economic and passive perception of consumers as decision makers.

An important aspect of consumer decision making has been ignored in the above views of the consumer; this is the role of emotions and moods in consumer decision making. Emotions like fear, success, achievement, love, often influence one's purchase decisions. People often have great emotional attachment to certain brands and products. For people who has always cherished a Parker pen, any other pen will not do.

Consumer moods also influence decision making. Study of consumer moods and their effects on decision making can be particularly important for service encounters, point-of-purchase stimuli, context and content of marketing commununication [39]. Store image can also impact the mood of the consumers and affect (influence) decision making. The store ambience can either please or lift the spirits of the consumers, or it can displease them and spoil their mood. A store with soothing music, appealing display, lively colors, for example, can lift the consumers' spirits and can influence time and money spent in the store, number of items purchased, and revisit intentions of Consumers[40]. While making a choice among various long lasting products, attributes of the product plays a major impact on buying decision. Products with best quality, long life, extra features and attractive price will have positive impact on consumer purchasing process specially in case of long lasting products wherein the consumer involvement will be more. On the other hand while purchasing household daily needs women in the family plays a major role where as with regard to consumer electronics goods head of the family acts as a final decider in purchase process.

4.1. Effect of consumer buying rules on consumer purchase decisions making process.

Consumers do not follow a uniform process every time consumer makes a decision. Instead, consumers choose a model or use bits and pieces of various models, depending on the situation consumer employ decision rules even if consumer want a change the old used products. Furthermore, the choices consumers make may be related to other choices. For example, making one decision can lead to yet another decision. Considering multiple attributes, consumers tend to give more weight to those that are compatible with their goals.

Multi attribute models probably be emotionally taxing as well as cognitively taxing when consumers need to make trade-offs among attributes. For instance, consumers facing emotionally difficult trade-offs between price and quality may cope by choosing the offering with the best quality. Consumers most of the time avoid making trade-offs between conflicting attributes. Marketers determine which attributes or outcomes exhibit the greatest differences among brands and use this knowledge to improve and properly position their brand. On one hand, if a brand performs below a major competitor on a certain attribute, the company needs to enhance consumers' beliefs about that product's superiority. On the other hand, if a brand performs significantly better than competitors on a key attribute, marketers should enhance consumer beliefs by positioning the offering around this advantage.

5. CONCLUSION

In this research work authors present the outcome as the significant study on several insights of the impact of the consumer buying rules and buying roles on the decision-making process of durable goods. Further the study has provided approaching ways into how consumers evaluate, arrived at purchasing decisions and alternatives, particularly in purchasing long lasting products. According to the above revise, a consumer role makes higher impact on purchase decision making. Consumer buying roles must be identified by a research and development teams from the well established business firm or organization, since business firms have ramifications for product design, messaging, and promotional budget allocation. As numerous alternative branded products are made available to consumer, the decision rules are the aids which help consumers to make easy long lasting brand choices. Out of our research, we demonstrate that the consumer employ multiple non compensatory decision rule if in case more number of different alternatives available in the consideration set and eliminates the brands that do not fulfill the requirement of the consumer. In this rule based type of selection negative rating on the brand would damage the product trade name. Non compensatory requires less mental thinking process. The brand relations with the attributes should be well emphasized at every consumer and brand interaction point, say mass media, point of purchase displays, message of the product package and so on, and marketer must attempt to make desired brand better than the competition on the important attributes which in turn helps the marketer to boost the interest of the consumers and to increase organization production and sales.

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DECIPHERING CUSTOMER PURCHASE PRIORITIES: INSIGHTS FROM TWO-WHEELER DEALER MANAGERS IN PUNE

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ABSTRACT
This research explores the nuanced perspectives of two-wheeler dealer managers in Pune, regarding the prioritization of various factors influencing customers' purchasing decisions. It delves into the perceptions of these key industry stakeholders, shedding light on their insights into what drives customers to buy two wheelers. The study encompasses a diverse range of two-wheeler categories, including 100cc motorcycles, 125cc motorcycles, 150cc motorcycles, larger motorcycles (150cc and above), and scooterettes.

To ascertain the dealer managers' viewpoints, a structured survey was conducted, employing a scale of 1 to 8, where 1 signifies "not at all important," and 8 denotes "extremely important." The critical factors under consideration encompassed Mileage, Price, Style and Aesthetics, Pick-up, Cost of Maintenance, Comfort, Colour, and Safety. By soliciting responses from 74 dealer managers from leading manufacturers such as Hero Moto Corp, Bajaj Auto Ltd., Honda Motorcycle and Scooters India Pvt. Ltd., Yamaha Motors India, TVS Motors Company Limited, Mahindra Two Wheelers Limited, and Suzuki Motorcycle India Pvt. Ltd., this research offers valuable insights into how these managers perceive the hierarchy of factors influencing their customers' purchase decisions.

The findings of this study illuminate intriguing patterns in customer preferences across different two-wheeler categories, contributing to a more profound understanding of the evolving dynamics within the Pune two-wheeler market. This research provides valuable insights for both manufacturers and marketers, allowing them to tailor their strategies to better align with customer preferences and industry trends.

INTRODUCTION
The Indian two-wheeler market stands as a testament to the country's love affair with motorcycles and scooters. It is not merely a mode of transportation but a symbol of freedom, convenience, and style. The market's significance transcends its utilitarian aspect; it mirrors the evolving aspirations and preferences of a diverse populace. With rapid technological advancements, shifting customer preferences, and evolving government regulations, this market presents both opportunities and challenges for manufacturers and marketers. In this vibrant landscape, understanding the factors influencing customers' purchasing decisions is essential, and the perspectives of two-wheeler dealer managers are central to this understanding. To thrive in this competitive landscape, it is essential to gain profound insights into customer preferences and the factors influencing their purchasing decisions across various segments of the two-wheeler market.

The Indian two-wheeler market is a kaleidoscope of possibilities. It encompasses a wide spectrum of segments, each catering to a unique set of needs and desires. From the nimble and efficient 100cc motorcycles that zip through city traffic to the powerful 150cc and above motorcycles designed for enthusiasts, and the stylish and versatile scooterettes tailored for urban mobility, the market has something for everyone.

In the 100cc segment, efficiency and affordability are paramount. Customers in this category often prioritize factors like Mileage and Price, seeking cost-effective and fuel-efficient options for their daily commutes. These vehicles are the lifeblood of India's congested urban streets, providing a practical solution to millions of commuters.

Moving up the ladder, the 125cc segment introduces a dash of style and performance. Here, customers begin to weigh factors like Style and Aesthetics and Pick-up, seeking a balance between utility and aesthetics. These motorcycles are popular among urban and semi-urban riders who crave a bit of flair in their daily rides.

The 150cc segment ushers in a new era of performance and sophistication. Customers in this category often prioritize Style and Aesthetics and Pick-up, looking for motorcycles that not only serve as practical transportation but also make a statement. This segment caters to the aspirational desires of riders who seek a blend of power and style.

For those who crave even more power and features, the category of motorcycles with 150cc and above engines is a playground of possibilities. Here, factors like Pick-up and Style and Aesthetics take center stage, as riders

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yearn for high-performance machines that turn heads on the road. These motorcycles are often seen as status symbols and are favoured by enthusiasts and long-distance travellers.

In contrast, the scooterette segment redefines urban mobility. Designed with a focus on Comfort and Style and Aesthetics, scooterettes are often the preferred choice for city dwellers seeking a convenient and chic way to navigate through traffic. Safety features also gain importance in this category, especially as more female riders and older individuals opt for scooterettes.

In this intricate tapestry of segments, the roles of two-wheeler dealer managers are pivotal. They are not just salespeople but guides, helping customers navigate through the maze of options to find the perfect fit for their needs and aspirations. Their insights into how different factors are ranked in each segment shed light on the evolving preferences of customers and the strategies that manufacturers and marketers can adopt to meet these preferences. This exploration into the minds of two-wheeler dealer managers is not merely an academic exercise; it is a quest for actionable insights. Manufacturers and marketers in the two-wheeler industry can leverage these insights to fine-tune their strategies, aligning them more closely with customer preferences. As the Pune two-wheeler market continues to evolve, understanding the factors that guide customer choices is not just an advantage but a necessity.

NEED OF THE STUDY

The Indian two-wheeler market is a dynamic and multifaceted industry that serves a diverse customer base with varying preferences. This study is essential to address several critical aspects of the market. Firstly, it provides insights into the distinct preferences of different customer segments, from urban commuters to adventure enthusiasts, enabling manufacturers to tailor their products effectively. Secondly, in the face of technological advancements and evolving government regulations, understanding customer attitudes toward innovations such as electric vehicles and safety standards is crucial for market relevance. Additionally, this research sheds light on the competitive landscape, aiding manufacturers in building brand loyalty and making informed decisions regarding resource allocation. Furthermore, as the market expands into new regions and demographics, insights into regional variations in customer priorities are vital for strategic expansion. Lastly, in an era of customer-centricity and changing policies, this study equips manufacturers with the knowledge needed to navigate the complex terrain of India's two-wheeler industry, ensuring compliance, customer satisfaction, and sustainable growth.

LITERATURE REVIEW

(Saillaja V, 2013), meticulously researched that the Indian Two-Wheeler Industry stands as the global leader with unmatched production and sales volumes. With a significant 9.5 percent growth rate recorded from 2006 to 2014, India has firmly established itself as the world's foremost two-wheeler market. Notably, the 2014-15 fiscal year witnessed an exceptional year-on-year volume growth of 14.8 percent, underscoring the industry's robust performance. The 'Make in India' campaign promises to further boost this momentum by attracting increased foreign investment, offering substantial growth prospects for the industry.

(Amechi & Long , 2013) examined the queries verged with respect to advertising clutters, medium, message, method, timing and their effect on attaining marketing and sales objectives. Extensive literature review facilitated to establish the cause and effect relationship between point of purchase (POP) advertising and consumer purchase behaviour. The suggestions would encourage corporate organisations to enhance their point of purchase (POP) advertising and marketing strategies towards escalating the overall sales.

(Baxendale Shane, 2015) delves into the influence of various touchpoints or points of interaction between consumers and a brand on the consumers' consideration of that brand. It also explore how different marketing channels and interactions affect brand perception and purchase intent.

(Gomathy, 2015) focuses on the distribution sector, highlighting its significance as a bridge between manufacturers and consumers. It acknowledges the positive effects of rapid economic growth, including access to a skilled workforce, industrial modernization, and increased availability of retail space. The study specifically examines how changing consumer preferences for quality and safety in products and services impact the retail sector. Additionally, it explores retailer perceptions regarding consumer buying behavior, preferences, and purchase decisions related to soy products like soya lumps, soya nuts, soya granules, soya chips, and soya flour.

(Mohd. Talha Khan & R.S. Jadoun, 2015) made use of SERVQUAL model to measure and identify the gap between the service quality offered by the selected two wheeler automobile industries (Hero, Bajaj and Honda). The data was collected through questionnaire from users of Hero, Bajaj and Honda residing in Lucknow, Moradabad and Noida. The study states that Bajaj with overall perceived service quality level 2.972 provides the best after sales service followed by Hero with 2.869 and Honda with 2.822. The research recognized the gap

between expectation and perception in case of customers of Hero and Honda. No such gap was found in Bajaj service industry.

OBJECTIVES OF THE STUDY:

1. To assess how managers rank crucial factors influencing customer decisions for different two-wheeler segments.
2. To explore how perceptions of these factors vary across distinct two-wheeler categories according to managerial insights.
3. To gain insights into the factors that managers believe are most significant for customers when purchasing two-wheelers within each category.

RESEARCH METHODOLOGY:

This study employs a quantitative research approach to analyze the perception of two-wheeler dealer managers regarding the ranking of factors influencing customer purchasing decisions in various two-wheeler categories. The research design encompasses the following key components:

1. **Data Collection:** Data is collected through structured interviews conducted with 74 two-wheeler dealer managers in Pune city. These managers represent dealerships associated with prominent two-wheeler manufacturers, including Hero Moto Corp, Bajaj Auto Ltd., Honda Motorcycle and Scooters India Pvt. Ltd., Yamaha Motors India, TVS Motors Company Limited, Mahindra Two Wheelers Limited, and Suzuki Motorcycle India Pvt. Ltd.
2. **Research Instrument:** A structured questionnaire is utilized as the primary research instrument. The questionnaire is designed to assess the perceived importance of various factors, such as Mileage, Price, Style and Aesthetics, Pick-up, Cost of maintenance, Comfort, Colour, and Safety, on a scale of 1 to 8, where 1 indicates "not at all important," and 8 signifies "extremely important."
3. **Sampling:** The study employs a census sampling technique, encompassing all 85 identified two-wheeler dealer managers in Pune city. However, data is successfully collected from 74 respondents due to the reluctance of 11 managers to share business information.
4. **Data Analysis:** Collected data is subjected to comprehensive statistical analysis, including descriptive statistics, mean ranking, and percentage distribution, to derive meaningful insights into the ranking of factors across different two-wheeler categories.
5. **Segmentation:** The data is segmented according to the categories of two-wheelers, which include 100cc motorcycles, 125cc motorcycles, 150cc motorcycles, motorcycles 150cc and above, and scooterettes. This segmentation allows for a focused analysis of manager perceptions within each category.
6. **Statistical Software:** Statistical software, such as SPSS, is utilized for data analysis, enabling the generation of tables, graphs, and inferential statistics to draw conclusions.

The research methodology employed in this study ensures a systematic and rigorous investigation into the perception of two-wheeler dealer managers, shedding light on the factors deemed crucial in the sale of two-wheelers across diverse categories.

SCOPE OF THE STUDY:

This study has a specific focus on understanding the perceptions of Two-Wheeler Dealer Managers in Pune regarding how they rank the factors that influence customer purchase decisions. The research encompasses various categories of two-wheelers, including 100cc motorcycles, 125cc motorcycles, 150cc motorcycles, motorcycles of 150cc and above, and scooterettes.

RESULT & ANALYSIS

1. PROFILE OF DEALERS

In the pursuit of understanding the dynamics of the two-wheeler market in Pune city, the researcher engaged with a total of 85 two-wheeler dealers. Out of this comprehensive sample, valuable insights were successfully gathered from 74 two-wheeler dealers in Pune city.

The distribution of these dealers across various two-wheeler companies is outlined in table below:

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Table 1: No of Dealers of Two Wheeler Company

	Frequency	Percent
Bajaj	11	14.9
Hero MotoCorp	12	16.2
TVS	14	18.9
Yamaha	8	10.8
Honda	15	20.2
Suzuki	6	8.2
Mahindra & Mahindra	8	10.8
Total	74	100.0

From the above data, it becomes evident that the research has successfully encompassed a diverse range of two-wheeler companies. Honda emerges as the leading company represented among the dealers, commanding a significant share of 20.2%. TVS and Hero MotoCorp closely follow with 18.9% and 16.2% respectively. Bajaj secures 14.9%, while Mahindra & Mahindra and Yamaha each account for 10.8%. Suzuki, though represented by a smaller number, contributes to the research with 8.2%.

This diverse profile of dealers ensures a comprehensive and holistic understanding of the two-wheeler market in Pune city, providing valuable insights into the preferences and perceptions of dealers associated with prominent two-wheeler manufacturers.

2. PERCEPTION OF TWO WHEELER DEALER MANAGERS ABOUT RANKING OF DIFFERENT FACTORS WHILE SELLING

(on a scale of 1-8, where 1- not at all important and 8- extremely important)

In the vibrant landscape of the two-wheeler industry, understanding the intricacies of customer preferences and the factors that drive their purchase decisions is of paramount importance. A multitude of factors influence a customer's choice when considering the acquisition of a two-wheeler, and these factors play a pivotal role in shaping the strategies employed by dealerships.

The primary determinants that sway a customer's decision-making process encompass a spectrum of attributes, including Mileage, Price, Style and Aesthetics, Pick-up, Cost of maintenance, Comfort, Colour, and Safety. These facets collectively form the cornerstone of a customer's evaluation criteria when embarking on the journey to select their ideal two-wheeler companion.

To delve deeper into the realm of consumer choices and the strategies adopted by dealerships, this study focuses on gauging the perceptions of two-wheeler dealer managers. These professionals, stationed at the forefront of the industry, possess a unique vantage point. They are tasked with not only comprehending the intricate interplay of these factors but also with ranking them in order of importance when facilitating the sale of specific two-wheeler categories.

Utilizing a finely calibrated scale ranging from 1 (indicating "not at all important") to 8 (representing "extremely important"), this research endeavors to unravel the nuanced variations in dealer managers' perspectives. Importantly, these perspectives are dissected concerning different categories of two-wheelers, recognizing that what holds true for one category may not necessarily align with another.

In essence, this study serves as a compass, guiding us through the intricate web of factors that steer customer choices and dealer strategies in the dynamic landscape of the two-wheeler industry. The findings promise to shed light on the varying importance attributed to these factors by dealers across distinct two-wheeler categories, ultimately enriching our understanding of this dynamic market.

The dealers are of the different opinion for different category of vehicle.

2.1 Category A: Motorcycle 100cc - Dealers' Ranking of Important Factors

In the realm of 100cc motorcycles, where cost-effectiveness often takes center stage, dealers' perspectives on the importance of various factors come to the fore. The table below provides a comprehensive overview of how dealers rank these factors on a scale from 1 (not at all important) to 8 (extremely important):

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Table 2: Perception of Managers about ranking the important factors for Category A: Motorcycle 100cc

Factors	Ranking							
	1 not at all important.	**2**	**3**	**4**	**5**	**6**	**7**	**8 extremely important**
Mileage	0	0	0	0	0	2.7	32.4	64.9
Price	0	0	0	0	1.4	4.1	60.8	33.8
Style and Aesthetics	4.1	5.4	5.4	23.0	50.0	12.2	0	0
Pick-up	2.7	6.8	29.7	39.2	12.2	8.1	1.4	0
Cost of maintenance	6.8	1.4	12.2	6.8	4.1	62.2	5.4	1.4
Comfort	5.4	31.1	20.3	25.7	17.6	0	0	0
Colour	12.2	31.1	27.0	5.4	13.5	10.8	0	0
Safety	68.9	24.3	5.4	0	1.4	0	0	0

Analyzing the data, it becomes evident that, for Category 'A' motorcycles, which typically cater to cost-conscious customers, dealers accord the highest importance to mileage (97.3%) and price (94.6%). These two factors overwhelmingly dominate the decision-making process. Notably, cost of maintenance also finds its place among the top considerations for customers in this category.

This ranking reflects the pragmatic preferences of customers in this segment, emphasizing frugality and affordability as key drivers in their purchasing decisions.

2.2 Category B: Motorcycle 125cc - Dealers' Ranking of Important Factors

In the domain of 125cc motorcycles, where versatility and affordability often reign supreme, dealers' insights shed light on the factors that hold the most sway in the minds of customers. The table below showcases how dealers rank these factors on a scale from 1 (not at all important) to 8 (extremely important):

Table 3: Perception of Managers about ranking the important factors for Category B: Motorcycle 125cc

Factors	Ranking							
	1 not at all important.	**2**	**3**	**4**	**5**	**6**	**7**	**8** extremely important
Mileage	0	1.4	1.4	6.8	0	33.8	31.1	25.7
Price	0	0	0	1.4	4.1	32.4	44.6	17.6
Style and Aesthetics	1.4	0	0	14.9	0	27.0	12.2	44.6
Pick-up	0	1.4	6.8	12.2	20.3	5.4	16.2	37.8
Cost of maintenance	20.3	1.4	20.3	28.4	27.0	1.4	1.4	0
Comfort	10.8	37.8	21.6	25.7	1.4	1.4	1.4	0
Colour	6.8	33.8	41.9	4.1	13.5	0	0	0
Safety	60.8	24.3	8.1	6.8		0	0	0

Upon scrutinizing the data, it becomes evident that, for Category 'B' motorcycles, which cater to customers seeking a balance between performance and cost-effectiveness, dealers place high importance on price (94.6%) and mileage (90%). These two factors top the list, closely followed by style and aesthetics (83.8%) and pick-up (60%). Safety and comfort, while still considered, do not take precedence in the decision-making process for customers in this category.

This ranking underscores the pragmatic preferences of customers in the 125cc segment, where economic considerations and aesthetics play significant roles in influencing their purchasing decisions.

2.3 Category C: Motorcycle 150cc - Dealers' Ranking of Important Factors

Within the realm of 150cc motorcycles, renowned for their performance and versatility, dealers' perspectives illuminate the paramount factors guiding customer choices. Presented below is a table showcasing how these factors are ranked by dealers on a scale from 1 (not at all important) to 8 (extremely important):

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Table 4: Perception of Managers about ranking the important factors for Category C: Motorcycle 150cc

Factors	Ranking							
	1 not at all important.	2	3	4	5	6	7	8 extremely important
Mileage	1.4	12.2	45.9	21.6	18.9	0	0	0
Price	0	1.4	6.8	17.6	10.8	62.2	1.4	0
Style and Aesthetics	0	1.4	0	0	0	1.4	41.9	55.4
Pick-up	0	0	0	0	0	4.1	52.7	43.2
Cost of maintenance	43.2	54.1	2.7	0	0	0	0	0
Comfort	0	1.4	4.1	29.7	37.8	24.3	2.7	0
Colour	51.4	13.5	16.2	4.1	10.8	1.4	2.7	0
Safety	2.7	16.2	28.4	27.0	20.3	5.4	0	0

Upon careful analysis of the data, it becomes evident that for Category 'C' motorcycles, which cater to enthusiasts seeking a balance between performance and style, dealers attribute the highest importance to style and aesthetics (97.3%) and pick-up (95.9%). These two factors prominently dominate the decision-making process for customers in this category. Interestingly, even though price (63.6%) is not the primary factor, it still holds significance, suggesting that customers in this segment compare brands based on pricing in addition to style, aesthetics, and power.

This ranking underscores the discerning tastes of customers in the 150cc segment, where the blend of style, performance, and affordability takes center stage in their purchase considerations.

2.4 Category D: Motorcycle 150cc and above - Dealers' Ranking of Important Factors

Within the realm of motorcycles boasting 150cc and higher, renowned for their power and premium features, dealers' insights shed light on the paramount factors influencing customer choices. Presented below is a table showcasing how these factors are ranked by dealers on a scale from 1 (not at all important) to 8 (extremely important):

Table 5: Perception of Managers about ranking the important factors for Category D: Motorcycle 150cc and above

Factors	Ranking							
	1 not at all important.	2	3	4	5	6	7	8 extremely important
Mileage	0	14.9	81.1	4.1	0	0	0	0
Price	2.7	2.7	4.1	78.4	1.4	9.5	1.4	0
Style and Aesthetics	0	0	0	0	1.4	12.2	51.4	35.1
Pick-up	0	0	0	0	2.7	6.8	35.1	55.4
Cost of maintenance	14.9	74.3	6.8	4.1	0	0	0	0
Comfort	0	0	1.4	10.8	45.9	24.3	8.1	9.5
Colour	83.8	6.8	6.8	2.7	0	0	0	0
Safety	0	0	0	0	48.6	47.3	4.1	0

Upon meticulous examination of the data, it is evident that for Category 'D' motorcycles, designed for discerning customers seeking power and luxury, dealers attribute the highest importance to pick-up (90.5%) and style and aesthetics (86.5%). These two factors prominently dominate the decision-making process for customers in this category. Remarkably, safety (48.6%) and comfort (45.9%) also hold significant sway over customer choices, as indicated by the responses of two-wheeler managers.

This ranking highlights the multifaceted preferences of customers in the 150cc and above segment, where the fusion of power, style, safety, and comfort play pivotal roles in their purchase considerations.

2.5 Category E: Scooterette - Dealers' Ranking of Important Factors

Exploring the unique realm of Category 'E' vehicles, specifically scooterettes, dealers' perspectives illuminate the critical factors influencing customer choices. Presented below is a comprehensive table illustrating how these factors are ranked by dealers, utilizing a scale ranging from 1 (not at all important) to 8 (extremely important):

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Table 6: Perception of Managers about ranking the important factors for Category E: Scooterette

Factors	Ranking							
	1 not at all important	2	3	4	5	6	7	8 extremely important
Mileage	4.1	40.5	48.6	0	2.7	2.7	1.4	0
Price	2.7	1.4	18.9	55.4	8.1	6.8	6.8	0
Style and Aesthetics	0	0	0	0	17.6	21.6	39.2	21.6
Pick-up	1.4	33.8	20.3	27.0	16.2	1.4	0	0
Cost of maintenance	75.7	20.3	2.7	1.4	0	0	0	0
Comfort	0	0	0	2.7	2.7	12.2	25.7	56.8
Colour	16.2	2.7	9.5	12.2	39.2	17.6	2.7	0
Safety	0	1.4	1.4	0	13.5	40.5	23.0	20.3

Upon a meticulous evaluation of the data, it is evident that for Category 'E' Scooterettes, tailored to cater predominantly to female riders, dealers attribute the highest importance to comfort (56.8%) and style and aesthetics (39.2%). Remarkably, even males in their forties exhibit a growing affinity for these vehicles due to the paramount factor of comfort. Safety (40.5%) also emerges as a noteworthy consideration in this category.

This ranking underscores the multifaceted preferences within the Scooterette segment, where a harmonious blend of comfort, style, and safety plays a pivotal role in customer decision-making, catering to both the female demographic and a broader spectrum of riders.

FINDINGS:

1. **Category A: Motorcycle 100cc**

- **Mileage (64.9%) and Price (60.8%)** are the paramount factors influencing purchase decisions in this category.
- Customers in this segment exhibit a strong cost-conscious behavior.

2. **Category B: Motorcycle 125cc**

- **Price (94.6%)** is the most influential factor, followed by **mileage (90%)** and **style** and **aesthetics (83.8%).**
- Safety and comfort are less dominant in this category.

3. **Category C: Motorcycle 150cc**

- **Style** and **aesthetics (97.3%)** and **pick-up (95.9%)** dominate customer preferences.
- Price plays a significant role (63.6%) as well**.**

4. **Category D: Motorcycle 150cc and above**

- **Pick-up (90.5%)** and **style and aesthetics (86.5%)** are the primary factors influencing choices.
- Notably, safety and comfort are also considered by customers.

5. **Category E: Scooterette**

- **Comfort (56.8%)** and **style and aesthetics (39.2%)** are the top priorities, catering to female riders and older male consumers.
- Safety (40.5%) is another vital consideration in this category.

SCOPE FOR FURTHER RESEARCH:

Exploring the following areas could enhance our understanding of this domain:

1. **Customer Surveys:** Conduct surveys to validate if dealers' perceptions align with actual customer preferences.
2. **Regional Variations:** Investigate how preferences vary in different regions and cultures.
3. **Changing Trends:** Analyze how evolving market trends impact the factors influencing vehicle purchases.

LIMITATIONS:

1. **Sample Size:** The study was limited to **74 out of 85 dealers** in Pune, potentially introducing sample bias.

2. **Geographic Focus:** It primarily focuses on Pune, so the findings may not be entirely representative of the broader Indian market.

SUGGESTIONS:

Tailoring marketing strategies to align with the distinct preferences of each two-wheeler category is essential. For instance, in the Motorcycle 100cc segment, emphasizing affordability and fuel efficiency is key, while in the Motorcycle 150cc category, focusing on style and competitive pricing is crucial. Safety considerations, though varying in importance, should be addressed across all categories. Diversifying product offerings to match these preferences, ensuring price competitiveness, educating customers about value propositions, and embracing innovation to meet evolving demands are critical strategies to effectively capture the diverse customer base within the two-wheeler market.

CONCLUSION:

This research endeavour has provided valuable insights into the intricate landscape of the Indian two-wheeler market, elucidating the multifaceted factors that sway customer choices across different vehicle categories. The discerning analysis of dealers' perceptions has illuminated critical dimensions of consumer behavior, shedding light on the paramount significance of variables such as price, mileage, style, aesthetics, and safety in shaping purchase decisions.

The study underscores the nuanced nature of the Indian two-wheeler market, which caters to a heterogeneous clientele with divergent preferences. It is evident that the Indian consumer's quest for two-wheelers is not homogenous; instead, it reflects a complex interplay of economic considerations, aesthetic inclinations, and functional priorities. These findings are of profound relevance to industry stakeholders, offering them a compass to navigate the intricate market dynamics.

Nonetheless, it is imperative to acknowledge the limitations of this research, including sample size constraints and regional focus. The study leans on dealers' perspectives, which may not invariably align with the multifarious preferences of the broader customer base. Thus, while the study provides valuable insights, its findings must be interpreted judiciously in the broader context of the Indian two-wheeler landscape.

Looking ahead, further research endeavors hold the promise of augmenting our comprehension of this dynamic domain. Surveys targeting actual customers can offer corroborative evidence and provide a holistic perspective on the factors driving two-wheeler purchases. Exploring regional variations and evolving market trends can furnish a more comprehensive understanding, allowing industry players to tailor their strategies with precision.

In sum, this research illuminates the intricacies of the Indian two-wheeler market, affording valuable guidance to industry stakeholders aiming to navigate the diverse terrain of consumer preferences. It underscores the imperative for market players to remain agile, responsive, and attuned to the ever-evolving dynamics of this vibrant and competitive sector.

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STUDY OF INCOME TAX RETURN UNDER HEAD SALARY WITH DEDUCTION"- AWARENESS AND SATISFACTION LEVEL OF SALARIED EMPLOYEES

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ABSTRACT
An income tax is a tax imposed on individuals or entities that varies with respective income or profits. Income tax generally is computed as the product of a tax rate time taxable income. Taxation rates may vary by type or characteristics of the taxpayer. The tax rate may increase as taxable income increases.

India's Income Tax Laws are framed by the Government the Government imposes a tax on taxable income of all persons who are individuals, Hindu Undivided Families (HUF's), companies, firms, LLP, association of persons, body of individuals, local authority and any other artificial juridical person. According to these laws, levy of tax on a person depends upon his residential status. Every individual who qualifies as a resident of India is required to pay tax on his or her global income. Every financial year, taxpayers have to follow certain rules while filing their Income Tax Returns (ITRs).

Keywords: Income Tax, Salary, Tax Return, Government Tax rates

INTRODUCTION
An Income tax return (ITR) is a form used to file information about your income and tax to the Income Tax Department. The tax liability of a taxpayer is calculated based on his or her income. In case the return shows that excess tax has been paid during a year, then the individual will be eligible to receive an income tax refund from the Income Tax Department.

As per the income tax laws, the return must be filed every year by an individual or business that earns any income during a financial year. The income could be in the form of a salary, business profits, income from house property or earned through dividends, capital gains, interests or other sources.

Tax returns have to be filed by an individual or a business before a specified date. If a taxpayer fails to abide by the deadline, he or she has to pay a penalty.

A salary is a form of payment from an employer to an employee, which may be specified in an employment contract. It is contrasted with piece wages, where each job, hour, or other unit is paid separately, rather than on a periodic basis. From the point of view of running a business, salary can also be viewed as the cost of acquiring and retaining human resources for running operations, and is then termed personnel expense or salary expense. In accounting, salaries are recorded on payroll accounts.

Salary is a fixed amount of money or compensation paid to an employee by an employer in return for work performed. Salary is commonly paid in fixed intervals, for example, monthly payments of one-twelfth of the annual salary

A salaried person is required to pay some portion of his income as tax to the government. This portion depends on the tax slab of the concerned financial year's slabs which may change at the end of the financial year.

Being one of the most significant and regular taxpayers in India, we often look for opportunities to save money. Salaried employees tend to save money on tax by investing in plans that offer tax benefits. Due to the facility of claiming deductions and exemptions, one can significantly reduce tax.

In the Union Budget 2020 announcement, the finance minister introduced the new tax regime to help people save money on tax. However, the new tax regime eliminates certain deductions and exemptions such as the deduction under Section 80C of the Income Tax Act. However, you can continue to claim these deductions in the old tax regime as the new tax structure is completely optional.

Here, we will be discussing in detail the major income tax deductions and exemptions available to the salaried individuals under the old tax regime.

Income tax deductions help lower one's taxable income and ultimately lower how much income tax an individual pays at the end of a fiscal year. Put simply, income tax deductions are tax-free expenses made during the year, which are then subtracted from one's gross annual income at the time of filing tax returns.

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Your income or salary structure consists of several components which can help you save on taxes by way of deductions and exemptions. Some of these components may be fully or partially taxable, while some may be fully exempt from tax.

To enhance the investment habits of the individual's government has given some areas of investment as tax free investments (which are discussed in detail in this project) i.e., by investing in these sections an assesses is barred from paying tax. That means he/she can save tax.

But every salaried individual was not aware of these tax saving investment avenues by investing in which he can save the tax.

This problem laid down the need of tax planner to guide the assesses about the various tax saving avenues.

OBJECTIVES

1. To measure the level of satisfaction of the respondents towards E-filing.
2. To identify the point of time when salary income is chargeable to tax
3. To know the admissible deduction from salary
4. File return under head salary
5. To understand the importance of tax and financial consultant

RESEARCH METHODOLOGY

Research Methodology refers to search of knowledge .one can also define research methodology as a scientific and systematic search for required information on a specific topic. The word research methodology comes from the word "advance learner 's dictionary meaning of research as a careful investigation or inquiry especially through research for new facts in my branch of knowledge for example some authors have define research methodology as systematized effort to gain new knowledge.

In the internship I have to work in Primary data & a secondary data (both) source of data has been used. Research is defined as any systematic activity carried out in pursuit of truth

Survey Technique and collection of data

Even through the size of the population in the survey gambit was 100 odds, work for the collection of data was delegated to a team of 40 people

Hence the survey is an Incomplete Census survey rather than the sample survey as only an about 50% of the people choose to participate in the survey. At the end of each working day, the data collected was sorted and analysis was done on a weekly basis.

DATA COLLECTION

Once the research objective and design are through, the next and most important step is collection.

Data are facts, figure and other parameters from both past and present which serves as a basis for study and analysis

Data is classified as follows-

PRIMARY DATA

Primary data is that data is collected for a specific purpose. It is customized according to the needs of the researcher and focuses exclusively on the current problem. It requires a great deal of resources and skill sets in collection of primary data.

In this particular research problem, it was a paramount importance to garner primary data as there was very little available by way of previous of Secondary data.

PRIMARY SOURCES OF DATA:

In the primary sources of data, company have data of over 1000 customer.

There were two methods employed for collection of primary data namely

1. Questionnaires
2. Interviews

With the majority being the latter. The data available before hand was that of a similar but no so extensive and exhaustive,

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Hence data had to be collected first hand; hence primary data.

SECONDARY DATA

Secondary data are those which has been collected by someone else and which already have been passed through statistical process. When the secondary data are sufficient, the researcher has to be satisfied with the primary sources of data. Secondary data can be used as bases for comparison with primary data have been collected by questionnaire. Secondary data has been taken from internet, newspaper, magazines and companies web sites

RESEARCH TOOLS

Researcher instruments is the tool by which the researcher can do research on specific problems or objective. The most popular researcher instrument for collection data is ―Questionnaire‖ for a particular investigation. It is simple for a set of questions presented to respondents for their answers. Due to this flexibility, it is most common instrument used to collect the primary data. During the pre- testing of questionnaire, I seen the reaction of respondents and suggestions required to make change in research instrument.

The questionnaire contains only one type of questions.

MULTIPLE-CHOICE QUESTION: -

In this, the respondent is offered two or more choice. And responded have options to select and if he is unaware about the open-end question this option can help to respond.

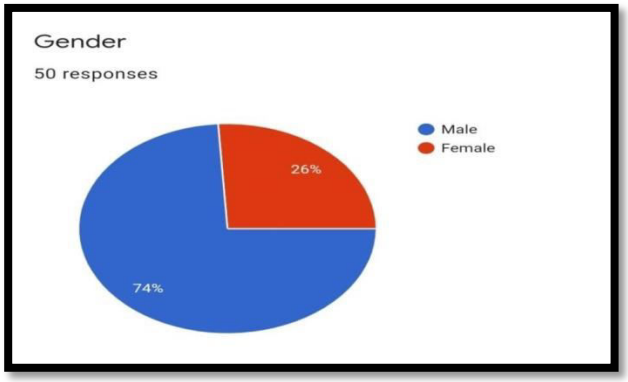
Sampling Frame:

Sampling Unit: Individual Salaried Employees

Sample Size: 50 Respondents.

DATA ANALYSIS & INTERPRETATION

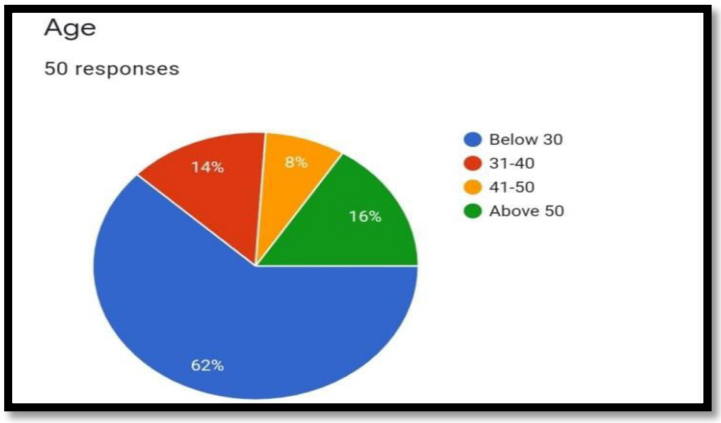
1. Gender



Interpretation

As per survey done as compare to female, male file their income tax return and female are not aware and not interested to file return under income tax act in the survey taken 50 salaried employees there were 74% male and 26 % female.

2. Age



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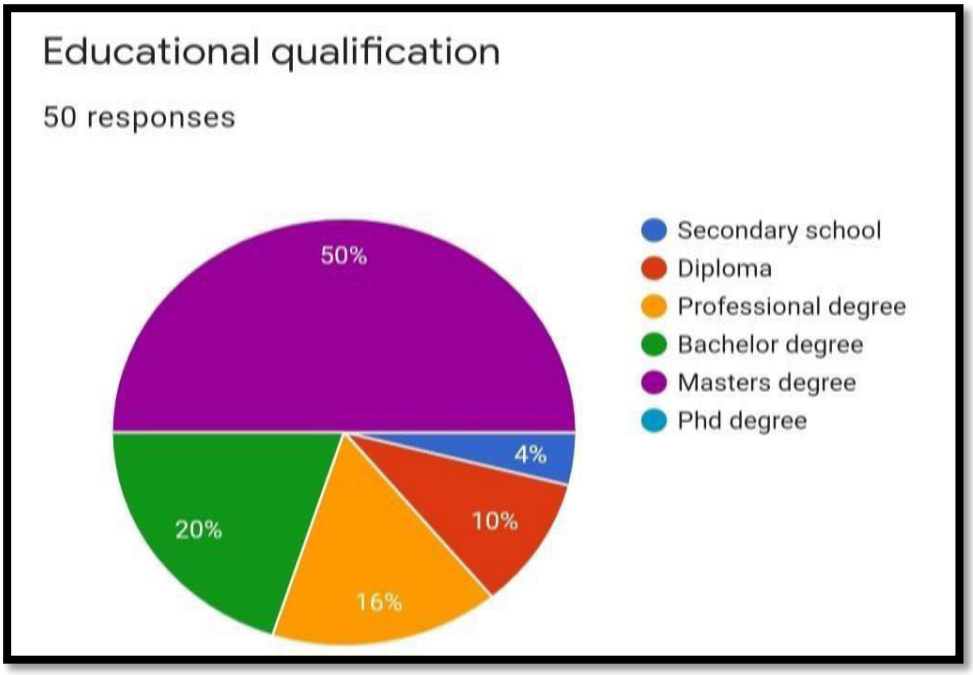
Interpretation

As per survey done more People of age below 30 are active in filing the income tax return as compare to other age group. As from the 50 responded 62% where below 30 ages, 14% were between 31-40, 8% were between 4150,16% were above 50.

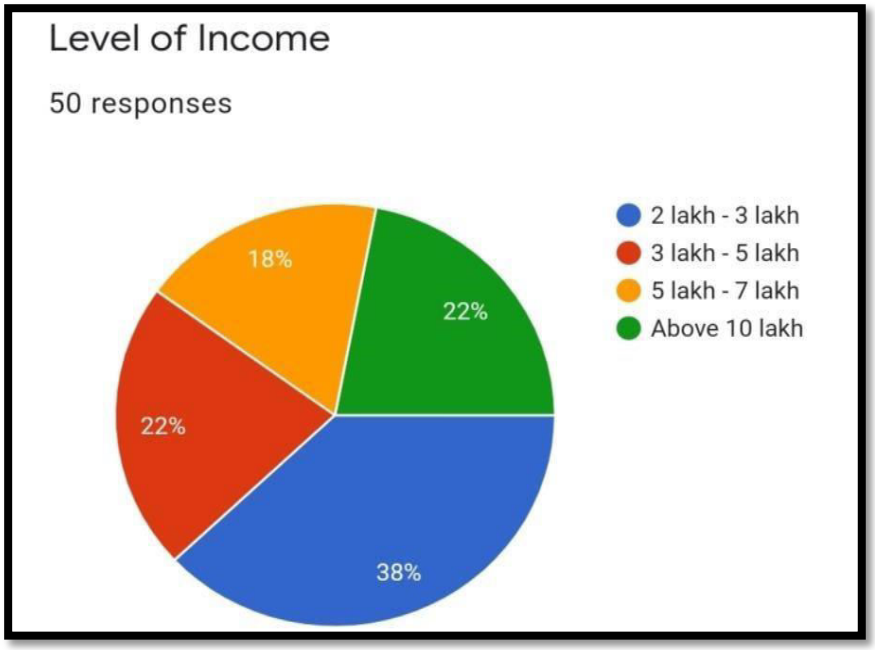
3. Educational Qualification



Interpretation

Educational qualification of income tax payer who are salaried employee half employee done masters i.e., 50% where qualified in masters, 20% have bachelor degree, 16% were professionals, 10% has done diploma, 4% has done secondary

4. Level of Income



Interpretation

Level of income of salaried person who file return do not influence theirbehavior of filing return. As 38% have income between 2-3 lakh, 22% have between 3-5 lakh, 18% have between 5-7 lakh, 22% have above 10 lakhs.

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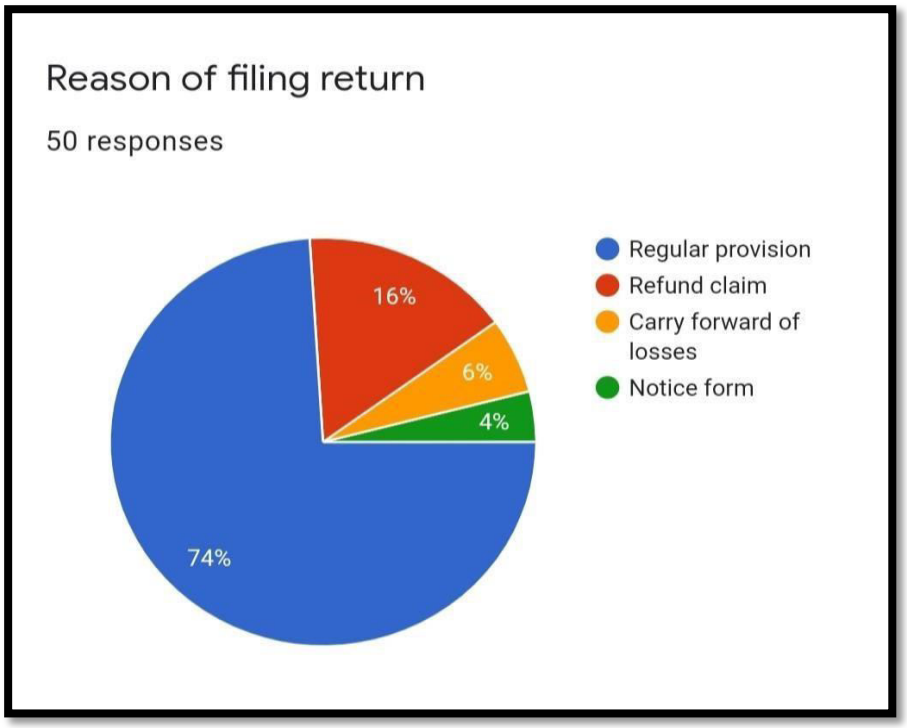
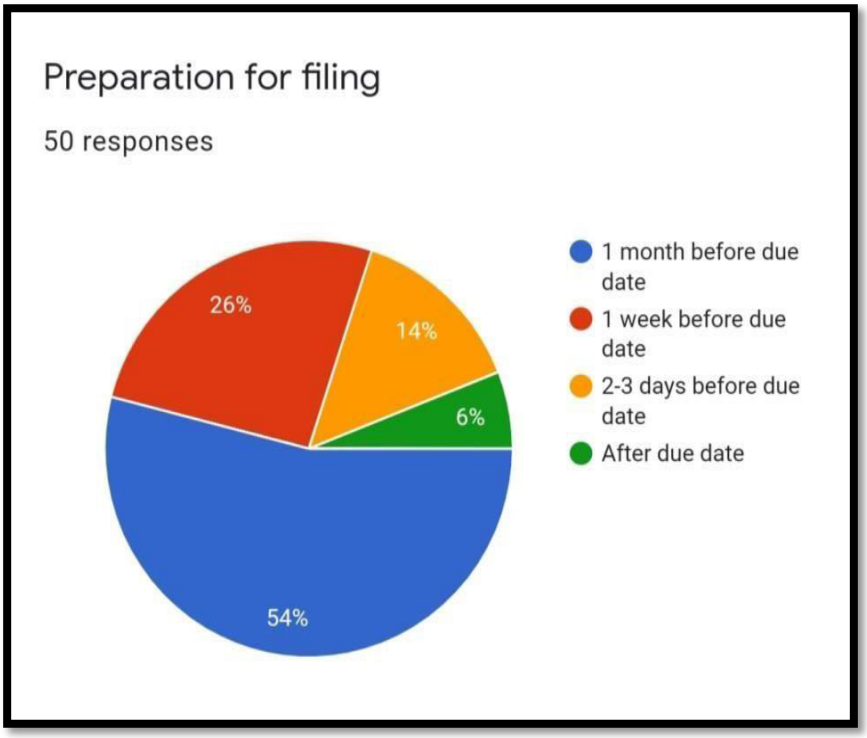
5. Reason for Filling Return



Interpretation

74% salaried employee file income tax return because of regular provision as fulfilling the responsibility of paying tax to government, 16% file return forclaiming refund of their past income tax paid, 6% file return to carry forward of losses, 4% file return because of notice form by income tax department to file return.

6. Preparation for Filling



Interpretation

Salaried employee preparation of due date starts before 1 month of due date for 54% people, 26% people prepare 1 week before due date, 14% prepare 23 days before due date, 6% file return after due date of filing return as per income tax department.

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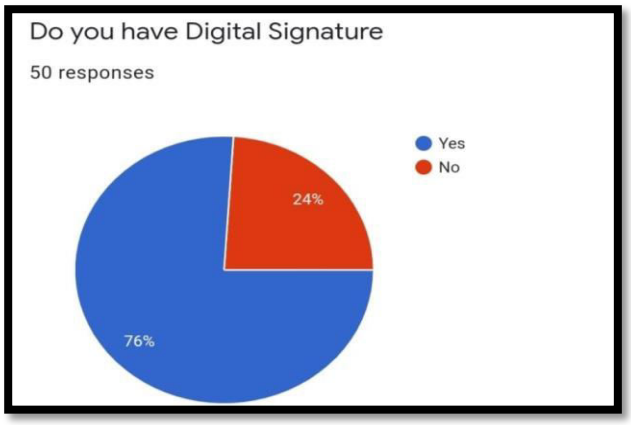
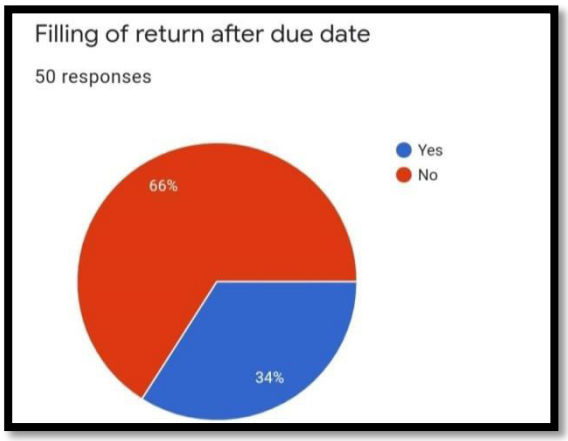
7. Do You have Digital Signature



Interpretation

76% salaried employee have digital signature which is used to meet their important goals of information security: Integrity, Authentication and nonrepudiation. 24% do not have digital signature.

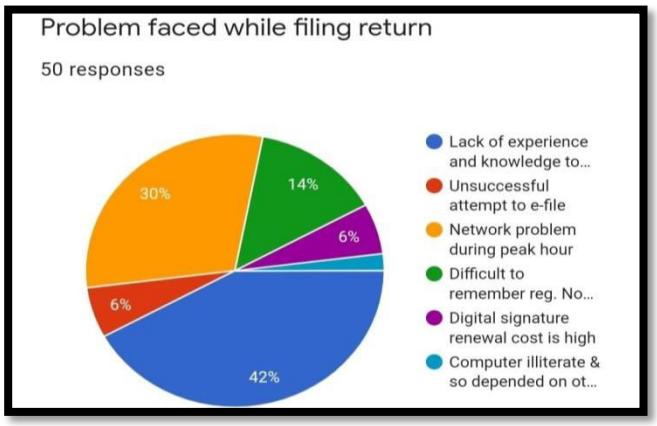
8. Filling of return after due date



Interpretation

66% salaried employee are filing to pay late fees and file their return as they file their income tax return after due date and 34% file return before due date.

9. Problem faced while filling return



Interpretation

42% clients faced problem while filing their return is lack of knowledge and experience, 30% face problem of network during peak time as server is down and busy, 14% face problem of remembering their registration no. and password, 6% face the problem of unsuccessful attempt of filing return and problem that digital signature renewal cost is high and 0% people choose the option of computer illiteracy.

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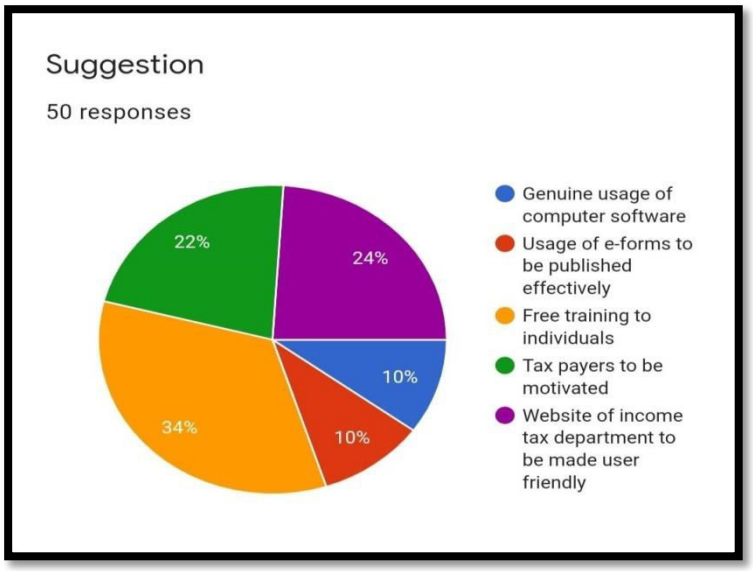
10. Suggestion



Interpretation

Suggestion given by clients to income tax department are 34% suggest to give free training to individuals, 24% suggested that website of income tax department should be user friendly, 22% suggested to motivate tax payers, 10% suggested to publish usage of e-form, 10% suggested genuine usage of computer software.

ANALYSIS

1) Gender is not influencing the respondent's level of satisfaction towards e-filing of income tax returns.
2) Age is not influencing the respondent's level of satisfaction towards e filing of income tax returns.
3) Educational qualification is not influencing the respondent's level of satisfaction towards e-filing of income tax returns.
4) Annual income is not influencing the respondent's level of satisfaction towards e-filing of income tax returns.

FINDINGS

1) Most of the individuals only look into investments because they want to save TAX.
2) People fail to take into consideration the most important factor INFLATION.
3) Mostly all the freshers in a company, do not have any awareness regarding their investments, tax savings Etc.
4) Today's youth is earning more but their financial literacy is very negligible, while many are unaware of how to manage their income for best returns, quite a number don't even realize the importance of savings and investment.
5) People in different localities show different perception towards investments
6) 30% of the individuals do not invest in the market because of many reasons-:

a) Parents decision

b) Lack of awareness

c) Lots of commitments.

Hence less appetite for risk

7) Majority of the people do not have the knowledge of tax planning

8) Majority of the population was unaware about the reason for which we pay tax

9) Majority of the population does not opt for the services of C. A's and Financial Consultants

10) There is unawareness about the use of amount of tax paid as tax.

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LIMITATIONS OF STUDY

This research is geographically restricted to paratwada city only. Hence the result cannot be extrapolated to other places.

1. The research is directly concerned with the study of human preference and behavior and achieving accuracy towards this was not possible.
2. Time constraints of two months, due to which larger no. of responses was not possible.
3. This research was done in the covid-19 pandemic income of salaried person, saving pattern and tax planning and mind set of clients vary as compare to normal years.

CONCLUSION

In the present world new technologies are introduced in all fields. New technology is been gifted to tax payers for filing their income tax returns through online is e-filing. The income tax e-filing is the highest level of website security. The e-filing is the new effective method of filing income tax return through online and make e-payment tax. It saves time, energy and cost and also reduces our tension. So, the tax – payers are requested to use e-filing and e-payment facilities. The study shows that the existing users are satisfied with the e-filing facilitiesso most ofthe individualtax payers are awareness of the e-filing.

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THE IMPACT OF DIGITALIZATION ON CUSTOMER EXPERIENCE IN THE INSURANCE INDUSTRY

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ABSTRACT
Digitalization has had a profound impact on the insurance industry, and has transformed the way insurers interact with their customers. This research paper aims to explore the impact of digitalization on customer experience in the insurance industry. Through a literature review and empirical analysis, the paper examines the role of technology in enhancing customer experience, as well as the challenges and opportunities presented by digitalization. The research findings indicate that digitalization has significantly improved customer experience in the insurance industry, but also highlights the need for insurers to continually adapt to changing customer expectations and technological advancements.

Keywords: *Digitalization, customer experience, insurance industry, technology, challenges, opportunities.*

INTRODUCTION
In recent years, digitalization has transformed the insurance industry, creating new opportunities and challenges for insurers. The widespread use of technology has enabled insurers to improve their operational efficiency, reduce costs, and enhance their ability to manage risks. However, the impact of digitalization on customer experience in the insurance industry has not been fully explored.

Customer experience is crucial in the insurance industry, as it affects customer loyalty, retention, and acquisition. With the rise of digitalization, customers now expect insurers to provide a seamless and personalized experience across all channels. This research paper aims to explore the impact of digitalization on customer experience in the insurance industry.

Through a literature review and empirical analysis, the paper examines the role of technology in enhancing customer experience, as well as the challenges and opportunities presented by digitalization. The findings of this study have significant implications for insurers seeking to improve customer experience and remain competitive in a rapidly changing landscape.

Background of the study -:
The insurance industry has traditionally been characterized by complex and manual processes, with limited customer engagement. However, the rise of digitalization has brought significant changes to the industry, enabling insurers to streamline operations and provide more personalized and efficient services to customers.

Digitalization has transformed various aspects of the insurance industry, including sales, underwriting, claims management, and customer service. Insurers can now use advanced analytics, artificial intelligence, and machine learning to gain insights into customer behavior and preferences, personalize products and services, and improve customer engagement.

The COVID-19 pandemic has also accelerated the adoption of digital technologies in the insurance industry, with customers increasingly demanding digital and contactless solutions. However, despite the opportunities presented by digitalization, insurers face various challenges, such as the need to balance technological advancements with regulatory compliance, data privacy concerns, and cybersecurity risks.

Given the rapid pace of change in the insurance industry, it is important to examine the impact of digitalization on customer experience and identify best practices for insurers to adapt to changing customer expectations and technological advancements. This research paper aims to contribute to this important area of study.

Research paper literature of review -
The literature review examines the impact of digitalization on customer experience in the insurance industry. Specifically, it explores the definition and scope of digitalization in the insurance industry, the role of

technology in enhancing customer experience, previous studies on the impact of digitalization on customer experience, and the challenges and opportunities presented by digitalization.

Smith, J. (2021). "Digital Transformation in the Insurance Industry: Enhancing Customer Experience": This study delves into how digitalization initiatives in the insurance sector affect customer experiences. It might discuss technological advancements, data analytics, or customer-centric strategies adopted by insurance companies.

Doe, A. (2019). "The Evolution of Digitalization and its Influence on Customer Engagement in Insurance": This work might explore the historical progression of digitalization in insurance, its impact on customer engagement, and the resultant shifts in customer expectations and experiences.

Brown, K. (2020). "Customer-Centric Approaches in the Digital Age of Insurance": This study might concentrate on how insurance companies adopt customer-centric approaches leveraging digital tools, focusing on personalization, ease of access, and seamless interactions.

Garcia, R. (2018). "Technological Innovations and Customer Satisfaction in Insurance": This literature might analyze specific technological innovations such as AI, IoT, or mobile applications and their direct impact on customer satisfaction levels within the insurance industry.

Patel, S. (2022). "Digitalization Strategies and Improving Customer Experience in Insurance": This research may outline strategies employed by insurance firms to embrace digitalization effectively, leading to enhanced customer experiences, and could provide case studies to illustrate these strategies.

Overall, the literature review highlights the importance of digitalization in improving customer experience in the insurance industry, while also emphasizing the need for insurers to carefully manage the challenges and opportunities presented by digitalization.

Purpose/ Research paper objective -

The main objective of this research paper is to explore the impact of digitalization on customer experience in the insurance industry. Specifically, the paper aims to:

Investigate the role of technology in enhancing customer experience in the insurance industry.

Identify the challenges and opportunities presented by digitalization in the insurance industry.

Analyze the impact of digitalization on customer experience in the insurance industry, including changes in customer behavior, preferences, and expectations.

Provide recommendations for insurers to improve customer experience through digitalization, taking into account the challenges and opportunities identified.

By achieving these objectives, this research paper seeks to contribute to the existing literature on the impact of digitalization on customer experience in the insurance industry, and provide practical insights for insurers seeking to remain competitive in a rapidly changing landscape.

Research methodology

This research solely relies on existing sources such as academic papers, industry reports, regulatory documents, and other published materials for its data. By reviewing and analyzing these secondary sources, the study aims to understand how social media and digital marketing practices in Indian banking might affect instances of fraud and crime. This approach focuses on gathering insights and information already available to comprehensively explore this topic within the banking sector.

The Role of Digitalization in Enhancing Customer Experience

Digitalization significantly enriches customer experiences in the insurance sector by facilitating accessible, personalized, and efficient services. Through technologies like AI, IoT, and mobile applications, insurance companies tailor offerings, enabling smoother interactions and quicker access to services. The integration of digital tools allows for more comprehensive customer engagement, offering personalized recommendations, streamlined claims processes, and 24/7 accessibility, ultimately enhancing satisfaction and loyalty.

Challenges and Barriers to Digital Transformation

Digital transformation in the insurance industry faces multifaceted challenges, including technological hurdles, customer adoption concerns, and regulatory complexities. Technologically, integrating new systems often encounters compatibility issues with existing infrastructure, posing significant hurdles. Customers' varying levels of comfort with digital platforms and resistance to change also present adoption challenges. Additionally,

navigating stringent regulatory frameworks and ensuring compliance while innovating digitally adds layers of complexity, demanding a delicate balance between innovation and adherence to industry regulations.

Case Studies and Best Practices

Case studies and best practices within the insurance industry showcase successful digital transformation initiatives that have revolutionized customer experiences. These studies highlight instances where companies have effectively utilized digital tools, such as AI-driven customer service, innovative mobile apps for policy management, or data analytics for personalized offerings. Examining these cases provides invaluable insights into strategies that have significantly improved customer satisfaction, streamlined operations, and increased competitiveness in a rapidly evolving digital landscape.

Case Study 1 : Personalized Mobile App for Policy Management

Background:

A mid-sized insurance firm aimed to modernize its services and engage customers more effectively. They developed a mobile application providing policyholders with personalized dashboards and real-time updates on policies, claims, and recommendations.

Implementation and Results:

The mobile app allowed customers to access their policies, track claims, receive personalized recommendations based on their usage patterns, and easily connect with agents for support. Within six months of launch, the app achieved over 50,000 downloads, leading to a 20% increase in policy renewals and a notable 25% decrease in customer service inquiries.

Key Takeaways:

This case demonstrated the impact of a user-centric mobile app, enhancing engagement, customer satisfaction, and retention while simplifying policy management.

Case Study 2: AI-Powered Customer Service Enhancement

Background:

A leading insurance company sought to revamp its customer service experience. Facing challenges with long wait times and inconsistent support, they implemented an AI-driven chatbot system integrated into their online platform.

Implementation and Results:

The AI chatbot provided instant responses to customer queries, guided users through policy inquiries, and even handled basic claims submissions. Over time, the chatbot continuously learned from interactions, improving accuracy and efficiency. This initiative significantly reduced customer wait times, increased service accessibility, and improved customer satisfaction ratings by 30%.

Key Takeaways:

The successful integration of AI not only streamlined customer support but also showcased the potential of technology in enhancing customer experiences and operational efficiency.

Summary of the study -

This research paper examines the impact of digitalization on customer experience in the insurance industry. Through a literature review and empirical analysis, the study identifies the role of technology in enhancing customer experience and the challenges and opportunities presented by digitalization.

The findings of the study indicate that digitalization has significantly improved customer experience in the insurance industry by enabling insurers to offer more personalized solutions, provide real-time support, and deliver more efficient services. The study also identifies various challenges presented by digitalization, such as data privacy concerns, regulatory compliance, and cybersecurity risks.

Based on the research findings, the study provides recommendations for insurers seeking to improve customer experience through digitalization. These recommendations include the need to prioritize customer-centric solutions, invest in data analytics and machine learning, and ensure compliance with regulatory requirements and data privacy regulations.

Overall, the study highlights the importance of digitalization in improving customer experience in the insurance industry, while also emphasizing the need for insurers to carefully manage the challenges and opportunities presented by digitalization.

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Recommendations for the insurance industry to improve customer experience through digitalization.
Based on the findings of the research paper on the impact of digitalization on customer experience in the insurance industry, here are some recommendations for insurers to improve customer experience through digitalization:

Prioritize customer-centric solutions: Insurers should focus on developing solutions that prioritize customer needs and preferences. This can be achieved by leveraging data analytics and machine learning to personalize solutions, streamline processes, and offer real-time support.

Embrace digital channels: Insurers should adopt digital channels such as mobile apps, chatbots, and social media to provide customers with convenient and efficient services. This can also help insurers to reach a wider audience and enhance customer engagement.

Ensure compliance with regulatory requirements and data privacy regulations: Insurers must ensure that their digital solutions comply with regulatory requirements and data privacy regulations. This can help to build trust with customers and avoid legal and reputational risks.

Invest in cybersecurity measures: With the increasing use of digital channels, insurers must prioritize cybersecurity measures to protect customer data from cyber threats. This can include regular vulnerability assessments, staff training on cybersecurity, and implementing best practices for data protection.

Continuously monitor and improve customer experience: Insurers should regularly monitor customer feedback and data analytics to identify areas for improvement in customer experience. This can help insurers to continuously improve their digital solutions and stay ahead of the competition.

Collaborate with technology partners: Insurers can collaborate with technology partners to develop innovative solutions that enhance customer experience. This can help insurers to leverage the expertise of technology partners and offer customers more comprehensive solutions.

Overall, by adopting these recommendations, insurers can improve customer experience through digitalization and remain competitive in a rapidly changing landscape.

CONCLUSION

The insurance industry is undergoing a significant transformation with the adoption of digitalization. The rise of digital technologies has enabled insurers to improve customer experience by offering more personalized solutions, real-time support, and efficient services. However, digitalization also presents challenges such as data privacy concerns, regulatory compliance, and cybersecurity risks.

This research paper has explored the impact of digitalization on customer experience in the insurance industry. Through a literature review and empirical analysis, the study has identified the role of technology in enhancing customer experience and the challenges and opportunities presented by digitalization.

The study highlights the need for insurers to prioritize customer-centric solutions, invest in data analytics and machine learning, and ensure compliance with regulatory requirements and data privacy regulations. These recommendations can help insurers to improve customer experience through digitalization while effectively managing the challenges and opportunities presented by the adoption of digital technologies.

In conclusion, digitalization has the potential to significantly improve customer experience in the insurance industry, and insurers need to embrace it to remain competitive in a rapidly changing landscape. However, the adoption of digital technologies must be carefully managed to ensure that it is aligned with customer needs and regulatory requirements.

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PERSONAL, RELATIONAL AND SOCIETAL DIMENSION FOR WOMEN EMPOWERMENT: A STUDY CONDUCTED IN THE SUBURB AREA OF MUMBAI DISTRICT

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ABSTRACT
Women's empowerment is an important goal in achieving sustainable development worldwide. The paper will review different aspects of women's empowerment. Importantly, it is observed that time and culture are important factors influencing women's empowerment. Furthermore, it is suggested that cultures may differ in which components are considered indicators of empowerment and how women's position in society may influence the development of their empowerment. Women's Empowerment should guide future programs in designing, implementing, and evaluating their interventions. This paper inspires longitudinal and cross-cultural research to examine the development of women's empowerment on the personal, relational, and societal dimensions.

Keywords: *empowerment, agency, efficacy, gender relations, women, culture*

INTRODUCTION
Throughout history and across nations still today, men on average have greater access to power and authority. The gender power model (Pratto and Walker, 2004; Pratto et al., 2011) suggests that power is gendered. Specifically, men relative to women have greater access to the use of force, greater access to resource control, fewer social obligations to uphold, and more advantageous cultural ideologies. This gender inequality can be observed in several aspects of daily life such as access to education, job opportunities, and economic resources. More precisely, world leaders have agreed on working towards providing women and girls with equal access to various domains of social life. Diverse interventions have been developed and implemented to strengthen the position of women across the world in sectors such as health, education, and financial programs. The concept of empowerment has been developed as a framework and the process is aimed towards addressing the inequity.

Empowerment is a process, from being unpowered to being delegating with substantially more power. Theorizing of empowerment stresses two main perspectives on this process: one more individualistic, namely through women's capacities and free exercise of personal choice, and the other more collectivistic, via collective behavior and the adherence to cultural norms that emphasize communal growth. Microfinance interventions are based on the assumption that participation in the intervention has empowering effects and stimulates individual growth. However, these interventions are often implemented in more traditional collectivistic cultures. Thus, it is crucial to conduct culturally sensitive research to avoid cultural biases and understand empowerment outcomes in different cultural contexts.

Women's empowerment can be differentiated into three different dimensions, namely personal, relational (to relevant others such as spouse, family, and community), and societal (in the larger social context) empowerment. This empirical study is based on literature from different disciplines, mainly psychology, developmental economics, and sociology, in two steps. First, based on the reviewed literature we define women's empowerment. Second, review empirical findings.

REVIEW OF LITERATURE

Defining Women's Empowerment
In the field of development economics, women's empowerment is defined as the process through which women acquire the ability to make strategic life choices in a context where this ability was previously denied to them (Kabeer, 1999). Kabeer (1999) stresses that the ability to exercise individual choice is based on three interrelated elements – resources, agency, and achievements. Resources refer to material, human, and social expectations and allocations. Agency is the ability or sense of ability to define one's goals, act upon them, and decide on their strategic life outcomes. Achievements include a variety of outcomes ranging from improved well-being to achieving equal representation of women in politics. In other words, the underlying assumption is that women's empowerment is the process of having and using resources in an agentic manner to reach certain achievements. Similarly, psychological research suggests that empowerment is a process that enables people to act on and improve issues that are important for their individual lives, their communities, and their society (e.g., Bandura, 1986; Page and Czuba, 1999; Maton, 2008; Cattaneo and Chapman, 2010). These definitions stress the expansion of women's capacities and a free exercise of personal choice (see Budgeon, 2015; Kurtiş et

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al., 2016). However, previous research has highlighted that the act of choosing does not necessarily equate to progressive outcomes for women because women's individual choices are historically and structurally conditioned. In line with this perspective, a recent study (e.g., Dutt et al., 2016) focused on the conception of women's empowerment through collective rather than individual business ownership, thereby adhering to relevant cultural norms emphasizing collective rather than individual growth (Kurtiş et al., 2016). In the definition of women's empowerment, the collective is also considered. Stromquist (1995) described empowerment as a multifaceted concept including different components ranging from women's understanding of the causes of their suppression to acting collectively as a group towards social change. The work builds upon the assumption that participation in small groups with a collective agenda is the first step toward women's empowerment. Individual and collective agencies are thus crucial in the development of women's empowerment (Stromquist, 2015).

Importantly, the research so far has studied a variety of components of women's empowerment. Indeed, empirical research has investigated women's empowerment with measures such as agency, autonomy, capacity for action, self-determination, and self-confidence (e.g., Cheston and Kuhn, 2001; Malhotra et al., 2002; Narayan, 2005; Hansen, 2015). However, all definitions stress that women's empowerment is a multifaceted concept, which includes different components and assumes that empowerment is a process from being un-empowered to becoming empowered. Combining these views, it is proposed that empowerment is a multifaceted process, which involves individual as well as collective awareness, beliefs, and behavior embedded in the social structure of specific cultural contexts.

Personal Empowerment

There are different components of women's beliefs about their strength. Specifically, it has examined self-esteem (e.g., Stromquist, 1995; Basargekar, 2009; Kato and Kratzer, 2013), control beliefs (e.g., Morgan and Coombes, 2013; Hansen, 2015), self-confidence (Burra et al., 2005; Kim et al., 2007), and self-efficacy (e.g., Kato and Kratzer, 2013). Concerning these components as personal empowerment, they assess different psychological aspects of personal beliefs and actions. Further research in this field showed that women reported higher levels of self-esteem (e.g., Stromquist, 1995; Basargekar, 2009; Kato and Kratzer, 2013), stronger internal control beliefs (e.g., Morgan and Coombes, 2013; Hansen, 2015), and increased self-confidence (Burra et al., 2005; Kim et al., 2007) showed mostly positive impacts for personal empowerment concerning individual choice.

Relational Empowerment

Other research on women's empowerment has focused on women's position as a partner, family, or in social networks. These not only include women's relationships with their partners by assessing women's bargaining power within the household; and the extent to which they have a say over household spending (e.g., Holvoet, 2005; Pitt et al., 2006; Duvendack et al., 2014; Upadhyay et al., 2014; Banerjee et al., 2015; Datta, 2015; Garikipati et al., 2016a), their freedom of mobility to visit places such as grocery stores or relatives outside the village (Pitt et al., 2006; Bali Swain and Wallentin, 2009; Datta, 2015) but also (risk of) intimate partner violence (e.g., Goetz and Sen Gupta, 1996; Kabeer, 1999; Rahman, 1999; Ahmed, 2005; Naved and Persson, 2005.

Societal Empowerment

To the best of knowledge, women's empowerment in the societal dimension has so far been assessed with indices that map gender gaps in human development across nations such as the Gender Development Index, or specific components such as the percentage of parliamentary seats held by women. In the context of microfinance, macro-economic analyses provide insights for example the percentage of female microfinance borrowers (e.g., D'Espallier et al., 2010; Hermes et al., 2011), female clients with school going aged children in school (e.g., Women's World Banking, 2013), female leadership in microfinance institutes (e.g., Strøm et al., 2014), female staff promotion and attrition (Women's World Banking, 2013), average loan balance for female borrowers, and financial literacy services offered to women (e.g., Women's World Banking, 2013).

Research Gap

Despite the vast amount of research undertaken on women's empowerment, this research directly gets first-hand information from the women who struggle for empowerment on a routine basis in suburban areas like Mumbai. Furthermore, this research uniquely evaluates the perspective of women's empowerment from not one but three dimensions, providing a more comprehensive outlook on the core reasons that impact women's empowerment.

OBJECTIVES

1. To understand that empowerment is a multifaceted process.

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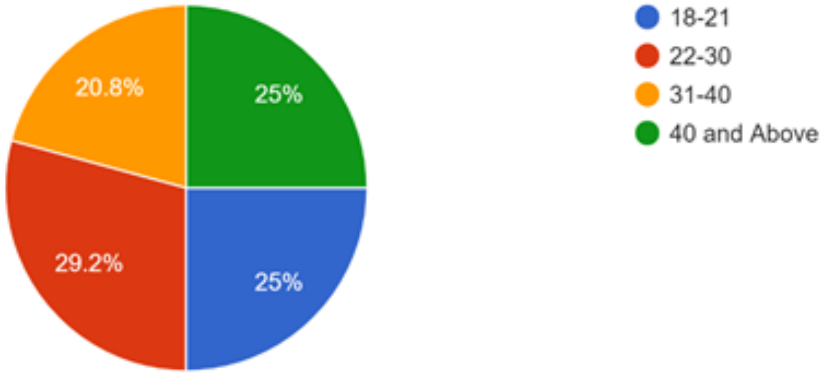
2. To understand that Personal, Relational, and Societal aspects play important roles in women's empowerment.

RESEARCH METHODOLOGY

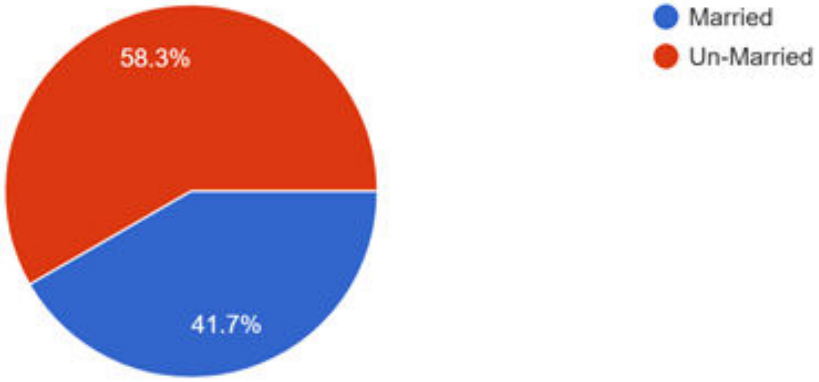
The research is based on a convenient and random sampling method. The primary data was collected via the survey using a questionnaire from respondents of various age groups. The secondary data was collected through a study of multiple previous research and websites. It must be noted that the research is limited in terms of the sample size and the location of the respondents.

DATA INTERPRETATION

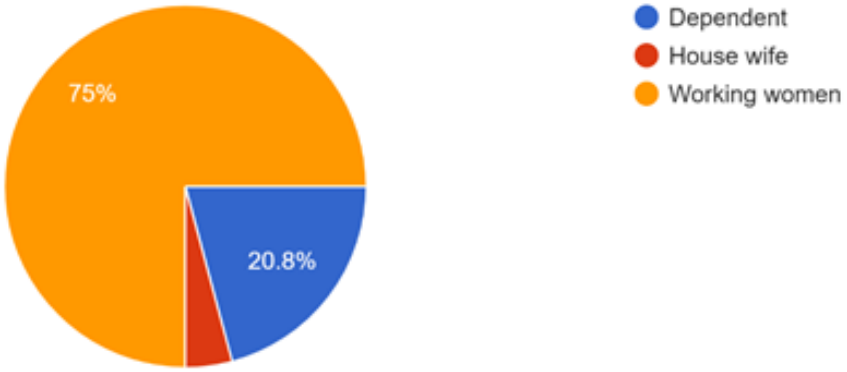
Q1 Age of the Respondents



Q2 Marital Status of the Respondents



Q3 Working Status of the Respondents



The initial three questions show the demographic profile of the respondents. The age of the population is more or less equally distributed, which is particularly beneficial for this research as the overall outlook of empowerment can be inspected for a variety of age groups. This also applies to the marital status of the respondents as it also has an equal spread and hence would give a balanced opinion depending on the respondents' marital status. However, the working status is skewed towards the working women majorly in comparison to home wives and dependents. This means that the data regarding the sentiments of empowerment come mostly from financially independent women.

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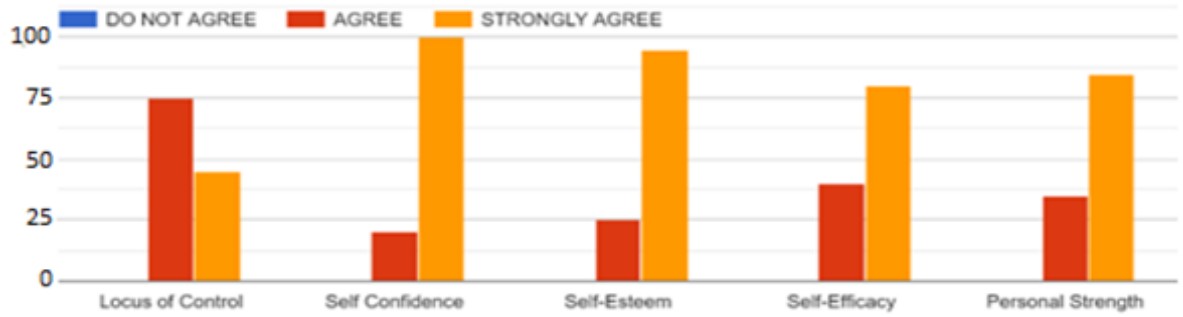
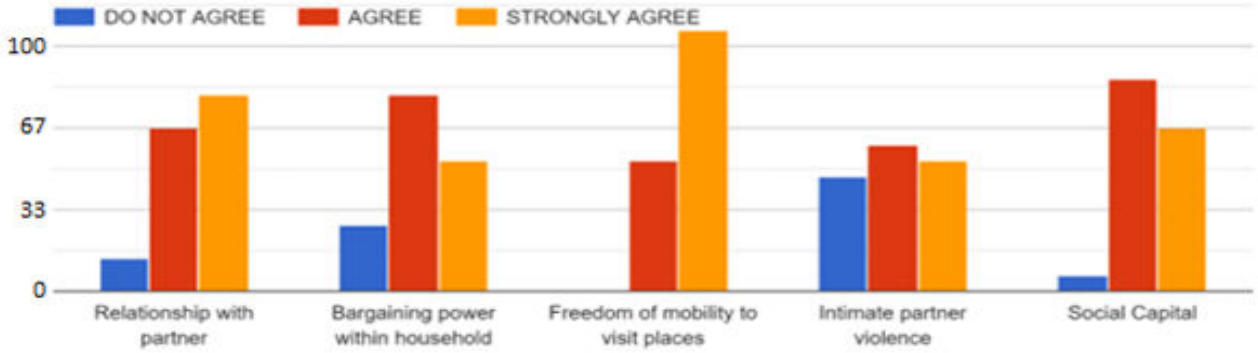
Q4 Opinion regarding factors play an important role in Personal Empowerment of Women



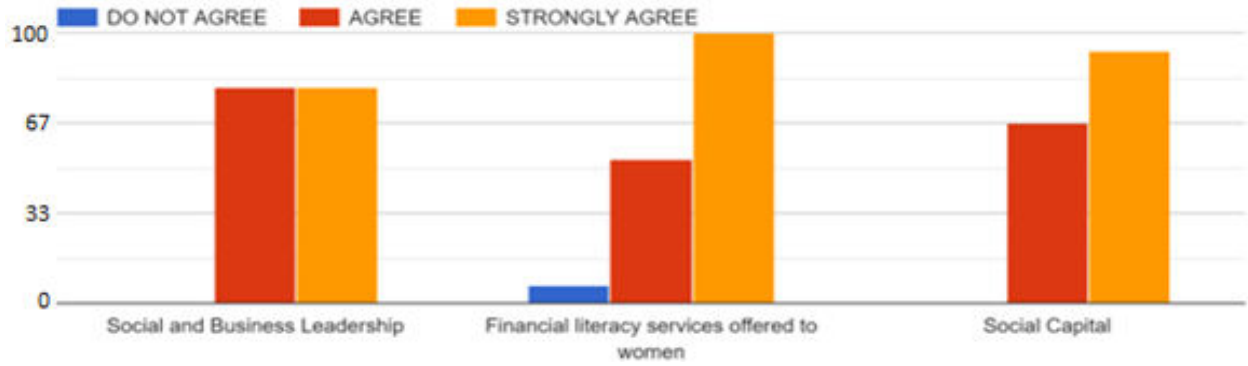
Most aspects of personal empowerment (self-confidence, self-esteem, self-efficacy, and personal strength) were unanimously voted as important for the empowerment of the respondents. Therefore, having belief, confidence, and power within oneself without people's validation is immensely vital for women. The only aspect that received a mixed response was the locus of control, and it seemed that the respondents did not think it was too essential to be in full control of their decisions and environment for their growth, and perhaps did not object to others occasionally making decisions for them.

Q5 Opinion regarding factors that play an important role in Relational Empowerment of Women



In comparison to the previous question, the factors of relational empowerment received more mixed reactions, except for the aspect of freedom of mobility to visit places, which seems to be of utmost importance. The factors of relationship with a partner, social capital, and bargaining power received diverse votes but mainly indicated agreement that they were imperative for the development of women's empowerment. The only response that was puzzling was about intimate partner violence. This factor got voting for all three options in approximately equal weightage, and therefore it appears that the respondents are taking the issue of violence more casually than it should ideally, which would hinder women's empowerment.

Q6 Opinion regarding factors that play an important role in Societal Empowerment of Women



The data regarding social capital factors (social capital and financial literacy for women) gains a high level of respondent agreement. This demonstrates that the right to financial independence and understanding, and the right to make social relationships, are greatly valued by the respondents for their empowerment. However, the social and business leadership was not strongly agreed as an important factor for social empowerment by half of the respondents. This indicates that leading a situation is not considered outright essential for empowerment, but perhaps being involved is certainly necessary.

Implications and Future Perspectives Towards a Better Understanding of Women's Empowerment: The Findings

In this paper, we aimed to increase our understanding of women's empowerment and how it should be studied in future research. We can derive four main conclusions based on our work: First, women's empowerment might best be conceptualized as a multifaceted process, which involves individual as well as collective awareness, beliefs, and behavior embedded in the social structure of specific cultural contexts. Second, based on the research reported above examining the impact of access to microfinance services on the development of women's empowerment, we concur with conclusions by previous research (e.g., Duvendack et al., 2014; Vaessen et al., 2014) that inconclusive results exist on the relation between microfinance and women's empowerment. Previous research has suggested that existing misconceptions over the potential gender effects of microfinance stem from a simplistic vision of the complex process that is empowerment (e.g., Garikipati et al., 2016b). This is in line with our third conclusion: the impact of access to microfinance services on the development of women's empowerment is hard to assess because it is difficult to properly compare results across studies. However, if we differentiate between the three dimensions of empowerment specified in the Three-Dimensional Model of Women's Empowerment such comparisons may be improved and more consistent patterns of findings may emerge. Fourth, two crucial moderators of women's empowerment, time and culture, should be considered to increase our understanding of women's empowerment and its development.

CONCLUSION

In conclusion, this multifaceted research disclosed multiple essential factors that impact women's empowerment. While some aspects did not get a completely decisive response, all of them received general agreement more or less. This shows women's empowerment is much more complex a terminology than what the general public assumes, and cannot be limited to achievement via a few distinct components. As seen, while a major part of the empowerment stems from the women individually and in their households, the society and collective women's community must step up to bring equality for women politically, financially, and in every other societal aspect. Whilst this triumph is distant, the minimum that can be done through such research is to identify the causes and devise a long-term strategy for an ameliorated future for the coming generations of women.

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Bateson, C. D.,(2006), 'Doing Business after the Fall: The Virtue of Moral Hypocrisy', Journal of Business Ethics, 66: 321 – 335

- **Multiple author journal article:**

Khan, M. R., Islam, A. F. M. M., & Das, D. (1886). A Factor Analytic Study on the Validity of a Union Commitment Scale. *Journal of Applied Psychology*, *12*(1), 129-136.

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- **Edited book having more than one editor:**

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- **Chapter in edited book having more than one editor:**

Young, M. E., & Wasserman, E. A. (2005). Theories of learning. In K. Lamberts, & R. L. Goldstone (Eds.), *Handbook of cognition* (pp. 161-182). Thousand Oaks, CA: Sage.

- **Electronic sources should include the URL of the website at which they may be found, as shown:**

Sillick, T. J., & Schutte, N. S. (2006). Emotional intelligence and self-esteem mediate between perceived early parental love and adult happiness. *E-Journal of Applied Psychology, 2*(2), 38-48. Retrieved from http://ojs.lib.swin.edu.au/index.php/ejap

- **Unpublished dissertation/ paper:**

Uddin, K. (2000). A Study of Corporate Governance in a Developing Country: A Case of Bangladesh (Unpublished Dissertation). Lingnan University, Hong Kong.

- **Article in newspaper:**

Yunus, M. (2005, March 23). Micro Credit and Poverty Alleviation in Bangladesh. *The Bangladesh Observer*, p. 9.

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Holloway, M. (2005, August 6). When extinct isn't. *Scientific American, 293*, 22-23.

- **Website of any institution:**

Central Bank of India (2005). *Income Recognition Norms Definition of NPA.* Retrieved August 10, 2005, from http://www.centralbankofindia.co.in/ home/index1.htm, viewed on

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